

The Technology Motif in Modern Art - general aspects

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Abstract: Science and technology are considered to be the main, if not sole cause influencing changes both social and cultural. This hypothesis is also known under the title of technological determinism and supports the idea that science and technology are autonomous entities, evolving on the basis of their own logical principles. With the invention and the roll-out of new technologies, they have an almost contagious effect on the social fabric. This suggests that, for the most part, history is modeled on the impact of new technologies. Moreover, technological determinism does not recognize the importance of the elements of social influence such as politics, economy and human element in shaping history. Technology brought us great palaces, towers and bridges - art enriched them and sometimes embroiled them in the fabric of eternity. Whether we accept technological determinism as a decisive factor or an interdependent connection between technological evolution and the socio-economical element, we cannot conceive art without technology. The dawn of the 21st century brought us an artistic avant-garde that resulted from an was inspired by technology.

Key-words: technology; Futurism; speed; industry; photography; film; movement; sculpture; painting; avant-garde

1. Introduction

Science and technology are considered to be the main, if not the only, causes of influence over changes of social and cultural nature. This hypothesis is also known as *technological determinism*² and promotes the idea that science and technology are autonomous entities that evolve on the basis of their own logical principles. While inventing and large scale launching of new technologies we observe an almost contagious effect on the social element – what we now refer to as “the viral”³. This fact suggests that in most part history is shaped by the level of impact imposed by the newly introduced technologies. Moreover, *technological determinism* does not recognize the importance of social influential elements as political or economic nor the human element in shaping history. In the last 150 years the audio-visual media (photography, film, radio, television and multimedia) took over human perception that belonged to the classical arts and its different broad genres – painting, music and theatre.

Photography emerged in the first half of the 19th century and underwent a rapid expansion in the second half of the century thanks to new discoveries in chemistry and printing. Film quickly rises to the rank of world-wide industry as early as the beginning of the 20th century not unlike the radio that had an explosive evolution since the early 1920s.

Starting with the 1960s, television becomes what would be later referred to as mass media, and only with the emergence of the internet in the 90s and adjacent multimedia platforms one could argue that a true competition exists between the two mediums.

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² *technological determinism*, the term is attributed to the Norwegian-American economist and sociologist Thorstein Veblen (1857-1929)

³ Viral- the virulent nature of relevant information spreading among users of the new technologies like internet and its various platforms of distribution.

2. Some early 20th century examples of artists and movements influenced by technology

Shortly after *The Great Exhibition of the Works of Industry of all Nations* from London in 1851, great powers of Europe started to hold grandiose symposiums and exhibits as means of proudly presenting to the world their latest scientifically and technological discoveries.

The 1889 world's fair – *Exposition Universelle* held in Paris to commemorate 100 years since the French Revolution, had the most emblematic with an immense propagandistic impact, yet to be overshadowed, designed not by an architect but an engineer – the Eiffel Tower⁴. The tower (fig.1), raised in the center of Paris, represented the supreme homage to the cult of dynamism, a modern colossus, a symbol of technological progress, created by and serving the modern man.

