Gerd-Helge Vogel: Mobility : The Fourth Dimension in the Fine Arts and Architecture

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Mobility is a basic behavioural pattern of human beings that has been accelerating in the course of its social development. This process has left behind traces in both architecture and the Fine Arts. Especially since the beginnings of the Industrial Revolution, mobility has caused a fundamental change in human relationships which is still continuing today. This also becomes visible when we look at the aesthetic and spiritual impact on architecture and the Fine Arts. It is my intention to present significant examples in order to give you an idea of the different stages of its development today.

1) The artistic expression of human mobility in pre-industrial society

Pre-industrial societies are marked through relatively slow dynamics in mobility because they were based on restricted technical devices in locomotion which in turn had to rely solely on physical manpower, domesticated animals or natural resources such as air currents for sailing. The gathering and hunting for food, military expeditions, errands, transports, commercial journeys and other necessary changes of location could only be managed under the conditions of restricted or unpredictable power resources by man, animal and wind. However, even this underdeveloped form of mobility was not available to everyone, and it only enabled slow-motion progress. Despite the fact that a nomadic lifestyle had been common in many pre-industrial societies since the Stone Ages, there was nevertheless a somewhat static viewpoint on the major life processes, due to the relatively slow locomotion from place to place: Gods (fig. 1), rulers (fig. 2), manifestations of Nature, such as men (fig. 3), animals (fig. 4), plants (fig. 5), and later, also landscapes (fig. 6) had to be perceived as “fixed” quantities which were shaped after an ideal and expressed in either two dimensions, in painting and drawing, or in three dimensions, in sculpture and architecture; but the idea of time, which includes motion or mobility, was not yet relevant in artistic expressions, and if so, then only in the shape of abstract symbols. Such symbols could generate associations of locomotion and mobility in the mind of the observer. On the one hand, this was related architecturally to the idea of a mobile home which we find in the depictions of tents (fig. 7), yurts, wigwams, tipis, igloos, cabins, buildings on stilts and other ephemeral homesteads: easy to construct and dismantle as transportable accommodation[1]. On the other hand, locomotion was symbolized through allegorical figures expressing mobility - the changing of location and time, the fourth dimension in the arts. We can detect such symbolic expressions of mobility in Giovanni da Bologna’s “Mercury” (fig. 8) - the symbol for trade and traffic - , or in depictions of horse[2] and coach (fig. 9) which had been the most important means of transport and travelling before the discovery of the steam railway.

2) The artistic reflection of mobility in the age of the railway

The breakthrough of the Industrial Revolution was connected with the discovery of the first useable steam machine by James Watt in 1772, the development of the locomotive, “the steam machine moving from one place to the next” as a power machine on a railway track followed, carrying travellers and freight and thereby completely transforming and accelerating previous traffic system

s. English engineers Richard Trevithick in 1803/04[3] and George Stevenson in 1814/29[4] (fig. 10) [5] developed the necessary prerequisites for a global railway system and their discoveries provided new possibilities for human mobility, most importantly, a reduction of space and time. In 1843, German poet Heinrich Heine wrote about the trauma the people were suffering due to the rapid expansion of the railway network after the opening of the first German railway line from Nuremberg to Furth in 1835 (fig. 11) and the first German main-line service from Leipzig to Dresden in 1837/39[6]: "What changes are happening now, are being imposed on our perceptions and our imaginations! Even the elementary concepts of Time and Space are swaying. The railway killed Space, and now only Time remains" [7].

The phenomenon of accelerated mobility was afterwards reflected in the architecture of the railway stations; "castles and cathedrals of travel" [8]. The new-found speed and mobility of the railway age was expressed in a new architectural style that aimed at conveying pathos and awe. Transport and traffic in themselves were awarded new formulas of dignity in an attempt to to sacralize the track system of an accelerated changing of places. We can see this, for instance, in the Bavarian station opened at Leipzig in 1844 (fig. 12)[9]. This building assumes the form of a triumphal arc from ancient times under which the trains of the Saxo-Bavarian governmental railway set out on their world-conquering forays. Although the dynamics of the process of traffic are expressed through the symbol of the gate, emphasizing the mobility, the departure and arrival from this place, the building in its shape of a castle with two towers on each side looks rather static. Only the small clock tower on the roof provides a hint of time and transience, and the acceleration with regard to the timetable of the trains, while the waving flags generate the idea of the triumph of the railway system which is revolutionizing the mobility of mankind (fig. 13). Soon both the growing competition between the railway societies and the desire of the upper class for more luxury[10] began to be manifested through a love of things big in the constructions of stations. For this reason the process of traffic, the striving for a better and faster mobility could be interpreted as a mystification of the special service of mobility provided by the railway. George Gilbert Scott's St. Pancras station (fig. 14) was built from 1868 to 1873 for the Midland Railway in London and it also incorporated a hotel and an office in the shape of a neo-gothic church or castle. Because of this shift, the visual expression of its original function was lost, and it no longer displayed the newly gained mobility for its users. In this case, representation took precedence in order to elevate the banality of travelling to a pseudo-sacral state of nobility, so as to provide the upper class-clients with the necessary guarantee that the revolution of the transport system would not endanger the essentials of the social order. Instead, technical progress would only contribute towards making life easier without any fundamental changes in society. For this reason the symbol of mobility appears only in the interior of the station's hall, (fig. 15) where arriving and departing trains showcase the dynamics of the Victorian age's accelerated mobility through the backwards and forwards movements of the trains, with the effect of pistons in a case. In the early days of railway station construction, the experience of dynamics in traffic was never displayed by means of the symbolic shape of "architecture parlante" but with the help of sculptures and wall paintings with their allegorical content firmly based on ancient mythology. In this way Mercury, the god of trade and travelling, is depicted as representing speed with his winged ankles and helmet at many station buildings. For instance, as late as 1911/13 - at the zenith of the age of railways - Mercury attracts the travellers' attention in the shape of a figure placed on top of Grand Central Station in New York (fig. 16) as an explicit hint at the blessings and the goodness that the railway system has brought to the people due to the acceleration of mobility in traffic that has occasioned prosperity in agriculture, economy and culture. But not only Mercury himself represents this idea; his figure was also mingled with others, such as the embodiments of agriculture and arts. Even the clock, symbol for Chronos, the god of time, was subsumed under this intention of symbolising abstract ideas from the area of traffic and mobility. Soon after the Olympic herald, protector of paths and patron of the new means of transport, delivered up the symbol of the winged wheel (fig. 17) - the general abbreviation for the railway that promises profit and speed[11]. Innovative allegories were discovered for

the energy of steam, those elementary forces that caused the accelerated mobility in the age of railway by teaming up within a locomotive. Thus the heroism of the new epoch received a mystical explanation. For instance, Adolf Echtler's (1843-1914) wall painting "Steam Power" (fig. 18) in the departure hall of the governmental station in Munich depicts the ambivalence of modern mobility: here the winged hero who blows up his chains destroys the symbols of ancient times, the customs barriers which imposed restraints to free transport and passage, but he also poses a similar threat to the snail attempting to creep away. Meanwhile, the hero of steam power, his sceptre adorned with a winged wheel tries to tame the hero of steam, the embodiment of the locomotive, in order to harness his destructivity and develop his useful powers. This gainfulness is what the putti with the axe and the horn of plenty are referring to.

The sculpture at the top of the main station in Frankfurt (fig. 19) also signals the departure of the railway in a new eon as an allegory: Atlas who carries the weight of the globe is supported by the geniuses of steam and electricity. This sculpture together with others was created by Gustav Herold (b.1839) in 1885 in order to decorate the façade with an allegorical programme[12] regarding the development of the modern industrial society. However, it was restricted to a symbolism which was not really capable of characterising the powers of mobility of the modern era.

