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Blick zurück in die Zukunft: Zur Geschichte einer Dramaturgie des medialen Raumes
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Look Back to the Future

Towards a history of a media space dramaturgy

The discussion about the benefit and role of “new” media in exhibitions and museums preceded the pedagogic demand for a more intensive consideration of the mediation duties of museums and collections in the 1970s. The appropriate presentation of themes and exhibits, taking into account a careful preparation of contextual information specific to the target-group, became attractive to curators and exhibition organisers. The canon of possibilities available at the time ranged from carefully composed text panels, printed accompanying material, and documentary photos, films, videos, and slideshows, to stage-like scenarios. Some natural science museums—the Deutsches Museum in Munich very early on, and later the Exploratium in San Francisco—also offered an attractive exploration of technical, biological, and natural-scientific processes. These first interactive models were derived, in greatly simplified forms, from experimental set-ups and illustrated processes that could not have been mediated through the display of historic exhibits alone. These hands-on models were controversial, seen by some as “play boxes,” by others as scenarios to be taken seriously. Either way they acted as models for computer-based interactive media, which were increasingly employed in exhibitions and museums from the beginning, and particularly from the middle, of the 1990s.

Until the end of the 1980s, linear forms of presentation, such as films, videos and slides, had priority—and these too were contentious, like everything that could be called up on computers later on. Interactive pieces, involving video or laser disks linked to a PC for example, were rarely

employed in museums in this period as they were costly and unfamiliar to most curators. The same was true for *Bildschirmtext* and *Videotex* a networked information system that already had successful commercial applications and represented a predecessor of today's Internet. Only a few museums—including the Museum of Communication Frankfurt (before Deutsche Postmuseum Frankfurt) which dealt with new and future communication technologies as part of its thematic focus—integrated the first interactive terminals, which in the meantime are writing media history themselves.

A lively discussion on the compatibility of these two worlds broke out, at the very latest, when these media entered the museal sphere: does the exhibit need an accompanying medium or even a media re-contextualisation? Do media interfere with the aura of the original? Can't thematic connections be mediated primarily via exhibits? Do the media—which are of course also part of the entertainment industry—actually compete with the exhibits? Do they distract from the original and as such reduce the value of the intrinsically valuable object? Are, on the other hand, presentations and mediation processes without contemporary and generally accepted media even conceivable?

Numerous successful links were clearly able to appease this dispute—but new issues arise. Media are not only part of the entertainment industry and as such excludable products that are only relevant for certain fields of experience; on the contrary, they are the filter through which we perceive the world. They function as the microscope and telescope of our senses. They are an irremovable component of our reality, even if we wish to divide reality—almost anachronistically—into a real and a media or virtual reality. This second reality, which has long since been internalised, increasingly permeates all of everyday life, from work and education to leisure time. It changes communication, logistics, mobility, institutions, design, architecture, art, our perception, our experience, and ourselves—silently, rapidly and extremely effectively.

Exhibitions, i.e. spatially organised communication and scenarios, are no more exempt from these media changes than museums, unless they themselves become museal objects. This article, with a review of historical examples and their changes through time, picks up at this point: the inseparable link between spatial presentation and communication, the media permeation of space, space-related media and media spaces, their narrative styles, stagings and dramaturgic legitimacy.

The staging of display cases

And thus it stood on a whitewashed plinth, protected by the spotless glass of the display case. A subtle light source creating accents and soft shadows.

A perfect staging. Next to it, neat and only just decipherable on a 2cm^2 piece of plexiglass, a two-digit number. The child stretched up the plinth, pushed its nose against the glass of the display case and tried to memorise the number, muttering it under its breath. Then, balanced on tiptoes, its gaze wandered, searching, to a neatly printed list positioned in the corner of the display case, which contained many more numbers. The child had learnt that there must be consensuses here. After several attempts it discovered the memorised number—as that was the point of it all—on the list of descriptions and years assigned to the exhibits. A moment of joy: Roman drinking glass, 52 BC, location Cologne.