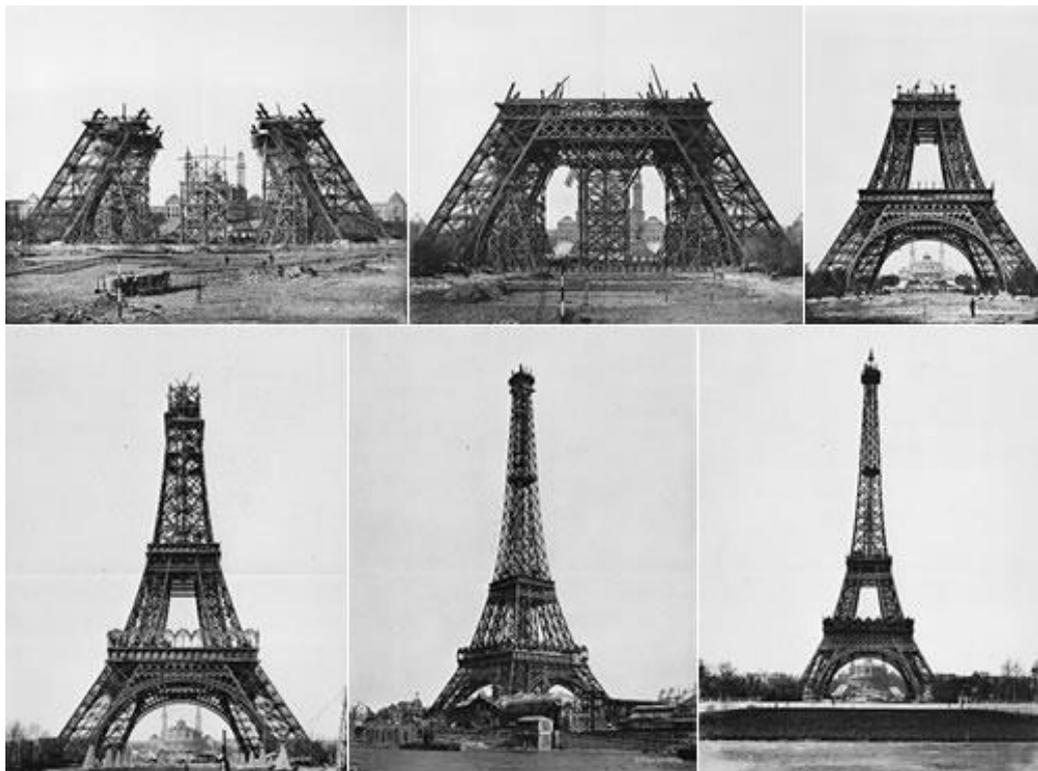


Fig.1. *The Eiffel Tower, built by the engineer Gustave Eiffel;*
source: <https://www.toureffel.paris/en> accessed in March 2019

“By the beginning of the twentieth century the revolt against all forms of naturalism was in full swing and the decade before the First World War was to be one of the most daring and adventurous in the whole history of Western art. Fundamentally new ideas and methods were put forward – in painting, sculpture and architecture, in literature and music and in philosophy and science as well – and the radical innovations of these years underlie all later developments, even today. [...]

The search for new ways of looking at the world, combined with the urge to break down all accepted conventions and preconceptions, is characteristic generally of the period around the turn of the century.” - Fleming, John. 2009. *A World History of Art, Revised 7th ed.*⁵

⁴ The Eiffel Tower, built between 1887 and 1889 by the engineer Gustave Eiffel for the World's Fair of 1889, Paris, France.

⁵ Fleming, John. 2009. *A World History of Art, Revised 7th ed.* Laurence King Publishing. p. 768.

The cubist painter Fernand Leger⁶ endeavors in taking on a style addressed to the masses - a sort of art of the technological era with and about the modern man. All of this resulting from the memories Leger held about the First World War, where he served in the logistical core of the French Army. There, he recounts, surrounded by comrades - miners, steel workers or carpenters - he understood what it means to be truly French. Also then he found himself mesmerized by “*the magic of light on metal*” - the image of a 75mm caliber canon left uncovered in sunlight. Such example can be seen in the painting “*La partie des cartes*”⁷ from 1917 (fig.2).



Fig.2. *Fernand Leger, “Soldiers playing cards” 1917, source: <https://krollermuller.nl> accessed in March 2019*

Fernand Leger renders the human body in structures that remind of the interchangeable parts of a machine, the very elements that once shone in the sun. For Leger, society as a machine meant a vision of perfect harmony. It is imperative to underline Leger’s contribution to cubism as it is also presented in, Robert T Buck’s *Fernand Léger*⁸.

The Italian artist Filippo Tommaso Marinetti⁹, self-entitled “*the most modern man in the country*”, inventor of Futurism¹⁰, a propagandistic genius, makes use of all available methods to self-promote and the Futurist movement as well – posters, flyers, meetings he even invented the happening as an ad-hoc montage of poetry, statements, music and painting – all on the same stage. This propagandistic spectacle went all over Europe even Russia.

⁶ Joseph Fernand Henri Léger (1881 - 1955) French painter, sculptor, and filmmaker. His work is attributed to both Futurism and Cubism

⁷ “Soldiers playing cards” - painting, oil on canvas, 129x123cm, Kröller-Müller Museum Colection, Otterlo The Netherlands.

⁸ Buck, Robert T. et al. 1982. *Fernand Léger*.

