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Museum as an enacted science.
The exhibitions of the German Hygiene Museum.

Whenever museum people talk about the importance of museum exhibitions in the modern media society, the critical observer soon gets the impression that museums today are quick at taking a defensive position. They often feel they have to justify their existence to the new media. Sometimes, this defensive position even comes along with a certain feeling of inferiority. The speed at which the Internet responds to current events is admired, and amazed glances are thrown at the immense volume of information that people are able to handle in the era of digitisation. On the other hand, the ponderousness with which primarily large museums react to the breathtakingly fast changes in science, technology and the society, and their slowness in documenting, describing and organising exhibitions on such changes, is widely complained about.

In recent years, laments of this kind have frequently led to a computerisation of exhibitions in museums. "Multimedia" was an omnipresent magic word, and many exhibitors in this country and abroad have subjected their permanent exhibitions to a digitisation process. However, this approach has become more and more questionable as the personal computer found its way into everybody’s home and the number of Internet subscribers multiplied in next to no time: Why should a potential visitor take the trouble to go to a museum when he or she can comfortably lean back and get all the information out of the computer, in even greater detail? Nowadays, the use of multimedia in exhibitions is no longer an innovative act unless multimedia is meant to complement the conventional media repertoire and provide additional information about the exhibits.

The discussion on how many and which media should be used in exhibitions takes people’s minds off a more fundamental question that touches on the conception of the institution `museum’ itself. It is the question as to what extent a museum that exhibits sees itself as a medium which is clearly delimited from other media. In this connection, it is worthwhile to have a look at the logical structure and communicative implications of exhibitions.

The origin of exhibiting lies in "showing". Showing in the sense of exhibiting is the purposeful disclosure and accentuation of things as they are, and the attempt to protect them from the changing, destroying power of time. Such showing presumes that the object to be shown, i.e. the exhibit, is taken out of its natural environment and put into an "exposed" place which differs radically from its original one.

Exhibiting objects was not always meant to serve the public; it was not a "show for everybody" from the beginning. The statue of Pharaoh Djoser, for example, found in his temple in Saqqara, was deliberately hidden from the eyes of the public, no one could see it. The showing of the pharaoh was a showing without an addressee. It was meant to immortalise the godlike king as a person and institution, to withdraw him from the tides of history or, in other words, to preserve him. It was the magic quality of the image that was important, not the informative value for the viewer. By contrast, the exhibition of booty, as we know it from the Roman Empire, was meant for the public to see. But here, too, the motive to take things out of time played a decisive role. Constantinople, for instance, was strewn with booty from the empire's provinces which reflected

the propagandistic contrast between the defeat and the timely end of the original owners on the one hand and the claim to eternity of the victorious Romans on the other.

Contrary to that, the showing of objects in exhibitions which are open to the public is a form of representation that has come into being in recent times only and has its roots in the treasure vaults of absolutistic princes. Finally, in the eras of Enlightenment and the French revolution, the first museums as we know them - for example the Mus e des Arts et M tiers in Paris - came into existence. As from that time, objects were collected, stored, sorted and also exhibited under scientific aspects. The opening of the collections to the bourgeois public soon created the desire that certain educational and didactic standards be met. Just showing was no longer enough; rather, the objects needed to be explained - exhibitions became an instrument of disseminating scientific information. The museum began to understand itself as an institution with an educational mission.

In the course of the last century, the traditional purpose of showing objects was gradually extended to natural and scientific phenomena. The Urania, which was established in 1889 in Berlin as a popular educational institution, and the Deutsches Museum in Munich, founded in 1905, became pioneers in the development of interactive exhibits to demonstrate the action of the laws of nature or the working principle of engineering systems such as an engine. Continuing this tradition, Frank Oppenheimer in 1969 in San Francisco founded the "Exploratorium", the first science centre in which visitors are encouraged to work with the exhibits which are experimental set-ups that he called "pheno-objects".