Apparently the crowd of adult viewers, who also surrounded the display case, was satisfied and continued on to the next numbers. The child, however, persistently refused to go with the flow. "Tell me the story of this glass," it said, slightly rebelliously, to its clueless mother, who was making to leave. "Please. Everything has a story."

And the child meant not only the story that expresses itself in numbers and wars and kings, but the story that every object carries in it, even if it is old, closed off and in need of restoration.

In a videoconference on the topic of museums and media in the Heinz Nixdorf Museum in 1998, Eckhard Siepmann again portrayed this situation,

which he terms “object-fixation,” in an even more exaggerated form. “The museum was still, until recently, a purely object-showing event. The object was predominantly treated like a monad, all of its windows to the inner and outer worlds were closed. In the old kind of museum nothing passes for the exhibits—human bodies are, on the other hand, a security risk. Visitors are regarded through the anthropometric arrangement of the objects.”

What is addressed here is the narrowness of a gaze, a focus, which cannot be explained by concentration on the exhibit alone. In fact, it is cultural, scientific and pedagogic opinions and practices that yield a special form of mediation. Including mediation via small numbers. Collecting, preserving, researching, scientific interpretation and mediation do not become obsolete through the integration of new communication media and strategies. But the way in which this takes place will be different to that of the era of the book and print media or linear slide and film culture.

Museums are, according to today’s public understanding, place of communication, which decipher and pass on guarded cultural heritage. They tell of our past with all the positive and negative aspects and as such make a substantial contribution to cultural, historical and also future identity. The manner of this mediation seems to me to be of prime importance, as this is where acceptance and rejection is decided. At the same time, there is a direct connection with media technological and media cultural questions and developments here.

A museum without walls

Walter Benjamin and André Malraux have discussed this shift in the context of increasing technologisation, particularly in respect to the increasing reproducibility of the original, both quantitatively and qualitatively. In reference to artistic work, Malraux, unlike Benjamin, ascertains rather positively: “What have they (the artistic works) lost? Their attribute of being objects. And what have they won? The greatest importance they could possibly win in the sense of an artistic style.” Malraux does not see the original as being under threat, but rather as enriched by new qualities and extended functional links. It’s

about expansion, the possibility to create understanding beyond the object in its artificially created spatial determinacy. A good 50 years after Malraux's *Museum Without Walls* was first published, networked society prepares to create a virtual para-reality, a parallel cosmos, which reproduces and simultaneously generates originally. Original and reproduction thus coincide, their boundaries blurred in electronic creation and in part no longer exist.

Do new technological developments turn everything upside down now? Is everything foreign, unfamiliar, ostracising the established? Or are there familiar structures that have existed and exist, independent of technology, over long periods of history? Proven, handed-down forms of mediation that we can fall back on? A kind of communicative alphabet, a cultural fingerprint brought in from far away? How young and how old are concepts of virtuality, hybridity, interactivity, hypermediality and networking, which influence today's exhibition and presentation scenarios?

Malraux's *Museum Without Walls* is not a discourse on technological change, but rather on the change in communication and consciousness. Taken to its logical conclusion, this also leads to questions of the quality of mediation, of the manner in which the viewer, reader or interested party is involved. These considerations have not lost in topicality over the past years, neither in exhibition design nor in the conception and design of media content. On the contrary, the attempt to transfer the concept of narration to a wide range of technology-based communication and exhibition situations—for example as "interactive storytelling" or "non-linear narration"—shows that metaphors, whose roots reach far back and probably contain what I have already touched on as "cultural fingerprints," are being employed in the search for new mediation qualities and forms.

The dramaturgic aspect of the narrative act - that part of the narration that is directed intensely at the audience, that arouses the audience's attention, that speaks to the audience emotionally, binds it and leads it through time and space, one could also say the psychological and structural side of communication - seems to me to be essential.

Narration: the cultural memory

The depiction of events, the summarising and description of collective experiences, desires and fears, also the passing on of experience and knowledge, had already begun around the campfire. Narrators kept the myths and knowledge of their cultures alive across countless generations. Their stories were closely interrelated to the religious beliefs of their people, rituals and external events. The stories of the oral tradition were, as language fixed in characters would be later on, integral parts of a comprehensive social and cultural control system. They served, on one hand, the upkeep of their own identity, the transmission of passed-down values and abilities, and on the other, the absorption and appropriation of new knowledge.