⁹ FilippoTommaso Emilio Marinetti (1876-1944) - Italian poet, editor, art theorist, and founder of the Futurist movement

¹⁰ Futurism, artistic and social movement sprung in early 20th century Italy, its inventor was Filippo Tommaso Marinetti.

It seems that for Marinetti and his group, the preexisting concepts about art and artists became irrelevant. – the machine meant power and liberty to detach oneself from the artistic and historic constraints of the past. All of it resulting in the Futurist Manifesto of 1909¹¹:

- 1 - We intend to sing the love of danger, the habit of energy and fearlessness.
- 2 - Courage, audacity, and revolt will be essential elements of our poetry.
- 3 - Up to now literature has exalted a pensive immobility, ecstasy, and sleep. We intend to exalt aggressive action, a feverish insomnia, the racer's stride, the mortal leap, the punch and the slap.
- 4 - We affirm that the world's magnificence has been enriched by a new beauty: the beauty of speed. A racing car whose hood is adorned with great pipes, like serpents of explosive breath—a roaring car that seems to ride on grapeshot is more beautiful than the Victory of Samothrace.
- 5 - We want to hymn the man at the wheel, who hurls the lance of his spirit across the Earth, along the circle of its orbit. [...] – *Manifesto of Futurism*, fragment.

“On 22 March 1919, at the Galleria Centrale d'Arte at the Palazzo Cova in the centre of Milan, Marinetti opened the *Grande Esposizione Nazionale Futurista*, the first collective Futurist exhibition to be held in Italy since the outbreak of war.” - Daly, Selena. 2016. *Italian Futurism and the First World War*.¹²

In their art, the futurists aimed to create an equivalent for movement and speed that they idolatrized in their automobiles. The main interest was the rendering on canvas of speed and movement. (fig.3)



Fig.3. Giacomo Balla, “Espansione dinamica + Velocità”¹³, 1913
Source: <http://lagallerianazionale.com> accessed in March 2019

¹¹ Umbro Apollonio 2001. *Futurist Manifestos*.

¹² Daly, Selena. 2016. *Italian Futurism and the First World War*. p. 146.

¹³ Giacomo Balla. Dynamic expansion + Speed, 1913. GNAM National Gallery of Modern Art, Rome, Italy.

The futurist continued to issue manifestos and dramatic letters addressed to motor companies and other branches of the modern industry in which they praised the beauty of their products. The majority of the futurist elite, gathered around Marinetti before the First World War, died during the conflagration. Ironic is the fact that some of the most important artists of the movement died in the war that they said to be “the hygenisation of society” or “the sole hygiene of the world” as various translations are known from the original French in which it was written by Marinetti.

Meanwhile, Giacomo Balla¹⁴ created a great number of works that were as expected technologically themed but most notable about those paintings was the theme of light, movement and speed. In rendering movement on canvas, the artist employs photography, especially the sequential photography of the French photographer Etienne Jules Marey¹⁵ (Fig.4).

Through the process of movement deconstruction into sequential images, we observe the introduction of time, as a rendered element on canvas alongside, space.