Today, the scientifically oriented museums in Germany devote much of their efforts to explaining what they are showing, with the exhibit and the explanation either separate - each having its own place - or as one unit such as a didactic model. Characterised by the solemn tone of their explanations, German museums have little in mind with the easy, cheerful form of imparting knowledge as it is practised, for example, in the United States. Often, there is simply no room in the concept for visitors who may take the initiative themselves, they are not encouraged to do so, nor are they given the possibility to experience the museum in their very own way. As in the past, visitors to German scientific museums are mostly treated as pupils who need to be taken by the hand and led through the walkable book of sciences.

However, an exhibition is not a book. It is a commonplace of museum didactics that exhibitions must not be overloaded with information. Long text and complex graphic representations overtax, tire or irritate visitors who, as a rule, have not come to the exhibition for reading. They want information, but amusement, too. To provide an appropriate, nicely and sensually packed amount of information - not too much and not too little - is by far not the least aspect of the art of organising exhibitions. Where exhibitors follow this rule, the visitors' senses and intellect will boost each other up, resulting in an extraordinary learning experience.

In scientific exhibitions, one sometimes can't help getting the impression that, while too much effort has been put into explaining things, the original purpose of an exhibition, viz. the showing of things, has been lost. It should be remembered that apart from the comprehension of causal, teleological, aesthetic, semiotic and other interrelations, there is also an understanding which is not the result of explanations but of plain seeing. Text, graphics and tables may contain many an interesting clue - but they do not convey the feeling how people loved, worked, thought or died.

An old pair of peasant shoes, for example, explains nothing but shows much. It reveals the poor living conditions and the hardship of daily work, in brief: it shows a typical feature of a time long gone by.

On the other hand, the mere exhibiting of an object does not widen one's horizon if an explanation that draws the visitor's attention to the essential, puts the object in the right connection and elucidates its functions is missing. "Explaining" and "showing" are two equivalent possibilities of presenting an object that should complement each other. Desirable is a mixed form of explanatory showing and exhibiting explanation which makes things transparent and reconstructable for the visitor on the one hand but also discloses the original human environment and living conditions.

Both conventional museums and science centres claim to show originals - be it works of art or historical objects or the original effects of natural laws. The genuineness of an original is considered the crucial criterion for the effect it has on visitors. Art historians sneer at exhibitions that display copies only. Of similar quality are the reactions in large scientific and technological museums when fake experiments are suggested, that is an interactive installation where the visitors believe to trigger the original effect - nothing is easier than getting them believe that an air flow generated by them drives a wind power station - while, in reality, the rotor of the assembly is driven by an electric motor.

In an era in which almost everything that is exhibited is reproducible or can be simulated it is, among others, this claim to originality and authenticity that has driven museums into a self-image crisis. For what is an original? The answer is that any object can be an original: Otto Hahn's experimental table just as much as the prototype of a car or a series-produced item with a certain number, the snuffbox of Frederick II or a copy of the Buddenbrooks from Gerhart Hauptmann's library or a simple ball-point pen, for all that. Moreover, medieval history shows that the forging of an original is simultaneously the production of an original forgery.

It is particularly the modern media that cause difficulties when it comes to defining what an original is. An experiment which can be carried out on the computer screen - like the dissection of a mouse - usually gives the same results as a correctly performed laboratory dissection. And if we consider the new possibilities of cyberspace and virtual reality, the objection that this is not a "real" but "simulated" reality has never been taken serious. As Florian Rštzer rightly said, all our perceptive faculties are based on simulation: We do not perceive the "outer" reality as it is. Rather, we handle internal images which are created by means of our sensual apparatus and brains. To use a phrase by Rštzer, "the perceiver sits in his brains like the pilot in the closed cockpit of a jet plane carrying out a blind flight, with the pilot getting his information about an environment inaccessible to him entirely through display screens and instrument readings, that is through simulation." Also virtual reality is perception of reality. Virtual reality more and more loses the traits of an image which is manipulated from outside. It is a new, admittedly artificial, kind of reality, a realm into which one delves. Increasingly, it becomes a digitally created environment in which the viewer can move ever more easily. To the person indulging in this reality, the question as to whether the images he or she has entered into are real is of second importance.