Thus a very special role fell to the narrative act and likewise the narrator. It can be assumed that a suitable place, the composition of the group of listeners, as well as certain times and occasions often created the external prerequisites for this event.

In a society without a writing system, the narrative act was the place of cultural memory. A kind of immaterial, virtual museum too. A living museum, that lived off the performance.

It was the creative force of the narrator, to give life to the stories through embellishments, excitement and rhetoric, in order to captivate the audience and stimulate their imagination. *The narrator assumed, so to speak, the role of the curator.*

The epic form of narration already had all the characteristics of an internal and external dramaturgy, if one regards the term in a wider sense, beyond the classical, Aristotelian definition. *Dramaturgy understood as a shaping, organising, aesthetic principle, can therefore not be restricted to one narrative form or one narrative tradition.* In every narrative and communicative act, dramaturgy aims, in particular, to create an effect in the listener or viewer. Without dramaturgic power, a large part of the traditional body of thought would probably already have been lost.

Closely related to the narrative act were cultural objects and places, sporadically also certain periods of time, which entered into a mutual fabric of

meaning based on dramaturgic rules. Content, place, time, and object were inseparably linked through a common dramaturgy. This connection can be depicted well by means of a few historical examples. The significance of space as a dramaturgic element can also be made apparent.

The Dionysian theatre, consecrated in religious rituals, was still laid out in a circle. In the middle there was an area with the altar called the orchestra. The audience encircled the religious action or, represented in a different way, the ritual happening formed the central point of the mutual event. With the beginning of secularisation, the plot, the drama received an autonomous significance and a separate platform, which later developed into the stage. The audience arena, now open on one side, is situated opposite a presentation space. Action and reception, presentation and watching, now received their own spheres. This division has remained predominant until today.

Presenting and watching

This division between presentation and reception is also found in the traditional museum: the object is on the pedestal, the viewer in the viewing space.

What is significant in this process, however, is the marked change in the object exhibited in this way. The object, removed not only from its historical but also its original dramaturgical context, inevitably loses that which one could call, in the broadest sense, its aura. Thrown back onto itself, to its pure materiality and appearance, it requires a new, meaning-giving contextualisation, which can be reconstructed via the narrative moment and thus through an appropriate staging. This happens in the most varied of ways by means of inter-media scenarios and dramaturgies, which increasingly integrate the communicative capacities of new media. In her publication *Expanded Museum. Kulturelle Erinnerung und virtuelle Realitäten*, inspired by Gene Youngblood's "expanded cinema," Annette Hünnekens calls these media extensions of the object "expanded objects," a kind of qualitative

appropriation of the object, which, like Malraux's "museum without walls," places the exhibit in a larger sensuous context.

It could be argued that every object in its original context is, in the first place, to be understood as an "expanded object." But being isolated in a display case the exhibit is
thrown back to an entirely reduced and uninteresting reference formula. At the same time it becomes clear that the object changes through its media expansion, through a new set of relations and references. I think that this fact specifically needs getting used to and is simultaneously relevant for a society that finds itself still characterised by print, but in transition towards electronic culture. Book culture was relatively durable, slow and almost sedate. Everything lasted longer, including values. Electronic culture, on the contrary, is flexible, extremely fast and open, and will, with these characteristics, also capture the objects that embody museal values. This means that cultural, scientific and pedagogic mediation practices are also subject to an accelerated change and thus change the museal item. It is, in the end, the change in our gaze, the change in our perception, which also changes the historical object.

Aristotle's legacy

The dramaturgical conventions of Greek tragedy were stringent, they reduced the piece to a plot, which was performed on the stage during one day. "The tragedy," according to Aristotle, "attempts, where possible, to keep within a single cycle of the sun or a little beyond that. The epos has unlimited time at its disposal." Aristotle is already describing a very topical concept here: he outlines—in comparison to the purely literary form—the epos, a special media dramaturgy, especially tailored to the theatre, to the presentation, which takes all mechanisms in dealing with effect, time and space into consideration, including rhythm and climax. Subplots and changes of location were the reserve of the epos. "In the tragedy," Aristotle continues, "one can no longer play back or mimic several parts of the plot simultaneously, rather just the part that is taking place on the stage and which

the actors act. In the epos, on the other hand, which is narration, one can very well present several parts of the plot, which take place at the same time."