This was far better expressed in two paintings: one by William Turner (1755-1851) and the other by Adolph Menzel (1815-1905). Turner's painting "Rain, Steam and Speed" (fig. 20) from 1844 shows, for instance, the rapid triumph over space by means of the railway which is moving independently from wind and weather. The mobility of the new age is depicted by a new painting technique- the artist employs a pre-impressionist blurring to show the motive in an atmospheric dissolving of light and colour. In this way, he actually provides the impression of the dynamics of a swiftly progressing train. Adolph Menzel's painting "Berlin - Potsdam Railway" (fig. 21) also portrays the speed of the train that is covered in drifts of smoke, embedded in an atmosphere of spring. His painting announces the dawn of a new age where society and nature are forced to develop along completely new paths. Now new roadways are mercilessly cutting into the idyllic nature of a landscape and the smoky haze of the growing city in the distance already testifies to the urbanity and its increasing greed for territory which are so typical of industrial society. This process coincided with terrific changes in human society due to the fact that along with the acceleration of mobility, the utopia of equality among the social classes within the bourgeois society did not come true. On the contrary, the existent differences between the classes became increasingly evident. This could even be seen in everyday life within a single train where passengers of the first and third classes clashed. The depiction of this social problem can be easily be found when we compare some paintings that refer to different wagon classes. Honoré Daumier's (1808-1879) "Wagon of the 3rd class" (fig. 22) obviously corresponds to Charles Rossitter's (1827-1897) "There and back to Brighton for 3 Shillings and 6 Pence" (fig. 23) and Vladimir Alexandrovich Poyarkov's "Interior of a Russian 1st-class Dining Car" (Fig. 24).

In their portrayal of social antagonisms on a train the artists subtly differentiate between the various facets of the impacts of social life within the modern industrial society during the age of the railway. For this reason we find in their artistic stances both approval and criticism. Additionally, the difference between the slowness in the age of mail coach and the speed in the age of railway became a frequent artistic subject: at times, the technical progress in connection with social changes was welcomed, as we can see in works (fig. 25)[13] of Paul Meyerheim (1842-1915) or the loss of cosiness and equanimity from the good old times of Biedermeier was lamented in the works of Pius Ferdinand Messerschmidt (1858-1915). In Messerschmidt's works, the mail coach became the symbol of a nostalgic yearning, and an idyllic ideal of the slow speed in the mobility of pre-industrial times (fig. 26)[14].

3) The artistic reflection of mobility in modern times

Albert Einstein's (1879-1955) development of the special (1905) and the general theory of relativity (1915) brought about the crisis of the idea of space due to the fact that now space and time became a unity, so that space now no longer inhabited an objective dimension. In the light of this, architecture - the art of space - was in a critical condition because its former absolute parameters, such as statics and aesthetics appeared to be fundamentally questioned. Instead, speed and light became the replacements for Newton's system of time and space[15], and modern architects became attracted by those ideas. For this reason, the depiction of the moment of speed and mobility became one of the favourite motifs for avant-garde architects in order to be able to reflect on mobility emphasizing the relativity of their structure's location. Expressionist architects, such as Bruno Taut (1880-1938), Erich Mendelsohn (1887-1953), Fritz Höger (1877-1949), Otto Bartning (1883-1959) and many others created impressive illustrations of these reflections. For instance, Taut's designs attempted to liberate his buildings from the traditional idea of representation from the era of emperor Wilhelm II. Instead, the architect created the crystal house, the glass industry's exhibition pavilion at the Werkbund-exhibition of 1914 at Cologne (fig. 27). The principal theme as well as the element responsible for the setting-of-scene was light. Taut's building was a major contribution to light-kinetic experiments and his pavilion became a template for later buildings[16]. In this case the light was used as an essential element for the visual construction of a wall in the shape of a crystal: this element of design reached its emotional peak in Albert Speer's temporary installation "Light-domes" (fig. 28). Here, even time and space were visually melded with the help of light-kinetic principles.

Erich Mendelssohn's astrophysical observatory - the Einstein-tower in Potsdam (fig. 29)[17] - with its metaphorical form also served to show the aspects of the theory of relativity in an experimental way. For this reason he tried to visualize that "mass is only a kind of concentrated energy"[18], thus developing the neo-technical style. Its "functional dynamic" was influenced by his knowledge of machines and superior technology, and Mendelssohn used this kinetic principle as a model of mobility in its transformation into architecture. In this way, he could display kinetic energy or "the violence of speed" within the building itself. Through the formal adaptation of the submarine shape - a very special means of transport - he aimed at "the building's mobility", and by means of its aerodynamic, streamlined shape, he aimed at an experiential moment of mobility [19]. We find similar ambitions visualized in Höger's Chile-House in Hamburg (fig. 30)[20]. The sharply defined east contour of this building evokes the image of the bow of a ship. This is a symbolic reference to the architectural function as an office for shipping companies in the seaport Hamburg where the ocean liner-building anchors. Meanwhile, new means of transport were becoming prevalent and thus mobility was ever more accelerating. The employment of cars[21], luxury steam liners[22], aircraft[23], zeppelins[24], subways[25], suburban lines[26], and trams[27] gradually turned around daily life as it had been, as in comparison with a statement by Stuart Mill in 1848 in his book "Outlines of Political Economy": "Production has the same meaning, as movement". However, through the revolution in transport the meaning of this sentence was finally reversed because movement or mobility became more and more a part of production itself[28]. Because of this, "social deregulation coincides with the de-synchronisation of space and time in human activities, and this means a dictatorship of movement and total mobilisation"[29] for people at work and during leisure time. It is not surprising that reflections of this development can also be found in the arts.

First of all, the age of railway experienced its historical peak, but in order to show up the benefits of this traffic system in comparison to others, there was also a need for a publicity campaign because the railway had to prove all its advantages under the condition of a permanent competition with other means of traffic. Intensive publicity campaigns with posters were launched where the pleasures of mobility, the thrill of speed, and comfort of travelling held pride of place. This can be seen, for instance, in a series of posters by Adolphe Mouron-Cassandre (b.1901) (fig. 31-34) as well as in commercial art by other artists (fig. 35-38). The age of railway came gradually to an end after the German fascists developed their utopia to construct a broad-gauge railway (fi

g.39)[30] in order to connect the European continent in a way that was to link mobility with comfort. This cosiness and luxury in travelling suggests a settled mode of existence: the propagated home like ambience during the journey was orientated in its interior as the immobile luxury top hotels aspire to, despite the streamlined design of the broad-gauge train's exterior. We find such a luxury of immobility also in the interior decoration of ocean liners (fig. 40)[31] and in the gondolas of zeppelins (fig. 41)[32] in order to provide the passenger with the feeling that not it is not the passenger who is moving but that the world is passing on the other side of the window. The sensation of space and time became relative not only in the cosmos but also on the earth, the sea and in the air.

Thus the depiction of movement which in its expressions goes far beyond the common associations of symbolism became a more and more urgent task for avant-garde artists. Marcel Duchamp, for instance, caused a scandal at the Armory-Show in New York in 1914 with his painting "A Nude Descending a Staircase" (fig. 42) due to the fact that he was about to revolutionise traditional modes of perception. He started off with kinematic experiments derived from the still novel cinema and used its special capability of showing successive sequences in the course of motion in a cubist or futuristic manner. The Italian futurists had similar ambitions. They fought against the nostalgic cult of the millennia-old art traditions in this country "with dynamism and kinetic, …- the latest values of modern age - (and) proved with their painting that - … - all is moving; nothing is immobile in space and time"[33]. The mechanisation of man together with the simultaneity of the ex- and interior indicate the stylistic means of their futuristic concept of art. They show the rhythm of a dynamics which is dominated by technical processes where an analytic deconstruction of shape is effected by vibrations of power lines. The futurists used this kind of expression in order to develop an art for the future which is able to display the current experience of life in an increasingly mobile society. Umberto Boccioni's (1862-1916) sculpture "Unique Forms of Continuity" (fig. 43) and his painting "Dynamic of a Soccer Player" (fig. 44) for instance clearly show the power lines and areas of daily life motions in contrast to the flight painting "aeropittura"[34] in the second phase of futurism which opened up a new perspective of space and time. Gerardo Dottori (1884-1977) with his triptych "Speed"(fig. 45) or Tullio Crali (1910-2000) (fig. 46) and others more had been among those artists who created examples of alarming vividity employing their inspiration from experiences of aerial battles as well as from the thrill of speed (fig. 47) in motor sports.