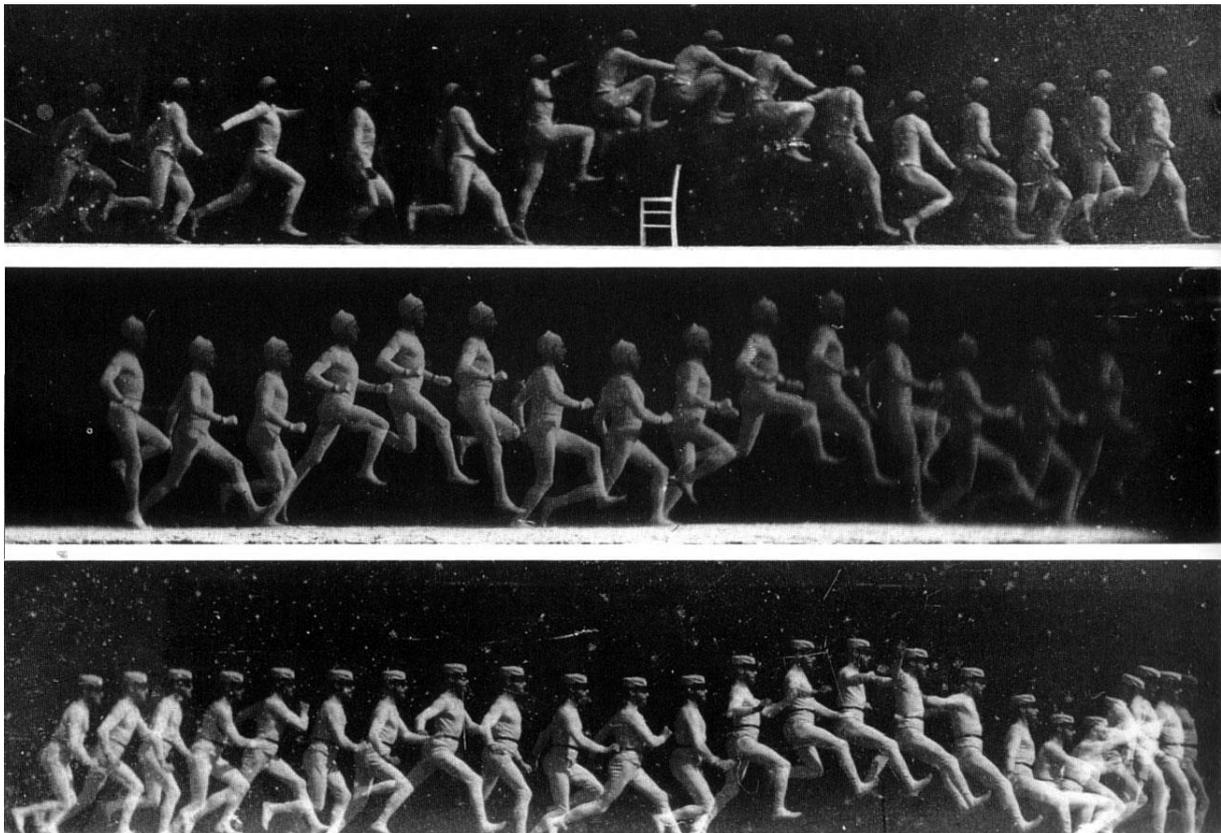


Fig.4. Etienne Jules Marey, *Bodies against time*, ca.1913, photography, silver.
Source: <https://www.graphicine.com/bodies-against-time-etienne-jules-marey/>
accessed in March 2019

¹⁴ Giacomo Balla (1871-1958), Italian painter, poet and art teacher, celebrated member of the Futurism movement.

¹⁵ Étienne-Jules Marey (1830-1904) - French scientist, physiologist and chronophotographer, His work was significant in the development of cardiology, physical instrumentation, aviation, pioneer of photography and cinema.

Four hundred years before, Leonardo daVinci¹⁶ used to buy birds then set them free in the piazzas of Florence, to study their flight and movement through the air, even for a few seconds. Now Marey's photographs rendered in detail this never before seen world of movement. Thanks to the newest of technology in the field of photography, the work of Marey, as presented by Marta Braun¹⁷, changed the perception of the world and inspired entire generations of artists and movements.

Some of Balla's works seem to be facsimiles of the photographs used as model. Such example can be seen in the joining image titled "*Rondoni: linee andamentali + successioni dinamiche*"¹⁸, 1913. (fig.5)



Fig.5. Giacomo Balla, *Swifts: Paths of Movement + Dynamic Sequences*, 1913, oil on canvas 96.8 x 120 cm, MoMA collection, New York, United States.

Source: <https://www.moma.org/collection/works/79347> accessed in March 2019

As we have seen in Giacomo Balla's work, the introduction of time as an inherent element of movement and speed rendered on the two-dimensional surface of the canvas brought on a new level of artistic expression. Now we can witness the embodiment of time, space and form in the sculptures of Umberto Boccioni¹⁹.

¹⁶ Leonardo di ser Piero da Vinci (15 April 1452 - 2 May 1519), was an Italian polymath of the Italian Renaissance whose areas of interest included invention, drawing, painting, sculpting, architecture, science, music, mathematics, engineering, literature, anatomy, geology, astronomy, botany, writing, history, and cartography.

¹⁷ Braun, Marta. 1994. *Picturing Time: The Work of Etienne-Jules Marey*. pp. 31-34.