The rules of plot-based drama, but in particular the breaking out of linear structures in the epos, are—from a dramaturgic point of view—of fundamental interest for a media exhibition dramaturgy. They already include the factors of space and time, closeness and openness, rhythm and the placing of focuses or intensifications. The viewer, visitor or communicant is already consciously anticipated with these guidelines, this means, the dramaturgical conventions already include a model of communication.

The staging of plot and space

In a similar way to Dionysian theatre, the mystery plays of the Middle Ages first took place as religious ritual in the church. Alongside the sermons, the readings from the Holy Scripture and the picture stories, which represented the life of Christ in episodes, they were an important medium for bringing the illiterate masses closer to the Christian teachings.

The church service was already a multimedia event: it united texts, images, singing and ritual performances in connection with religious objects and relicts in an architecture which, including lighting design, was clearly laid out to create an effect and a canon of entrenched dramaturgies followed. Ritual objects and images were a fixed part of this staging. They were not object, but rather medium, which mediated between reality and belief or, as one would put it today, an interface between the lived and imagined worlds.

The church, in particular the richer ones with their suggestive arrangements of architecture and light, were always *hybrid places*, spaces that tried, above and beyond their physical presence, to represent the unimaginable, immaterial, the idea and to unite them both. The believers found themselves at the interface between real and virtual reality, in an inter-reality. The development of the painted perspective, the illusionism of the image, strengthened this considerably. One now looked into another space, through a window into another world.

Hybrid spaces are thus not a construct of computer-based virtual worlds or electronic environments, as produced since the end of the 1970s by artists and scientists such as Myron Krueger. As previously stated: illusionary painting had anticipated much of this and the camera obscura exhibited related phenomena in that it projected the external image in the private sphere, thus merging the outer and inner worlds together.

The church very soon became too small as a performance venue for Medieval mystery plays. They therefore relocated, firstly to church and market squares. The performers were at first—as in the Dionysian theatre—surrounded by the audience: they stood in the middle, almost like in an arena, not on a separate presentation platform.

Non-linear narrative forms

However, in order to sustain the onrushing audience and the numerous amateur actors who took part, the plays were soon divided between several places. In contrast to Greek drama, for whose dramaturgy a specification of time and performance location were prerequisite, these episodic depictions could be implemented in the form of decentralised plots, which obtained a mutual setting through festival-like events. This form of connection of individual activities in the context of a mutual, collective theme is already reminiscent of modern exhibition models, as they were embodied, much later, for example, by the *World's Fairs* or by *current events.* Simultaneously, a dramaturgic model came into being here that is of great interest for interactive works, also in terms of exhibition activities, as a theme can now be regarded in different parts. In addition, the rudiments of a *non-linear narrative model* are already discernable. The visitors to mystery plays could decide between a linear and non-linear sequence of the whole story. Repeated access to individual episodes was also possible because their performance was repeated. This *freedom of access* is already reminiscent of the simplest forms of interactive programme.

Elizabethan theatre, in particular Shakespeare, consciously broke away from the conventions of antique theatre and the classical three-act

dramaturgy, which was still dominant up until that point. It completely realigned the emphasis. Shakespeare's dramas were spread over long periods of time, in addition the action took place in the most varied of settings and this abundance inevitably burst the linear, one-level plot. Shakespeare therefore added secondary narrative strands to the main level. Furthermore, both comic and melodramatic or epic elements could be weaved into the plot, resulting in a lively mixture of the most varied points of view. *This mesh of varied levels and layouts already had the dramaturgical characteristics of hypermedia programmes.*

Multimedia dramaturgies

Non-European theatre traditions developed, from as early as the fourth century, completely different forms of presentation and dramaturgies than those known in Europe. Indian, Chinese and Japanese dramas were highly stylised and formalised. The Indian and Chinese theatres, in particular, united elements of performing arts, dance, song, and music. They were in every respect, without mechanical and electrified tools, *multimedia.*