But if anything can be an original, what original to exhibit? For a museum, this question can be answered as follows: The originals should be selected in dependence of what they are meant to bear witness of. As Walter Benjamin used to say, the aura of an exhibit is determined by the extent to which it bears witness as an exhibit. The original object brings back something out of the past. It testifies to the life in bygone worlds and, paradoxically, brings things that perished long ago close to the viewer. Let's consider a coin in an exhibition. The coin is no longer embedded in its original environment; it is no longer a means of payment. Rather, it is a piece of metal in a safety glass showcase, though a bit of metal clearly identifiable as money of past days. Well displayed this object, which once was a coin, arouses the visitor's interest and imagination, becomes a trace into the past. What was it worth, who held it in his hand, what was bought from it?

Also with regard to hands-on experiments the suitability of an object to bear witness is a crucial criterion in determining whether it is a worthwhile exhibit. Multimedial substitutes for such experiments may be practicable "exhibits" for educational, financial and design reasons. However, computer simulations first and foremost testify to the competence of the programmers, maybe also of museum educators and scientists who have contributed to working out the concept, they do not have the character of a real experiment. To refer once again to the dissection of a mouse on the screen: Nobody will doubt that the necessity to kill an animal is an essential component of real laboratory experiments. In a multimedial simulation, this component - like any other component, too - is just imitated by the computer. The death of the mouse is digitised and thereby suppressed. And as for the results of the experiment - the operator must bring himself to believing these results are correct, because to him they just seem to be verifiable.

In view of the difficulties connected with the term "original" exhibitions in museums, in contrast to other media, are capable of offering a specific supplementary service: they are in a position to heighten the visitors' awareness of the meaningfulness of things. Good exhibitions see to it that things are transparent; they care about what and how objects are shown and what they bear witness of. Let me exemplify this by referring to an event which happened in Germany in the early eighties of this century: The Hitler diaries, which were written by Konrad Kujau and triggered off the probably biggest press scandal in post-war Germany, are extremely valuable originals as far as the history of the Federal Republic of Germany is concerned. Within a specific framework, they would be an expressive exhibit. Though not contributing to broadening the knowledge of Hitler's biography, they testify to the dubious practices of the press and in science, a chequebook-oriented journalism, hunger for sensation and many other things.

Put into other words: In a time when the danger of manipulation by the media is an ever-present topic, museums can carry conviction through scientific sincerity and honesty. They are in a position to provide facts about the origin, genesis and function of works of art, pictures, three-dimensional historical objects and technical artefacts. As a place of authenticity and originality, the museum is sort of an institution where everyone can put things to the test and find out whether they are trustworthy or not.

Moreover, museum exhibitions are a suitable means of shedding some light on the vast and ever more impenetrable jungle of data offered by the media. The afore-mentioned weak point of the medium exhibition - its low density of information - is simultaneously one of its strong points. Let me explain it:

There is no doubt that the world we live in has become more complex over the past decades. To find one's way through this world calls for specialisation but, not less important, also for the ability to get an overall view of things which helps find one's orientation.

The times of scholars with an encyclopaedic knowledge have long gone by. Lots of findings originating from scientific and technological, economic, social and political processes have become incomprehensible like Egyptian hieroglyphs. This is where exhibitions can help. They are capable of bringing problems to the point, elucidating interrelations which are normally hidden, imparting background knowledge and presenting all this in an understandable form.

Exactly this is the intent of Deutsches Hygiene-Museum which, through its special exhibitions dealing with topics like abortion, the antibaby pill and gene technology to name but a few, has made a contribution to enlightening visitors in these areas. In these exhibitions, explaining things down to the last detail is not an important factor for it should always be borne in mind that the specific experience gathered is a very personal one, that is something that happens in one's inmost self.