¹⁸ Giacomo Balla, *Swifts: Paths of Movement + Dynamic Sequences*, 1913, oil on canvas 96.8 x 120 cm, MoMA collection, New York, United States.

¹⁹ Umberto Boccioni, (1882 - 1916) "was an influential Italian painter and sculptor. He helped shape the revolutionary aesthetic of the Futurism movement as one of its principal figures. Despite his short life, his approach to the dynamism of form and the deconstruction of solid mass guided artists long after his death"- source: <https://www.moma.org/artists/624>

In his “*Forme uniche della continuità nello spazio*²⁰”(fig.6) Boccioni introduces the concept of *motion as form*. The sculpture, originally cast in plaster, barely survived after Balla’s death. Most of his works, including a number of plaster casts of “*Unique Forms of Continuity in Space*” were destroyed.

The sculpture embodies movement, speed and dynamism – a slight movement around the sculpture projects a new dynamic composition in space. *Unique Forms of Continuity in Space* truly delivers the title’s premise, one might elements characteristic to Cubism, only here we not only observe one element from different angles at the same time, we also witness movement and time through the same premise.



Fig.6. Umberto Boccioni, *Unique Forms of Continuity in Space*, 1913 (cast 1931), sculpture, bronze, 111.2 x 88.5 x 40 cm, Museum of Modern Art, New York collection.

Source: <https://www.apollo-magazine.com> accessed in March 2019

“The concept of dynamism, as expressed by Boccioni, was different from that of the other Futurists, notably from that of his onetime teacher Balla. While Balla was representing successive instants of action in space and time, playing on the rhythms set up by moving objects, Boccioni sought a synthetic form, a single image which could express the fusion of the object and its surrounding environment. He came to think that dynamism could make simultaneously perceptible, and, through a strong process of abstraction, could represent the sensation of speed, not merely the evolution of states of motion.” - Coen, Ester. 1989. *Umberto Boccioni*.²¹

Even though we see all futurists as a singular homogenous movement, through the similarities of subjects, there were differences of opinions and on how to depict one of the most common and defining elements - movement. For example, Boccioni considered that movement should be represented in singular element or shape rather than through repetition as we have seen thus far.

Not all artists saw technology as futurists did. For example Francis Picabia²² had a more detached almost ironic vision about technology which he considered to be a reflection of

²⁰ Umberto Boccioni, *Unique Forms of Continuity in Space*, 1913 (cast 1931), sculpture, bronze, 111.2 x 88.5 x 40 cm, Museum of Modern Art, New York collection.

²¹ Coen, Ester. 1989. *Umberto Boccioni*. New York: The Metropolitan Museum of Art. p. 3.

²² Francisco Maria Martinez Picabia della Torre (1879-1953), French avant-garde painter, poet and typographer.

humanity. Picabia dwelled in most of the emerging avant-garde movements of the early 20th century. He was influenced and left his mark on artistic movements such as Cubism, Surrealism, Impressionism and Pointillism – notable in the picture at hand is an obvious Dadaist approach of the subject, in both rejection of dogma and technique.

” He saw the Cubist obsession with *passage*, as it was called in French, borrowed and elaborated from Paul Cézanne’s²³ paintings in which each object exerts an effect on everything that surrounds it, each brushstroke forms a continuum that annihilates separate viewers, spaces, things – he saw this passage become finally the sole basis of a painting.” - Baker, George. *The Artwork Caught by the Tail: Francis Picabia and Dada in Paris*²⁴

Fig.7. Francis Picabia, ”Girl born without a mother”, painting, 50.00 x 65.00 cm Gouache and metallic paint on printed paper, Scottish National Gallery Of Modern Art, Scotland, UK.



Source: <https://www.nationalgalleries.org> accessed in March 2019

In his works Picabia ironizes both sex and religion as it manifests from the title of his work “Fille Née Sans Mère²⁵”(fig.7) a parodic approach to the Immaculate Conception.

²³ Paul Cézanne, (born January 19, 1839, Aix-en-Provence, France—died October 22, 1906, Aix-en-Provence), French painter, one of the greatest of the Post-Impressionists, whose works and ideas were influential in the aesthetic development of many 20th-century artists and art movements, especially Cubism.

²⁴ Baker, George. 2007. *The Artwork Caught by the Tail: Francis Picabia and Dada in Paris*, p. 3.