Through their high level of abstraction, *changes in place and time*, such as flashbacks and visions of the future, could also be carried out easily. The static condition of the stage and the period of time played were, so to speak, cancelled out; they did not present, they symbolised. Thus place and time were available virtually, as variables, at any time during the course of the play. This rich form of theatre, that was strictly composed and at the same time intensively appealing to the imagination of the viewer, already embraced numerous elements that can be found in current media: *associative links, effortless changes in place and time, access to different narrative levels, multimediality and virtuality.*

The Gesamtkunstwerk:
Architecture and staging

The integration of separate art or multimedia performance forms in Western theatre was given completely new impulses by Richard Wagner in particular. In 1849, Wagner developed the concept of the Gesamtkunstwerk. He combined music, song, dance, poetry, painting, and light design to create a new performance experience. In 1876, in order to realise his ambitious dreams, Wagner built the Bayreuth Festspielhaus, which offered him the necessary spaces for stage and orchestra, as well as for lighting design and lighting dramaturgy, which he conceived of himself. The special type of architecture now offered—comparable to religious venues—the ideal conditions for his production concept and a dramaturgy attuned to it.

The museums of the time were, in terms of architectural requirements, not so far from the concepts of Bayreuth. The crucial medium was the architecture. It embodied, alongside its functional demands, ideological and especially symbolic concepts. The museum buildings, with their classical leanings, signalled to citizens and travellers their cultural standing, their cultural class, and this continued in the manner the respective collection was presented.

Thus an overarching staging also arose in museums, which in a way carried in it the idea of the Gesamtkunstwerk. The closedness of this presentation and possession culture, one could also provocatively speak of the subjugation of the exhibit under the spatial presence, is one of the most striking differences to an open, networked communication structure, as it designs the electronic and virtual museum in its radical opposite today.

Total theatre:

The dramaturgy of montage

A decisive break with these stagings, which were oriented to bourgeois educational ideals, was made by the artistic Modernism of the 1920s and 1930s, especially, in terms of dramaturgical considerations, in the theatre. However, what happened in theatre in this period cannot be regarded in isolation. In reality there was lively interaction with the visual arts, photography and film. Expressionist theatre, for example, developed

independent narration, beyond all illusionist endeavours. *Stationendrama*—a linking of different, self-contained episodes, which followed the laws of accumulation or exchange and was, as such, closer to the cinematic montage of experimental and revolutionary film than traditional theatre forms—freed itself from linear guidelines and the constancy of location.

The setting was no longer fixed and the most varied of elements could become part of the played action or also comment on what was happening on the stage.

The complex narrative power of Sergei Eisenstein's cinematic montage and John Heartfield's photographic collage become reference points for a changed theatre dramaturgy and narrative form, which wanted to capture, at least in fragments, the inconceivability of the societal and political revolutions of the time.

Erwin Piscator extended the stage into the auditorium, by relocating parts of the production into the audience, and made film a fixed component of his performances, as an extension of what happened on stage, so to speak, creating a sort of "expanded theatre." Excerpts from documentary films and contrived situations accompanied the action on the stage. Piscator had already worked with multiple projections and additionally introduced the notification screen into this total happening, on which current data, figures and information from social, economic and political contexts, were shown. Piscator spoke in this regard of "epic theatre," a style that was developed further, in particular by Brecht.

The proximity of these stagings to today's computer screen and interactive media is amazing: this form of epic theatre carries at its core not only typical characteristics of interactive works, but also numerous, valuable suggestions for media exhibition concepts:

Various media and genres are combined. The chronology of the action is broken up; in its place are short, self-contained episodes or scenes, which form, in their respective associative, complementary and also contradictory interaction, superordinate units of meaning.

Furthermore there are various narrative levels, which illuminate or comment on the same topic from different perspectives and thus leave the viewer a certain freedom of choice in the interpretation of the content.