Against this background it is no small wonder that in the area of architecture utopias came into being in those years after World War I, when architects tried to satisfy the social need for permanently changeable locations with the idea of mobile cities or flying buildings, although there were no technical or social prerequisites for their realisation at hand. Wenzel Hablik (1881-1934) was one of the pioneers with his dream of a colony in the air (fig. 48)[35] when in 1925 he intended to populate the sky with a kind of a flying machine in the shape of a vertical zeppelin. This idea was reused by Bodo Rasch (1903-1995) in 1938 when he registered a patent for "a portable house made from tents filled with air". A friend of his commented: "…You will be the first man indeed who is able to construct castles in the air to live in! … Houses made of air, cities made of air - how about proposing to Speer (government minister and principal architect), to try and construct a new aerial Berlin, … ? In this case Berlin would be portable and could be moved easily … then people will probably assume a new kind of nomadic lifestyle"[36]. But this trend to create mobile buildings was not only the fantasy of visionary architect-freaks whose science fiction utopias blossomed unrestrained; it was more of a reaction to the "phenomenon of de-urbanity"[37], those social and political crises of the city, which lost its geographical fixed location through the absolute mobility of its inhabitants in their permanent to and fro between place of residence, place of work and place of leisure. Vincenzo Fani Ciotti, called Volt, supplied the theoretical base for the futuristic annulment of the city in his manifest "La casa futurista", published in 1920 where he wrote about the nomadic lifestyle of modern man: "The people of the future will refuse to live in houses which are rooted to the ground. Their accommodations which are equipped with splendid engines wi

ll walk, cross over water and fly”[38]. Although the process of de-urbanisation had reached a new dimension, the problem of the realisation of a mobile city had not yet been solved.

The attempts at creating an aesthetics of mobility also progressed in the area of the fine arts during the second decade of the 20th century and this entailed a development towards a convincing depiction of the fourth dimension. This had become necessary in order to adapt to the increasing requirement for mobility caused by technical progress and changes in social life. For this reason experiments became important in their work, where the visibility of the new dimension of time but also of the acoustics and of the visual-spatial changeability of objects took up a central position in order to create kinetic art. Marcel Duchamp’s (1887-1968) “bicycle-wheel” (fig. 49) of 1913 - the first ready-made work of modern art - could be manually rotated in order to visualize translation by means of rotation. At the same time it manifested the cubistic principles of poly-perspective and simultaneity of a single object where place and time were interwoven. It was not only the interest in the depiction of a concrete motion that was a subject of kinetic art: Alexander Calder’s (1898-1976) engined objects for instance , -the so-called ‘mobiles’ (fig. 50) balanced the elements of gravity in their multi-dimensional and simultaneously occurring motions within an organic system of mobility, while reacting to environmental influences, such as a gentle breeze. But Robert Delaunay’s (1885-1983) paintings (fig. 51) stress the momentum of colours due to the fact that his pictures are based on revolving circles of simultaneous shades. In this way his paintings provide an analogy to machines and technology. In addition, Naum Gabo’s (1890-1977) or Anton Pevsner’s (1886-1962) kinetic sculptures (fig. 52) develop rhythms of motion and energies of space as vibrant and curved shapes that stride across space and time in order to lend shape to the fourth dimension.

4) Reflections on mobility in post-modern times

At the beginning of the 20th century “the disappearance of the distance in kilometres” became increasingly perceptible and “ with the advent of supersonic… the disappearance of the distance in time”[39] was more and more noticeable. “Time and space became de-synchronised”[40] with the acceleration of mobility through rockets and space travel. World and space became smaller with every rocket launch and with every intercontinental flight; now the process of globalisation was connected with a revolution in telecommunication[41] which unrestrainedly charted its course. Finally, we have arrived at the global village where the difference between place and time seems to be so irrelevant so that production can be easily transferred to every place without taking into consideration the factor of time, reduced to the ambition of making the utmost profit. Modernity was the expression of a highly developed industrial society in art and culture. Post-modernity, however, is the expression of a post-industrial society and the problems of mobility are also reflected in aesthetic experiences.

The image of a mobile city as an utopia still plays an important role within the concepts of architects and town planners in order to solve the problem of a growing discrepancy between urban centralisation and periphery, between city and suburb. Thus the design of “mobile urban centres that can be set up in agreement with economic and sociological needs but free of needs of space and time”[42] shows an utopian solution in the project “Walking City” (fig. 53) by the English Archigram Group in 1964. One cannot fail to see the ironic, provocative aspect that closely observes and follows the technical patterns from science fiction series. Valeska Peschke (b.1966) also takes up post-modern concepts of cities in her portable project “Plug-in-Plug-out: Instant Home” (fig. 54) from 1998/99, inflatable within two minutes, satirizing the current elementary needs for individual home comforts in our ’ on-the-move-society’ [43] with her vinyl membrane and its “gigantic inflammable cosy living-room-equipment including even a fireplace and an unfoldable standard lamp”[44]. But in the first place her inflammable, instantly ‘stable living structures’ express her doubts about the realisation of the “dream of total independence”[45] in a mobile society because whi

le drawing up a primitive mobile living equipment, she is also drawing our attention to the fact th at our society generates so many homeless people.

Eleonore Straub's concept art also draws attention to the ambivalence of our 'societal progress' and stresses the darker sides of the growing alienation of people by mobility in an acce lerated society. For instance, her Narcissus (fig. 55)[46] combines the 'international language of road signs' with the ancient myth of Echo and Narcissus in order to visualize complex social facts in a symbolic shape. She draws responsible attention to the dangers of our time with the help of wa rning signs which are employed in her sculpture as the alienated shape of the head of a narcissus a top a pole of a streetlamp that is mirrored in the water. Her message emphasizes the self-love of narcissistic people who in their striving for pleasure are unaware of the deformations in environm ent and society. But despite all warnings, the process of acceleration in a mobile society does not seem to stop. This is obvious in the daily traffic jams caused by the car-mania and in the massive scale of cheap flight offers that are increasingly congesting the skies. For both artist and observ er the question whether there is any solution for this problem remains unresolved, in view of an en ormously increasing volume of traffic even in the third world and in the face of the beginning of a global tourism entailing new and dangerous perspectives.

As conclusion we could state that the arts of all epochs are reacting in two ways to th e challenge of mobility, and to the phenomenon of coping with time: one approach is trying to do ju stice to the need for mobility with an aesthetics of mobility that uses the fourth dimension in the arts in order to express the new nomadic way. The second approach is the reaction to the process of acceleration by means of changed ways of shaping ideas in order to reflect critically or affirmativ ely on the development in a symbolic language.

FIGURES:

1) Osiris. Drawing on papyrus. Detail taken from the Turin "Book of Dead". 15th century BC

2) The Roman Emperor Augustus from the Villa of Livia in Prima Porta. Rome, Musei Vaticani

3) Bronze-Kouros. 530 BC. Athens, National Museum

4) Standing Bison. Detail of the painting taken from the ceiling at the big hall in the ca ve of Altamira near Santander. Magdalénien, ca. 12000-11000 BC

5) Stylised Trees. Detail taken from the tiles of the throne hall of Nebukhadnezar's Sou thern palace in Babylon. 6th century BC. Berlin, Staatliche Museen

6) Landscape of Ulysses. Wall painting in a house at the Esquiline hills in Rome.50-30 BC, Rome, Bibliotheca Vaticana

7) Hans Schäufelein: Judith with the Head of Holofernes. Pen and ink. Design for the wall painting at the town hall in Nördlingen. 1515. University College, Strang Print Room.

8) Giovanni da Bologna: Mercury. 1564/67. Bronze, Florence, Bargello

9) Johann Adam Klein: Bavarian Mail Coach in front of the New Gate in Nuremberg. 1823. Oi l/wood, Nuremberg, Fembo-Haus

10) John Emslie: Locomotive. 1848. Coloured print. From: James Reynolds: Diagrams of the Steam Engine. 1848

11) Anonymous: The Opening of the Ludwigsbahn - railway between Nuremberg and Fürth in 1835. Coloured print

12) Anonymous: View of the Bavarian Station at Leipzig. 1844. Coloured print.