²⁵ “Fille Née Sans Mère” - Girl born without a mother, painting, 50.00 x 65.00 cm Gouache and metallic paint on printed paper, Scottish National Gallery Of Modern Art, Scotland, UK.

The Russian architect and painter Vladimir Tatlin²⁶ wished “to combine materials like iron and glass, the materials of modern Classicism, comparable in their severity with the marble of antiquity”²⁷.

In 1919, two years after the Bolshevik Revolution, People’s Commissariat for Education asks Tatlin to realize a monument honoring the 3rd Communist International.

The monument, known as Tatlin’s Tower²⁸ (fig.8), would have had 400m in height 100m more than the Eiffel Tower. However, differing from Eiffel Tower, Tatlin’s would have been a kinetic one. The interior of the tower would have encompassed the building of three institutions. The base belonged to the legislative Assembly and would have performed a complete revolution on its axis over a year; above, a pyramid would house the headquarters of the executive which would have completed a full revolution in 30 days; and finally on top a chamber that would completely rotate inside of a day. – All of this enclosed in an enormous metal spiral, evolving on diagonal as a symbol of dynamism.



Fig.8. Tatlin’s Tower, official title: *Monument to the Third International*, 1919. Photograph of Tatlin and a model of his *Monument to the Third International*, Moscow, 1920. Source: <http://architectuul.com> accessed in March 2019

²⁶ Vladimir Yevgraphovich Tatlin (1885-1953) Russian painter and architect, he was one of the two most important figures in the Soviet avant-garde art movement of the 1920s, and he later became an important artist in the Constructivist movement.

²⁷ Hughes, Robert. 2013. *The Shock of the New*. Knopf. p. 49.

²⁸ Tatlin’s Tower, official title: *Monument to the Third International* (1919-20) was to be erected in St. Petersburg but was never built. Grandiose monument designed by the artist and architect Vladimir Tatlin.

The tower never went past the project stage, at the time there wasn't enough metal available in all of Russia. Tatlin's Tower remains in history as the greatest hypothesis of Modernism.

As we have observed technology, backend by the socio-economic environment, influenced the artistic field resulting in emerging artistic movements. Not only technology had a crucial effect in the birth of futurism and constructivism, to name a few, but also influenced well established painters of the romantic and impressionistic eras. One notable example is the German impressionist painter Eugen Bracht²⁹. Bracht was known as a late Romanticist landscape painter and later as an exquisite Impressionist for his northern German coastal scenery, and later for his Syrian, Palestinian and Egyptian landscapes. In the beginning of the 20th century the European landscape began to change, the spreading of industry transformed the rural areas sought after by landscape artists. Nevertheless, Bracht remained true to his art, he began to paint the transforming landscape with an impressionistic eye (fig.9).



Fig.9. *Eugen Bracht, Iron and steel factory Hoesch, Germany 1907, oil on canvas, 137x136 cm Hoesch-Museum.*

source: https://www.lokalkompass.de/dortmund-ost/c-kultur/hoesch-museum-exponat-des-monats-februar-2014_a395782#gallery=default&pid=5138838 accessed in March 2019

²⁹ Eugen Felix Prosper Bracht (1842-1921) German landscape painter, late Romanticist, Symbolist and Impressionist.

3. Conclusion

In conclusion we can assert the technology was, is and surely will be a decisive factor in determining the direction of fine arts. The human drive for greatness brought together art and architecture since the beginning of the first human settlements to the greatest of empires. Technology brought us great palaces, towers and bridges - art enriched them and sometimes embroiled them in the fabric of eternity.

Whether we accept technological determinism as a decisive factor or an interdependent connection between technological evolution and the socio-economical element, we cannot conceive art without technology.

As noted above technology influenced arts in more than a few aspects - whether we are speaking of technology as a tool as is in photography or as a motif as in the early 20th century, or maybe as an indispensable element as it would be perceived a century later. Whether an artist uses materials or tools considered analogue or classical or even vintage, at one point in our history those were the tip of the technological spear. And as a natural phenomenon there will always be those who will endeavour to use and also adapt the latest technology to their needs and means of artistic expression. Technology as a subject and also as means of expression knows in these days, perhaps the same centre stage place as it also had at the dawn of the 20th century.

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