From poly-screens to poly-scenes

Comparable with Piscator's multimedia stage, film was also able to break the focus on visual action. Parallel to Piscator, in around 1924, Laszlo Moholy-Nagy, who was teaching at the Bauhaus Dessau at the time, drew up the concept of *simultaneous cinema* or *polycinema*. Moholy-Nagy's *polycinema* was a room with various slanted or spherical projection surfaces and several acoustic levels. Variable screens were also included in his considerations. Some years later Eisenstein wished to present this idea to producers in Hollywood during his time there, but it was met with very little interest as the dramaturgies of the classic silent movies, and in particular the upcoming "talkies," barely found points of contact here.

Contrary to this opinion, however, the French film director Abel Gance used the expanded possibilities of poly-scene design, in his case the triptych, in the dramatic 1927 film *Napoléon*. Gance masterfully developed parallel narration in three pictures and in so doing created a completely new dramaturgic concept. In this way he used the parallelism of different narrative levels and the intensification, laid out in parallelism, of situations and observations as well as starkly contrasting scenes, which he employed as extremely expressive cinematic means.

Through the development of the CinemaScope format, multiple fields of images could later be produced relatively easily. The very successful film *Woodstock* (1970) by Michael Wadleigh is one of the few commercial films that made use of the dramaturgical possibilities of parallel scenes or points of view. In general, the wealth of formal means and as such a specific cinematic dramaturgy has, to this day, barely been exhausted by plot-based film. Recent noteworthy exceptions are Peter Greenaway's *The Moab Story. The Tulse Luper Suitcases, Part I* from 2003, and Isaac Julien's cinematic triptych *Long*

Road to Mazatlan from 1999, which was shown at the 2002 ZKM exhibition "Future Cinema."

These approaches were considerably more fruitful for the development of new positions in exhibition design and for the artistic application of projected media, as they were used, for example, as part of larger events from the middle and end of the 1960s.

Expanded cinema:
The media takeover of space

Representatives of *expanded cinema*, particularly in the 1960s, thus took up interesting dramaturgic antithetical positions. The term "expanded cinema" links back to Gene Youngblood, the theoretical advocate of independent, artistic film in the USA, who already anticipated the media developments to come in his writings.

"Expanded cinema" encompassed everything that went beyond conventional cinema film projection. It ranged from multiple and cloud projections, the integration of other media *as mixed media* or *inter-media*, to cinematic environments with walk-in projection spaces, which can be seen as a predecessor of *CAVE* (Cave Automatic Virtual Environment), a space containing interactive controllable 3D worlds, developed at the beginning of the 1990s at the University of Illinois (by Sandin, Defanti and Cruz-Neira). The media took over the spaces or the spaces were *medialised*, which was not without consequence, especially for the exhibition concepts that followed.

Progressive representatives of contemporary American art in particular experimented with an expanded concept of cinema involving stagings and works.

This included, very early on, Kennet Anger's *Inauguration of the Pleasure Dome* (1954), later Warhol's *Chelsea Girl*, Paik's performance *Zen for Film* (1962–1964), Claes Oldenburg's happening *Moviehouse* (1965) as well as projection pieces by Aldo Tambellino and Ed Emshwiller. Laterna magika's productions in the Czech Republic, which used screens of various sizes, in part variable, and combined these projections with theatre, ballet and live

music to create multimedia performances, also made a name for themselves in this context.

Alongside artistic works, *expanded cinema* also had a thoroughly successful commercial side. These ideas could be realised in practise, in particular in exhibitions and later in larger events, and led to milestones in media staging and dramaturgy.

Amongst the first to experiment with multiple projections on a large scale in 1950s America were the designers Charles and Ray Eames, who also earned an international reputation as exhibition designers. Their piece *Think* (1964), designed for the IBM pavilion of the New York World's Fair, was composed for 22 screens of various shapes and sizes. Expo 67 in Montreal in particular set benchmarks for new media dramaturgy and gave an insight into what were at the time extremely spectacular projection and design forms. This included the large installation *Man and the Ocean* with film footage from Jacques Cousteau, which was projected from inside a huge aquarium onto the side of the container, so that the audience could walk around the outside of this virtual sea bowl. Furthermore, there was Al Woods and Carlos Ramirez's extraordinary projection *The Resources of Man*. Their films were projected on three screens, each measuring 550 square metres and made of translucent blocks, thus breaking up the picture kaleidoscopically and creating three-dimensional effects.