13) Façade of the Reception - and Office Building of the Royal Saxon Western Governmental Railway. View from the Entrance. Ca. 1844

14) St. Pancras Station in London

15) The Station Hall of St. Pancras Station in London on an early poster

16) Jules Alexis Coutan: Mercury with the Personifications of Agro-culture and Sciences as figure on the top of the Grand Central Station façade in New York, 1911-1913

17) Winged Wheel on the final stone atop the entrance of the reception building of a station in a village, ca. 1895

18) Adolf Echtler: Steam Power. 1862.Wall painting in the departure hall of the governmental station in Munich

19) Gustav Herold: Atlas Carrying the Globe and Supported by the Genii of Steam and Electricity

20) William Turner: Rain, Steam and Speed. 1844. Oil/canvas, London, National Gallery

21) Adolph Menzel: The Berlin-Potsdam-Railway. 1847, Oil/canvas, Berlin, Alte Nationalgalerie

22) Honoré Daumier: Wagon of the 3rd Class. Ca. 1863/65, Aberdeen, Collection Murray

23) Charles Rossitter: There and back to Brighton for 3 Shillings and 6 Pence. 1859, Oil/canvas, Birmingham City Museum and Art Gallery

24) Vladimir Alexandrovich Poyarkov: Interior of a Russian 1st Class Dining Car where an Attractive Lady is Drawing Attention. 1910, Oil/canvas. Copenhagen, Bruun Rasmussen Auction June 2004

25) Paul Meyerheim: Mail and railway. 1873/76. Oil/copper, From the series “The development of a Locomotive”, painted for Villa Borsig in Berlin-Moabit. Copy at Bundespostmuseum Frankfurt/Main

26) Pius Ferdinand Messerschmidt: Mail Coach in front of Rothenburg upon Tauber. Oil/canvas. Private collection

27) Bruno Taut: Glass House at Deutsche Werkbundausstellung, Cologne 1914. Facade

28) Albert Speer: Dome of Light, 1936

29) Erich Mendelsohn: Einstein Tower. Sketch. 1920, Pen, yellow and white chalk. Kunstbibliothek, Stiftung Preußischer Kulturbesitz, Berlin

30) Fritz Höger: Chile House. Hamburg, 1922-1924

31) Cassandre (Adolphe Mouron): L.M.S. Best Way. 1925. Poster, coloured lithography

32) Cassandre (Adolphe Mouron): Ètoile du Nord. 1927. Poster, coloured lithography

33) Cassandre (Adolphe Mouron): Nordexpress. 1927. Poster, coloured lithography

34) Cassandre (Adolphe Mouron): Chemin de Fer du Nord. 1929. Poster, coloured lithography

35) FN: „The Coronation“. The First Steam Line Train King’s Cross for Scotland. London and North Eastern Railway. Cover of an advertising brochure, 1923

36) Satomi: Japanese Government Railways. 1937. Poster. Coloured lithography

37) Walter Hemming: Timetable Summer 1939 for Sleeping Cars. Cover of an advert brochure

38) Anonymous: Immer Schneller (Always Faster). Deutsche Reichsbahn. Ca. 1936/39

39) Interior of the planned broad gauge dining-car in a coloured lacquer version of RZA Munich, 1943

40) J. Simont: Grand Salon of “Normandie”, plate: From:”L’Illustration”, special issue about the “Normandy”, 1935

41) Day room or dining room of the airship LZ 127 “Graf Zeppelin”, 1929

42) Marcel Duchamp: A Nude, Descending a Staircase, No. 2”, 1912, Oil/canvas, Philadelphia, Museum of Art

43) Umberto Boccioni: Unique Forms of Continuity in Space. 1913. Tate Gallery, London (cast from 1972)

44) Umberto Boccioni: Dynamic of a Soccer. 1913. Oil/canvas, New York, Museum of Modern Art

45) Gerardo Dottori: Triptych of Speed: The Way - The Journey - The Arrival. 1926/27. Oil/canvas, Commune di Perugia

46) Tullio Crali: Dive on the City. 1939. Oil/canvas, MART, Museo di Arte Moderna et Contemporanea di Treno e Rovereto

47) Tullio Crali: The Forces of the Curve. 1930. Oil/cardboard, private collection

48) Wenzel Hablik: Colony of Air. From the series “Architecture”. Sheet 19, (Berlin), 1925, etching

49) Marcel Duchamp: Bicycle - Wheel. 1913/1964. Ready-made. Darmstadt, Hessisches Landesmuseum

50) Alexander Calder: Armada. Mobile. Metal. Paris, Claude Berri Collection

51) Robert Delaunay: Circular Shapes. Sun, Tower. 1913. Oil/canvas. Paris, private collection

52) Naum Gabo: Kinetic construction. 1919-1920 (re-construction 1985), Berlin, Berlinische Galerie, Landesmuseum für moderne Kunst

53) Archigram Group: The mobile City. 1964 Design for a project

54) Valeska Peschke: Plug-in-Plug out: Instant Home. 1998/99. Vinyl.

55) Eleonore Straub: Narcissus poeticus EST. 2004, Sculpture, metal, glass, electric equipment. Rio de Janeiro, Federal University

Photographic Acknowledgments:

The photographs are taken from following sources:

- Fig. 1, 5: W. Afanassjewa, W. Lukonin, N. Pomeranzewa: Kunst in Altvorderasien und Ägypten. Dresden 1977, title page, p. 153

- Fig. 2: Marco Bussagli (ed.): Rom. Kunst und Architektur. Köln 1999, p. 73

- Fig. 3, 6: Donald E. Strong: Welt der Antike. Architektur, Plastik, Malerei, Schmuck, Mosaiken, Münzen. München, Wien 1974, p. 51, 109

- Fig. 4: Karl Berger: Das Tier in der Kunst. Leipzig 1971, fig. 1

- Fig. 7: photograph by University College London, Strang Print Room

- Fig. 8: Klaus Wegmann: Plastik. Lehrbuch für die Kunstbetrachtung. Berlin 1966, p. 14

- Fig. 9: Karl Heinz Schreyl: Johann Adam klein. Gemälde im Besitz der Stadt Nürnberg. Nürnberg 1995, p. 19

- Fig. 10: Francis D. Klingender: Kunst und Industrielle Revolution. Dresden 1974, p. 71

- Fig. 11: Archiv für deutsche Postgeschichte. Sonderheft. Frankfurt am Main 1984, p. 70, fig. 2

- Fig. 12: Rolf Bayer, Gerd Sobek: Der Bayerische Bahnhof in Leipzig. Berlin 1985, title page

- Fig. 13: Manfred Berger: Historische Bahnhofsbauten Sachsens, Preussens, Mecklenburgs und Thüringens. Berlin 1980, p. 55

- Fig. 14, 15,16,20,31,34,35,38,: Steven Parissien: Bahnhöfe der Welt. München 1997, p. 57,59,136,46,83,90,30,102

- Fig. 17, 18, 19, 25: Wolfgang Bickel: Der Siegeszug der Eisenbahn. Zur Bildsprache der Eisenbahn-Architektur im 19. Jahrhundert. Worms 1996, p. 73, 7, plate 1, plate 3

- Fig. 21: Angelika Wesenberg, Eva Förschl (ed.): Nationalgalerie Berlin. Das XIX. Jahrhundert. Katalog der ausgestellten Werke. Leipzig 2002 (3. Aufl.): p. 273

- Fig. 22, 23: Deutsche Bundesbahn (ed.): Die Eisenbahn in der Kunst. Ein Bildwerk. Bonn 1958, p.31, 25

- Fig. 24: Bruun Rasmussen: Malerier, tegninger & kobberstik. International Auktion 73

2, onsdag den 9. til tirsdag den 15. juni 2004, p. 109

- Fig. 26: Lothar Henning (ed.): Pius Ferdinand Messerschmidt 1858-1915. Retrospektive. Bamberg 1998, p.37

- Fig. 27,29,30,48: Wolfgang Pehnt: Die Architektur des Expressionismus. Ostfildern 199 8, p. 104, 179,187,140

- Fig. 28: Dawn Ades, Tim Benton, David Elliot, Iain Boyd Whyte: Kunst und Macht im Eur opa der Diktatoren 1930 bis 1945. Oktagon Verlag1996, p. 280

- Fig. 32, 33,36,40,43: Charlotte Benton, Tim Benton, Ghislaine Wood (ed.): Art Deco 19 10-1939. London 2003, p. 32, 314, 318, 320, 102

- Fig. 39: Anton Joachimsthaler: Die Breitspurbahn. Das Projekt zur rschließung des gro ß-europäische Raumes 1942-1945. München 1999 (6. Aufl.): p. 201

- Fig. 41: Wolfgang Meigörner (ed.): Giganten der Lüfte. Geschichte und Technik der Zep peline in ausgewählten Berichten und zahlreichen Fotos. Luxembourg 1997 (2. Aufl.), p. 97

- Fig. 37: Alfred Gottwaldt: Deutsche Reichsbahn. Kulturgeschichte und Technik. Berlin 1994, p. 79

- Fig. 42, 44: Anonymous: Meisterwerke der Kunst. Malerei von A-Z. Chur 1994, p. 191, 2 46

- Fig. 45,46,47: Ingo Bartsch, Maurizio Scudiero (ed.): … auch wir Maschinen, auch wir mechanisiert! ... Die zweite Phase des italienischen Futurismus 1919-1945. Bielefeld 2002, p. 230-2 31, 279, 247

- Fig. 49, 50,52: Christos M. Joachimides, Norman Rosenthal (ed.): Die Epoche der Moder ne. Kunst im 20. Jahrhundert. Stuttgart 1997, fig. 206, 387, 148

- Fig. 51: Wolf Stadler, Peter Wiench (ed.): Lexikon der Kunst. Malerei, Architektur, B ildhauerkunst. Band 4 (Dgo-Gai). Erlangen 1994, p. 14

- Fig. 53: Virgilio Vercelloni: Europäische Stadtutopien. Ein historischer Atlas. Münch en 1994, plate 185

- Fig. 54: Olaf Rahlwes, Valeska Peschke: Valeska Peschke. Katalog zur Ausstellung plut onics // boxes. Frankfurt am Main 2000, without indicating a page

- Fig. 55: photograph by Eleonore Straub

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[1] See: Berthold Burkhardt, „Zur Geschichte der Zeltarchitektur,. in Zelte, (Basle: Catalogue of the Museum of Architecture Basle, 1986), pp. 13-21.

[2] On the significance of the horse for the increase of mobility in pre-industrial society see: Paul Virilio, Der negative Horizont. Bewegung / Geschwindigkeit / Beschleunigung. München (Wi en 1989), especially pp. 29-45.

[3] British engineer Richard Trevithick (1771-1833), in 1803/04 constructed the first steam locomotive which did not as yet meet the needs for continuous use due to the inferior quality of rail track material made of wrought iron.

[4] British engineer George Stevenson (1781-1848) in 1814 constructed his first locomotive, the "Blücher" but it was not before 1829, during the competitive trial of his locomotive "Rocket" on the line Stockton-Darlington ("the locomotive race of Rainshill") that he could demonstrate the superiority of his steam-based towing vehicle which finally caused the development of the railway system in England and later, across the globe after the opening of the railway line from Liverpool to Manchester in 1830.

[5] See: Francis D. Klingender, Kunst und industrielle Revolution (Dresden 1974), pp. 66-69.

[6] The first section of the main line service was opened between Leipzig and Dresden on April 27, 1837.See. Manfred Berger, "Die Leipzig-Dresdener Eisenbahn," in Historische Bahnhofsbauten Sachsens, Preussens, Mecklenburgs und Thüringens, ibidem, (Berlin 1980), pp. 30-50.

[7] Heinrich Heine in the year 1843, quoted from P. Virilio (footnote 2) in the jacket text.

[8] See: Steven Parissien, Bahnhöfe der Welt (München 1997), especially pp. 43-76

[9] See: M. Berger, „Die Sächsisch-Bayerische Eisenbahn," in M. Berger, (see footnote 5), pp. 52-64; - Rolf Bayer, Gerd Sobeck, Der Bayerische Bahnhof in Leipzig (Berlin 1985).

[10] Paul Virilio, (see footnote 2) also stressed the moment of "well-being" in the Anglo-Saxon ideology of travelling by ship or train: "The body of the traveller indulging in luxury is a counterpart to the sheltered body of a resident" and this idea finds its congenial expression in the luxury of St. Pancras´ Station due to the fact that there it is the settled form of existence that is emphasized, rather than mobility.

[11] Wolfgang Bickel, Der Siegeszug der Eisenbahn. Zur Bildersprache der Eisenbahnarchitektur im 19. Jahrhundert (Worms 1996), pp. 70-77.

[12] See: Manfred Berger, „Der Hauptbahnhof Frankfurt (Main)," in Historische Bahnhofsbauten III, Bayern, Baden, Württemberg, Pfalz, Nassau, Hessen, ibidem (Berlin 1988), pp. 239-254, especially p. 253.

[13] See: Irmgard Wirth, Berliner Malerei im 19. Jahrhundert. Von der Zeit Friedrich des Großen bis zum Ersten Weltkrieg (Berlin 1990), pp. 419-421; - Margot Pfannstiel, Der Locomotivkönig. Berliner Bilder aus der Zeit August Borsigs (Berlin 1987), pp. 46, 142-143; - W. Pickel, (see: footnote 10), p. 25, plate 3.

[14] See: Karl Georg Pfändtner, „Kutschenromantik," in Pius Ferdinand Messerschmidt 1858-1915. Retrospektive, ed. Lothar Henning, Karl Georg Pfändtner, (Bamberg: Historisches Museum Bamberg 1998), pp. 33-40.

[15] See: Paul Virilio, Rasender Stillstand (München, Wien 1982), p. 85.

[16] See: Wolfgang Pehnt, Die Architektur des Expressionismus (Ostfildern 1998), pp. 103-106.

[17] See: W. Pehnt, (footnote 16), pp. 179-185.

[18] See: P. Virilio, Das irreale Monument". Der Einstein-Turm (Berlin 1992), p. 37.

[19] See: P. Virilio, (footnote 18), pp. 20-21.

[20] See: W. Pehnt, (footnote 16), p. 186-188.

[21] In 1878 Carl Friedrich Benz developed his first two-stroke gas engine and in 1885 he constructed his first car. Since 1894 Benz had begun to serially produce his “Victoria” model.

[22] Since 1825 steam boats were used for overseas connections; the first fast steam boat “Mauretania” was brought into action in 1907 in Great Britain.

[23] On 17 December 1903 the brothers O. and W. Wright carried out the first known flight in a motorized plane and initiated the era of flight traffic.

[24] The first takeoff of a zeppelin airship was effected on July 3,1900 with “LZ1” from the Bodensee region , but with the disaster of Lakehurst on May 6, 1937 the airship era came to an end.

[25] Between 1860 and 1863, the first underground railway track in a city was constructed in London but it was not before the replacement of steam locomotives by electric locomotives that the development of subway lines became common. The first subway opened in 1896 in Budapest, followed by the subway in Paris in 1900 and in many other cities within the following decades.

[26] Suburban lines based on electricity running on their own tracks were developed for the solution of problems in local traffic in big cities. In 1871 the first part of a suburban line was opened in Berlin between Tempelhof, Rummelsburg, and Moabit.

[27] The first tram was introduced in New York in 1852 and in Germany we find the first horse-drawn tram in Berlin and Charlottenburg in 1865. In 1879, Werner von Siemens produced the first tram based on an electric engine. Since 1881 the electric tram began to run in Berlin but the first regular tram came into use in 1891 in Halle/Saale.

[28] See: Paul Virilio, (footnote 2), p. 79.

[29] Paul Virilio, (footnote 2), p. 86.

[30] Anton Joachimsthaler, Die Breitspurbahn. Das Projekt zur Erschließung des groß-europäischen Raumes 1942-1945 (München 1986), (6. enlarged edition 1999), especially pp. 192-221.

[31] See: Paul Atterbury, “Travel, Transport and Art Deco,” in Art Deco 1910-1939, ed. Charlotte Benton, Tim Benton, Ghislaine Wood (London 2003), pp. 315-323.

[32] See: Erich Rackwitz, Reisen und Abenteuer im Zeppelin. Nach Erlebnissen und Erinnerungen des Dr. Hugo Eckener (Berlin 1958), (2nd improved edition), pp. 42-49; - Max Geisenheyner, „Die Schlagzeile des Jahres 1929. Ein deutsches Luftschiff fährt um die Welt, “ in Giganten der Lüfte. Geschichte und Technik der Zeppeline in ausgewählten Berichten und zahlreichen Fotos, ed. Wolfgang Meighörner (Luxembourg 1997), (2nd updated edition), pp. 94-123.

[33] Giovanni Lista, “ Was ist Futurismus?” in ... auch wir Maschinen, auch wir mechanisiert! Die zweite Phase des italienischen Futurismus 1915-1945, ed. Ingo Bartsch, Maurizio Scudiero (Bielefeld 2002), p. 33

[34] Gudrun Escher, “Aeropittura - Arte Sacra Futurista. Die futursistische Flugmalerei im Ko

ntext von Fluggeschichte und zeitgenössischer Kunst,“ in: I. Bartsch, (footnote 33), pp. 47-56.