Prerequisite to these multiple projections was the development of *poly-scenic dramaturgies,* which, in the context of a multi-themed total staging, were able to interconnect content, in particular, on a simultaneous, associative and counterpoint level. On top of this came completely new patterns of perception, which were created through sequences of movement and the timing between the screens, i.e. rhythm, as well as through repetition and duplication. The relationship in terms of content and form between the projection surfaces now became a further dramaturgical feature.

But the *expanded cinema* was not only a pioneer of a changed, multimedia dramaturgy, it was also a trailblazer for a new inter-media concept of space, in the transition between the real and the virtual world. It was the beginning of

the media permeation of physical space and at least comparable in its effect to the pictorial permeation of the baroque church. In both cases one can already speak of an *immersive spatial experience*.

Between physical presence and virtuality

Immersive film experiences in the form of panorama or dome projections can thus also be seen as predecessors of CAVE and other experiments with virtual environments. The historic panoramas are, in the widest sense, also part of this. However, these depictions required a suitable architecture, a special projection technology and pictures or films especially produced for the purpose. The Géode in the Cité des Sciences/La Villette, Paris and in particular Futuroscope near Poitiers in the west of France are representative of the development of this illusionist film experience of the 1980s. Futuroscope, for example, is a park of futuristic buildings, each constructed for a specific audiovisual experience, for example, with rows of seats that move synchronously to film material or panorama projections that integrate the ceiling and the floor and thus are suggestive of an enormous CAVE. An interesting point is that some of these special facilities are, alongside their experiential character, also readily suitable for the mediation of non-fictional contents, so would be quite suited, on a smaller-scale, as elements of a exhibition dramaturgy.

Further examples are the installations by American scientist and artist Myron Krueger, who worked with digitally constructed spaces that produced virtual or immersive experiences. He had developed the virtual environments *Metaplay* and *Videoplace* as early as the late 1970s to early 1980s. In these installations, participants were involved in playful interaction in artificial environments. *Videoplace* also had a network component, provided via satellite. With this, Krueger brought participants from different locations into a common virtual playground. A common *virtual space of action* was also employed in artistic performances by the artists Sherry Rabinowitz and Kit Galloway. Dancers in different locations around the world could now stage simultaneous performances, connected via a satellite network, in an electronic

space. This possibility for *tele-presence* created a completely new form of artistic encounter, in particular because from then on synchronous interaction could take place independent of location. The *Electronic Café International* ECI, founded by Rabinowitz and Galloway in Santa Monica near Los Angeles, soon became one of the most well-known places for exchange and production of networked interactions and performances—first via satellite, later via low-band systems such as the *Internet*.

The media permeation of space

The potency of intelligent displays in terms of content and communication, or moreover common virtual spaces of action, has barely come to the attention of exhibition designers. Some architects, such as Ron McNeil from MIT, have already been working with intelligent architecture for years. McNeil's developments range from electronic playgrounds and interactive information architectures to interior furnishings for apartments for the elderly, equipped with artificial intelligence. His models may not only show the way forward in the area of living spaces, but should also be especially inspiring for the design of flexible exhibition and themed environments. Temporary exhibitions, and furthermore concepts for presentations that are simultaneous yet spread across various locations, can profit from these developments and yield completely new types of exhibition that unite a physical and virtual location in a hybrid concept.

By the beginning of the 1990s, all of the components that could extend the physical space, in the sense of *expanded cinema*, into a media expanded architecture, furnished with all the characteristics of a hybrid environment, were already present: *multimediality, hypermediality, interactivity and connectivity.* What was missing were suitable interfaces that evaded technical-rationality and took the user, as well as the communicative context, much more into consideration. *Corporeality, sensuality,* and *emotionality*, important factors of human interaction, should be applicable to the interaction between human and machine. That these qualities are also of the utmost relevance for exhibition staging and dramaturgy has already been made clear

by the animated exhibition concepts of science museums such as the Exploratorium in San Francisco in the 1970s or the Cité des Sciences/La Villete in Paris in the 1990s. Knowledge-based interrelationships in particular can thus be made almost tangible to the viewer and museum visitor, and thus experienceable beyond the exhibit itself.