[35] W. Pehnt, (footnote 16), p. 137, 140.

[36] Quoted from a letter by Johannes Camis to Bodo Rasch in 1938. In Zirkel 9, Bodo Rasch, Ideen, Projekte, Bauten, Werkbericht 1924 bis 1984, (Stuttgart 1984), p. 57.

[37] P. Virilio, (footnote 2), p. 86-87.

[38] Volt (Vincenzo Fani Ciotti), “La casa futurista. Indipendente-Mobile-Meccanica-Esilarente,” in Roma Futurista, N. 81, 25 April 1920 and N. 82, 2 May 1920. Quoted from Ezio Godoli, „Stadt, Architektur, Einrichtung,“ in I. Bartsch. M. Scudiero, (footnote 33), p. 132.

[39] P. Virilio, (footnote 2), p. 177.

[40] Ibidem.

[41] See: P. Virilio, (footnote 15).

[42] See: Virgilio Vercelloni, Europäische Stadtutopien. Ein historischer Atlas, (München 1994), p. 185.

[43] Christoph Doswald, Airbag Generation. Celebrating Inflatables. The Inflatable as a Simulation of Society (Monaco 2000), p. 106.

[44] Christoph Tannert, „Pole. Räume. Resonanzpunkte,“ in Valeska Peschke. Catalogue for the exhibition „Plutonic // boxes. Inventionen im Stadtraum (Frankfurt am Main 2000), without pagination.

[45] C. Tannert (footnote 44).

[46] See: Gerd-Helge Vogel, „Wandel in der Ästhetik. Zu einem Beitrag auf dem XVI. Internationalen Kongress für Ästhetik in Rio de Janeiro,“ in Kulturpolitische Mitteilungen. Nr. 106, III/2004, pp. 44-45.

（译文）移动性：艺术和建筑的第四维度
作者：Gerd-Helge Vogel（德）

移动性是人类最基本的行为模式，它总随着它的社会化进程而不断加速。这种加速的进程在建筑和艺术中都留下了痕迹。特别是自工业革命兴起以来，移动性已经引起了人际关系的根本性改变，并且至今未艾。当我们考察移动性对艺术和建筑在美学上及精神层面的影响时，这种改变也就愈加明显。今天，我的想法是列举一些有针对性的例子让你们了解移动性的几个不同的发展阶段。

1）、前工业社会人类移动性的艺术表现

前工业社会在移动性方面都是以相对缓慢的动力为标志的，因为它们在移动能力上都以有限的技术设备为基础。几种前工业社会的移动能力依次地不得不仅仅依赖人力、家畜、或如航行的风力这样的自然动源。采集和捕猎食物、军事征伐、出使、运输、商贸旅行以及其他必要的地点迁移都只能在有限的或不可掌控的动源的条件下依靠人力、畜力和风力进行。然而，即使是这种不发达的移动方式也并非每个人都能掌握的，而且它只能胜任缓慢的迁移过程。尽管事实上自石器时代以来，游牧生活方式在多个前工业社会里就很普遍了，然而由于从一地到另一地相对缓慢的移动能力，人们对主流的生活方式还是持静态的观点：人们对诸神（图1）、统治者（图2）、自然的种种表现形式，如人（图3）、动物（图4）、植物（图5），之后，还有风景（图6），都不得不作为“确定的”量来感知。这些量塑构了某种理念，并在二维艺术（油画和素描）或三维艺术（雕塑和建筑）中表现出来。但是包涉有动态或移动性的时间概念迄今没有得到艺术表现，如果有，也仅在那些抽象的符号形状中有所涉

及。这些符号能使观察者在其脑海里将移动能力跟移动性联系起来。一方面，移动性在建筑学上跟可移动住宅的概念相联系。这种可移动住宅的概念我们可以在对帐篷、圆顶帐篷、棚屋、美国印第安人的圆锥形帐篷、圆顶建筑、船舱、高跷上的建筑以及其他临时家宅的描述中看到：像可移动居所那样便于建造也便于拆除。另一方面，移动能力在过去是通过寓言性的图形来得到象征性的表达的——地点和时间的当下变化，艺术的第四维度。我们可以在Giovanni da Bologna的“墨丘利神”（图8）中看到移动性的这种象征性表现——贸易和旅行的象征——或在对马和四轮马车（图9）的描绘中也能看到。马和四轮大马车是发明蒸汽火车之前最重要的交通旅行工具。

2）、铁路时代移动性的艺术反映

工业革命的突破性成就跟詹姆士·瓦特1772年发明了第一部实用蒸汽机、火车头的发展，以及其后行进在铁轨上作为一种动力机器“将人们从一地送往另一地的蒸汽机”相联系。蒸汽机头的发明不仅运载乘客及货物，同时完全改变并加速了以前的交通系统。英国工程师Richard Trevithick和乔治·史蒂文森分别在1803年和1814年（图10）为全球性的铁路系统奠定了必要的先决条件，他们的发明为人类的移动性提供了新的可能。最为重要的是，他们的发明为缩减时间和空间提供了可能性。1843年，德国诗人亨利希·海涅描写了由于1835年开通了从纽伦堡到Furth的第一条德国铁路（图11）和1837年开通了从莱比锡到德累斯顿的第一条德国铁路大动脉之后铁路网的迅猛发展，给人人类带来了苦难：“现在所发生的变化正强行影响着我们的感知和想象！就连我们对于时间和空间的基本概念也正在发生动摇，铁路消杀了空间现在仅仅剩下时间了。”

这种移动性加速的现象随后也在火车站的建筑“移动的城堡和大教堂”中得到反映。铁路时代里新的速度和移动性被新的建筑风格所表现，这种风格旨在传达悲悯和敬畏。交通和旅行获得了新的尊贵地位，以使加速了地点变化的铁路系统神圣化。例如，我们在于1844年在莱比锡启用的巴伐利亚火车站（图12）就可以看到这一点。这幢建筑采用了古代凯旋门的形式。在凯旋门下，萨克索-巴伐利亚政府修建的铁路铺就了他们对全世界的征战掠夺。尽管繁频的车流通过大门的动态状况得到了表现，并强调了到达和离开车站的移动性，但这幢两边各有两座塔的城堡形的建筑看起来却是静态的。只有楼顶上的小钟塔提示着时间性及其短暂性，还有火车时刻表所提到的火车提速。而飘舞的旗子宣示了变革人类移动性的铁路系统的胜利。很快，铁路公司之间日益激烈的竞争以及上流社会更奢华的追求都开始通过热衷于建造大型火车站来表现出来。由于这个原因，追求更好更快移动性的交通发展过程可被认为是由铁路提供的移动性特殊服务的神秘性。George Gilbert Scott的St. Pancras火车站（图14）建于1868年至1873年，是为伦敦的内陆铁路而兴建的，在新哥特式教堂和城堡式的构造里，它兼集了一间酒店和一间办公室。由于这种变化，它失去了原初功能的视觉表现形式，不再向它的使用者展示它新获得的移动性。在这种情况下，表现的形式获得了优先的地位，为的是使无聊的旅行达到一种虚幻的、神圣的高贵状态，以使给上层社会乘客必要的保证：交通系统的革命不会危害社会秩序的本质。相反，技术的进步只会使生活更加便利，而不会给社会带来任何的根本变动。正由于这个原因，移动性的象征性符号只出现在火车站大厅内部（图15）。在火车站大厅里，到站和离站的火车反映了维多利亚时代的运动力通过火车向前和向后移动来加速移动性。从某种意义上来说，这是蒸汽机塞带来的结果。在火车站建造的早期，交通动力的发展状况从来没有通过“architecture parlante”的象征性造型表现出来，而是借助于根植于古代神话、蕴含寓意的雕塑和壁画来表达。这样，长着踝翅和戴着头盔的墨丘利神——贸易与交通之神——代表速度而出现在许多火车站里。例如，1911年铁路发展的高峰期——在纽约豪华的中心火车站顶就矗立着一尊墨丘利神的雕像（图16）。这尊雕像引人注目，宣示着由于交通的移动性的提高，铁路系统带给人们的福祉和美好。而交通的提速也给农业、经济以及文化带来了繁荣。但是并非仅有墨丘利神代表了这种观念，他的塑像也混合了其他的因素，例如农艺和艺术的因素。甚至那个时钟，也就是时钟之神Chronos的象征物也被认为意图象征从交通和移动性领域中抽象出来的概念。很快，在奥林匹亚信使之后，道路的保护神、新型交通的守护神就有了带翅膀的轮子（图17）——而铁路的简化象征物、带翅的轮子表现了效益和速度的承诺。人们用新的寓意来象征蒸汽能源。正是这种能源的基本力量在机车里的动力组合引发了铁路时代里移动性的加速。于是，新时代里的英雄主义被赋予了新的神秘性解释。举个例子，慕尼黑政府火车站里Adolf Echtler（1843-1914）创作的壁画“蒸汽力量”（图18）就描绘了人们对现代移动性的矛盾情感：在这里，长着翅膀的英雄摆脱了枷锁，破坏了他在古代的象征意义，即强行限制了自由运输和航行的世袭观念。但是，他也对蜗牛般的蹑手蹑脚的爬行表现出了相似的威胁。同时，握有装饰着带翅轮子的蒸汽力量英雄试图驯服火车头化身的蒸汽英雄，即移动能力的具象化。以限制他的破坏性和发挥它的可利用力量。拿着斧子和号角的丘比特正是要表现这种收益性。

法兰克福主火车站顶的雕像（图19）也寓意性地表达了铁路在新时代里的新征程：背负着一个圆球的阿特拉斯神像被蒸汽和电力这两个守护神支撑着。这尊雕像和其他的几尊都是Gustav Herold (1839—) 在1885年为了装饰火车站正面而创作的，它们象征性地表达了现代工业社会的发展势头。然而，它也仅限于象征性的意义，这种

象征性的意义并不能现实地体现现代移动性的力量。

这一点在两幅画里得到了更好的表现：一幅是William Turner (1755-1851)创作的，另一幅是Adolph Menzel (1815-1905)创作的。Turner创作于1844年的画作“雨、蒸汽和速度”(图20) 表达了人们借助无惧风雨而前进的火车战胜了空间距离。新时代的移动性由新的绘画技巧表现——画家采用了前印象主义的模糊方式来表现在光色交融的环境里的动态。运用这种方法，他事实上给人们描画了飞驰过程中的火车的形象。Adolph Menzel的画作“从柏林到波茨坦的铁路”（图21）也描画了一列在春天弥漫的浓雾中飞驰的列车。他的画作宣告了一个新的时代的开始，在这个时代里，社会与自然被迫沿着全新的路径发展。现在，新的车道正无情地割碎了田园般的风景，远处不断扩张的城市所产生的烟尘已经表现了典型的工业社会日益膨胀的扩张贪欲。这个过程同时伴随着人类社会的惊人变化，这种变化的原因源于一个事实，即随着移动性的提高，资本主义社会各阶层的乌托邦式的平等没有实现。相反，社会各阶层已有的差异变得越来越明显。这种差异在日常生活中，仅仅通过一列火车中头等车厢与三等车厢乘客间的冲突就能看到。当我们对描绘了不同车厢的画作进行对比时，就可以轻易地找到对这种社会问题的描述。Honoré Daumier (1808-1879)的作品“三等车厢”（图22）很明显跟Charles Rossitter(1827-1897)的作品“来往布赖顿码头的3先令6便士车厢”（图23）以及Vladimir Alexandrovich Poyarkov的作品“一列俄国头等餐车的内部”（图24）所表达的东西是相一致的。

在对火车上社会冲突的描绘中，画家们敏锐地区分了铁路时期现代工业社会生活各方面所受到的影响。

因此我们看到了艺术家的态度：对这种社会现象既有支持也有批判。另外，邮寄马车时代的迟缓与铁路时代的快速的不同也成为一种频繁表现的艺术主题。有时，对于能带来社会变迁的科技发展受到人们的欢迎，正如我们在Paul Meyerheim (1842-1915)的作品（图25）中所看到的那样。但是有时人们也会痛惜比德迈过去好时光的温情和平静的丧失。在Messerschmidt的作品里，邮寄马车成了对怀旧情绪，以及对前工业时代在移动性上的缓慢速度的田园般的怀念的象征（图26）。

3）、移动性在现代社会的艺术反映

艾伯特·爱因斯坦 (1879-1955)所建立的狭义相对论（1905）和广义相对论(1915) 给人们的空间概念带来了巨大的冲击，因为在现代,时间和空间成了一体，以至现在空间不再以客观性的维度而存在。据此，建筑这种空间艺术就处于一种边缘化的状况，因为他早期的一些绝对参数如静态性和美学属性已受到了人们的彻底怀疑。速度和光取代了牛顿时空系统，而现代建筑师已被这些观念所吸引。由于这一原因，对速度和移动性的重视就成了先锋派建筑师所热衷的一个主题，以便能反映强调了建筑位置的相对性的移动性。在表现主义建筑师中，如Bruno Taut (1880-1938)， Erich Mendelsohn (1887-1953)， Fritz Höger (1877-1949)，Otto Bartning (1883-1959)以及其他更多的人都创作了表现这种主题的令人印象深刻的作品。例如，Taut的设计力图使他的建筑作品从代表了威廉二世时期的传统观念中解放出来。建筑师设计出了水晶房子——1914年在Cologne举行的Werkbund展览会上的玻璃工业展览亭（图27）。房子最重要的主题及布景的元素都是光。Taut的建筑作品为光动实验做出了重大的贡献，而他的水晶亭也成了其后建筑所模仿的样板。在这种设计理念中，光被作为塑构了水晶状的墙的一种核心视觉构造元素来应用。这种设计元素在Albert Speer临时装建的作品“光穹”（图28）中达到了顶峰。在这里，遵循光动原则，时间和空间都可视化地融合了。

Erich Mendelssohn的天文观测台——波茨坦的爱因斯坦塔（图29）带有它隐喻性的造型，也尝试表现相对论的观点。出于这样的原因，他试图使“质量只是一种高集约的能量”这一命题视觉化，并因此创立了新的技术风格。他对机械和先进技术的知识影响了这件作品的“功能动力学”。Mendelssohn把这种动力学原则当作改进的移动性模型应用于建筑中。按这种方式，他就能在建筑自身中展示了动感或“猛烈的速度感”。通过对潜艇这种非常特殊的交通工具外形的改装，他追求的是“建筑的移动性”。而且借助于它的空气动力学的、流线型的外形，他追求对移动性的瞬间体验。我们发现像类似的设计意图在Höger的智利房子（图30）也可以看到。这幢建筑东面的造型使人想起了船的弓状外形。这是对建筑功能的一种象征性的附注，表明那是在汉堡港这一航海路线建筑（liner-building）停靠地的一间航运公司的办公室。同时，新的运输方式开始盛行，移动性也因此而加速。与Stuart Mill 1848年在他的著作《政治经济学大纲》所宣称的：“生产力与运输具有相同的意义”相比较，现在，汽车、豪华班轮、飞机、地铁、市郊交通和电车逐渐在人们的日常生活中得到应用。然而，经过交通革命，这句话的意思最终被颠倒过来了，因为交通或移动性越来越成为生产力本身的一部分了。因此， “社会的反规定性与人类活动的时间和空间的非同步性（de-synchronisation）相符，这也就意味着对于工作或休闲的人们来说运动与完全移动性的绝对地位”。对这种发展的反映也能在艺术中被发现也就不奇怪了。

首先，铁路时代已经历了它的历史巅峰期，但为了在以其他的交通方式相比较而显示它的优势，它有必要参与宣传战，因为铁路必须在与其他交通工具的长期竞争中证明其所有优势。题录公司利用海报进行了激烈的宣传战，他们把移动性带来的快乐、速度的刺激，还有旅程的舒适放到了第一位。例如，我们在Adolphe Mouron-Cassandre (1901－)所创作的系列海报 (图31-34)及其他艺术家所创作的商业艺术作品（图35-38）中看到这一点。在德国法西斯为了用一种移动性和舒适性相兼有的方式把欧洲大陆连接起来架构他们的乌托邦而建造宽轨车路（图39）之后，铁路时代走到了它的尽头。这种奢华的旅行方式要求一种固定的生活模式：尽管外形采用了流线型的设计，但在宽轨列车内部，具有了在旅途过程中象家一样的旅居环境。我们发现这种奢华的不可移动性的装饰在班轮的内部装潢中（图40）和在飞艇的吊舱里（图41）都有。其目的是为了给乘客营造一种感觉：不是乘客在动，而是窗户另一面的世界在动。人们的时空观不仅在宇宙中变得相对了，而且在陆地上、在海洋上、在空中亦都如此了。