This step *from exhibit to context, from viewing to experiencing*, also represented an additional challenge for the so-called new media. However, one must differentiate here between exhibit-accompanying media and independent media installations, which now become artefacts themselves or, due to the mediation of content, exhibits. The analogue experimental models and layouts of the older science museums for example were still relatively static and thematically limited—the electronic media, which shape a new generation of science museums and exhibitions, are much more open. Experimental layouts can now be executed in a variety of stages, degrees of difficulty and with the addition of the most diverse variables. In addition, the input media—and thus the contact between human and machine—are so elaborate in the meantime that a variety of interfaces are available that integrate the senses and the whole human body, for example speech, tone and noise, eye contact, taste and tactile contacts, body movements and gestures of various kinds, as well as brain and organ activities, which relay their energy to bio-sensors. One of electronic media's outstanding strengths is in the simulation of processes in connection with suitable interfaces.

Electronic information that accompanies classical exhibits could, when compared with analogue media, also be designed much more specifically, both in terms of the combination of audiovisual elements as well as the depth of information, user group, language (foreign languages, texts aimed at a target group) and updating. Numerous successful examples of this multimedia contextualisation can be cited, including the Musée Arts et Métiers in Paris, but in particular the Getty Foundation, Los Angeles, which no longer sees itself as a classical art collection, but rather as a mediator, a communicator between art and its visitors of all ages and levels of experience. All of the art movements and themes represented in the Foundation are thus assigned

various levels of depth and study, so the visitor can engage with historic, cultural and aesthetic questions in peace, or explore the production processes of the exhibits. There are things on offer for young children, specifically tailored to different age groups.

This in-house information system, which has existed for years, was designed especially for direct encounters with the original or the exhibit. Its distinctive feature is therefore the dialogue between direct experience and additional mediated information. The “expanded object” is what is happening here. In addition, the efficient intranet has reached a standard, for both moving images as well as artistic films and videos, which enables, also beyond the screenings on offer, high-grade viewing in television quality, at any time. Closely related to this is the website, developed in tandem and accessible to the public, which is in part based on the same databank.

A dramaturgy of hybrid environments

In the meantime, exhibition concepts that deal with common virtual spaces of action and experience reach considerably further, over and beyond the limits of physical space and thus defy national and cultural borders. Examples of this—in addition to spectacular international events or world’s fairs—are provided by, among others, Ranjit Makkuni, architect, musician and researcher, who works in Delhi and in Xerox PARC, California. The focus of his work is the crossing of cultural barriers and what he calls “cultural learning.” In his exhibition concept *The Crossing: Living, Dying and Transformation in Banaras: A Multimedia Cultural Learning Project for the Next Millennium*, for which he won a prize at the 2002 Ars Electronica Linz, he presents alternative paradigms of information access, by integrating body- and mythology-friendly forms of communication from traditional Indian society into computer-based learning. “Our research,” Makkuni says, “recommends a new generation of *cultural computings*, that are relevant for both the old, traditional societies and the modern, post-information societies.” One of his focuses is therefore the development of interfaces accessible through cultural and traditional practises.

Makkuni's exhibitions always contain, alongside a local staging, networked elements, for example the connection of several places on different continents. In this way, the same topic and its philosophical questions, which always have a universal character, can contribute to intercultural exchange. What Makkuni especially emphasises here—and I think this must come much more to the fore in future thoughts on media-supported exhibition design—is the psychological, communicative and dramaturgic unity of physical and virtual components as part of a hybrid total environment and thus the transformation of the interface, which ideally distances itself from its technical impetus and becomes a gesture again. Such an approach is reminiscent—despite all the technology and enlightened objectives—of moments that were already characteristic of religious places: the staging and dramaturgy of complex interrelationships in content between physical presence and immateriality, or ideas and knowledge, with the aid of the most varied of media, gestures and rituals.

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