因此，对先锋派艺术家而言，突破通常的象征性联系而对运动作出描绘正变得愈来愈急切。例如，Marcel Duchamp1914年在军械展览会上展示了他的画作“一个正下楼的裸女”（图42）而招致了流言蜚语，原因是他要变革人们的传统感觉模式。他开创了源于仍然新奇的影像的运动学试验，并以立体派或未来主义的方式运用了它独特的能表现一个运动过程的连续顺序的功能。意大利未来主义者也有相似的热望。他们运用物力论和动态论反对这个国家延续千年的艺术传统的怀旧崇拜。“物力论和动力论……，现代最新的价值，——（和）证明了他们的画作……一切皆动，在时空中没有什么是不可移动的”。人类的机械化，结合了内外同时性，指明了艺术的未来主义概念的风格内涵。它们展示了动态节奏。这种动态节奏为技术发展进程所支配，而在技术发展进程中，设计的分析性解构受能量线（power-line）震动的影响。未来主义者们采用了这种表达方式，目的是创造一种面向未来的艺术，这种艺术能够展示在一个移动性越来越强的社会里当前的生活经验。例如，Umberto Boccioni’s (1862-1916)的雕塑作品“连续性的独特形式”（图43）和他的画作“足球运动员的动态姿势”（图44）就清楚地展示了线条的表现力与日常生活的动态领域。它们跟开创新的时空透视法的第二代未来主义画派的飞机作品“aeropittura”形成了反差。创作了三联画“速度”（图45）的Gerardo Dottori (1884-1977)或Tullio Crali (1910-2000) (图46)以及这一画派更多的画家创作了高逼真性的经典作品，而他们创作这些作品的灵感源于他们的空战经历以及对汽车运动的速度刺激（图47）。

在这种背景下，毫无疑问，建筑界的乌托邦在一战结束后的那几年里逐渐形成，那时正是建筑师怀着建造移动城市或飞行楼宇的想法来满足社会上对于居住地不断变化的需求的时候。尽管那时他们的设计理念缺乏技术或社会方面的必要条件。Wenzel Hablik (1881-1934)是这些梦想着把殖民地建在空中（图48）的开拓者中的一员。1925年，他意图借助一种形如垂直飞艇的飞行器向天空殖民。这种建筑理念被Bodo Rasch (1903-1995)在1938年再一次采用，他为“便携式充气帐篷房子”申请专利。他的一位朋友评价说：“……你将是真正把城市建筑在空中让人居住的第一人！……充气的房子，充气的城市——向Speer（政府部长和首席建筑师）提个建议建造一个新的空中柏林怎么样？按这种设计，柏林将是便携式的，并可以被轻易地搬迁……那时人们可能会过上一种新型的飘游生活”。但是这种建造移动建筑的想法并非是对技术乌托邦过度幻想的建筑怪人的突发奇想。更确切地说它是“非城市化现象”的一种反映。那些充满社会和政治危机的城市由于居民不断地从住宅地、工作地和休闲地之间往返的绝对移动性已丧失了它地理上的固定位置。Vincenzo Fani Ciotti，被称为Volt，在他的著作“La casa futurista”中为未来主义着废除城市提供了理论基础。这部著作出版于1920年。在这部著作里他描述了现代人的飘游生活方式：“未来人们拒绝居住在根固于大地的房子”。他们装备了功能强大的引擎的居所可以行走，也可穿空过水。尽管非城市化达到了一个新的维度，但是使移动城市变成真实的问题仍未解决。

20世纪20年代，在艺术领域中也试图兴起创造一种移动性的审美观。这种意图伴随着对第四维度令人信服的描绘的出现。为了适应由技术进步和社会生活的改变引发的移动性需求的增长，第四维度的出现已成为必要。出于这样的原因，实验在他们的作品中显得重要。在实验中，为了创作动态艺术，时间、听觉以及物体可视空间可变性的视觉化新维度占据了核心地位。Marcel Duchamp (1887-1968) 的作品“自行车轮”(图 49)——第一件真正意义上的现代艺术品——可以通过旋转它的方式达到视觉变换。同时，它也展示了立体主义原则的多视角性以及时空相交织的单个物体的同时性。动态艺术的主题不单关注具体运动的描述。举Alexander Calder(1898-1976)被称为“移动”（图50）的设计作品为例，它是多量纲中的重力因素与移动性有机系统中的动态同步性取得了平衡，同时对环境的影响也作出了反映，比如说微风。但是Robert Delaunay (1885-1983)的画作（图51）充满着一种色彩冲击力。其原因源于一个事实，即他的作品是基于一组同时存在色差的旋转的圆。按照这种方法，他的画作表现了对机器和科技的一种类似性。另外，Naum Gabo (1890-1977) 或 Anton Pevsner(1886-1962)的动态雕塑（图52）用动态曲线表现运动的节奏性和空间活力，这种动态曲线超越时空来塑构艺术的第四维度。

4）、后现代时期移动性的反映

20世纪初，“以公里为单位来衡量距离这种方法的消失”越来越明显了，而且随着超音速的出现，“……用时间来衡量距离的做法的消失”也变得越来越明显了。随着火箭和太空旅行而引致的移动性提高，“时间和空间已不再同步了”。随着一枚枚火箭的发射和洲际飞行的兴起，世界和宇宙变得更小了。现在全球化进程与电讯业的无限发展相联系。最终，我们的世界会变成一个地球村，在那里时间和空间的差异看起来是如此的微不足道，以至商品可以轻易地被搬送到任何一个地方，而不必考虑时间因素，只需考虑获得最大的利润。现代性是在艺术和文化层面上对高速发达工业社会的表现。然而，后现代性，作为后工业社会和移动性的问题的表现，也在审美经验中被反映。

为了解决城市集中化和扩散化，市中心和市郊越来越激化的矛盾问题，对乌托邦般的移动城市的向往仍在建筑师和城建规划者的设计理念里起着重要的作用。因此，由英国Archigram集团1964年设计的作品“以建立与经济社会需求相一致而不是与时空需求相一致的移动性城市中枢”就展示了对“移动城市”课题的理想解决方案。人们很容易看到作品中的讽刺性和煽动性，那是一种直接源自科幻系列小说的技术模式。Valeska Peschke (1966-)也在便携式设计方案“即插即用房子”中采用了后现代城市设计理念。这种房子可在2分钟内充满气，她用乙烯基膜和房子里大量的易燃舒适家具，包括一个壁炉和一台可展开的标准台灯来表达她对移动社会里人们对目前私人住宅舒适性的基本需求的讽刺。但是她用易燃性设计代替了固定性的家居设计表达了她对移动社会里对绝对自由的梦想的怀疑，因为当她绘设了一种便易的移动家居的同时，也引起了我们对这样一个事实的注意，即我们的社会里，出现了太多无家可归的人。

Eleonore Straub的艺术理念也引起我们对“社会进步”的矛盾情绪的注意，同时也强调了在不断加速的社会里移动性引致不断扩大的人际疏远的阴暗面。举个例子，他的作品“Narcissus ”(图55)把“国际道路标示语”与艾科、那喀索斯的古老神话结合起来，以使复杂的社会现实通过象征造型显视出来。她利用应用于雕塑作品中的警示标志，如映照在水中的路灯杆顶上的那喀索斯的造型，来负责任地唤起我们对时代危机的重视。她的作品强调了孤芳自赏的人们的自恋，他们在追求快适时没有意识到环境和社会的畸形状况。但所有的警告看来都不能令移动社会的加速进程停止。这种情况在由汽车躁狂症引发的交通堵塞和大量廉价飞机不断充塞天空的状况中表现得很明显。对艺术家和观察家而言，考虑到第三世界不断增长的数量惊人的交通量以及面对带有新的而且有害的环球旅游业时，对这个问题是否有解决办法仍然没有定论。

我们可以得出结论，各个时期都有两种方式应对移动性的挑战和处理时间的现象：一种方式是试图借助移动性美学属性来适当地对待人们的移动性需求，这种方式在艺术中应用第四维度以表达新的移动方式；第二种方式是借助造型理念的变化方式来反映移动性加速的进程，以用一种象征性的语言对移动性的发展做出批判性的或肯定性的评价。

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