In other words, the strength of a museum exhibition lies in a provocation of the visitors, in the intent to break up their burnt-in habits of seeing things or thinking, to make them reconstruct and interpret by themselves the subject matter just hinted at in the exhibition. Provoking the visitors also means that questions may be more crucial than answers. The exhibition is meant to raise questions, and it will have had the desired effect when the visitors leaving the exhibition challenge much of what they had believed to know. One could say the museum brings the visitors on the right track which they then follow to an elucidating end. As a space, a non-linear information system that addresses all senses and in which the visitors can roam freely as they wish, the museum offers more possibilities than the print media, for example.

In view of this background , another "weak point" of the museum - its slowness in responding to events - again turns out to be one of its strengths. In the same way as a rubato can brake the flow of a melody, thereby causing unsuspected nuances to be heard, an exhibition can deliberately slow down the hectic flow of news and data, casting the light to quite different sides of a thing. Gaining a deeper insight particularly into complex topics presupposes a pausing, both by the public and by the individual. For instance, a certain measure of time and leisure is needed to answer the question what gene technology is all about. A museum is in a position to create circumstances that prevent new things from falling too fast into oblivion. Thus, a new aspect has been added to the old concern of collecting and exhibiting museums, which is the saving of things over the times. Figuratively spoken, museums can slow down time to make it possible to grasp the spirit of the times.

In this connection, the museum can resort to another of its strengths: its ability to impart knowledge in a personal way. With good reason, in particular the electronic media are said to be impersonal. Also in the century to come it will remain an important factor that guided tours are offered in museum exhibitions and that duly trained supervisors can answer the questions of visitors. In my opinion, not all possibilities in this context have been exhausted yet. Just think of the "Museum of the Moving Image" in London where qualified actors enliven the scenes and productions.

Admittedly, these arguments for a self-assertion of the museum in the media society are of a defensive nature. Even if the museum is an honest advocate of authenticity and originality, even though it can provide spaces which remove the visitor from the hectic of public life: It is not necessary for the museum to define itself by referring to the weak points of modern media for it has to offer a lot more than just that what has been mentioned afore.

To Deutsches Hygiene-Museum, the "enacted science" concept is a sound basis that opens up new ways of designing an exhibition, ways that have been followed in rare cases only elsewhere in Germany. It is possible to turn a single exhibit into an "enactment". The "visible man" (Der Glaeserne Mensch), still the main exhibit of Deutsches Hygiene-Museum, is one example of the enacting tradition fostered by the museum. On the one hand, the visible man is an exhibit disclosing scientific facts by reproducing and explaining reality. The structure of the body beneath the skin, which is normally not visible, reveals itself to the visitors. Blood vessels and nerves can be seen without the skin having to be cut open. For this reason, the visible man can be considered the scientific-didactic continuation of Wilhelm Conrad Roentgen’s achievement, that is the "X-rays" which he discovered in 1895 and which make the human body "transparent".

On the other hand, the creators of the visible man deliberately put him in an iconographic tradition. It is assumed that the hands stretched out toward the sky were originally just a copy of an antique statue of Leochares (4th century B.C.). But at the same time the visible man is reminiscent of the naked "life reform" youths who open themselves to the light. The "flesh", which can be interpreted in scientific terms, has been arranged under aspects which originate not from the natural sciences but from the arts. The exhibit "visible man" belongs in the twilight zone of art and science - in an area where showing, explaining and enacting overlap.

What is applicable to a single exhibit should apply in no less an extent to an exhibition as a whole. Scientific contents can be enacted. Therefore, it is easier to involve visitors in an exhibition than, for example, the audience in a theatre. Ideally, the enactment of an exhibition expresses a basic dramaturgical idea that puts visitors into an environment in which they are actors rather than just guided followers or readers. In this way, visitors turn into travellers through the exhibition, into adventurers, into an integral part of the world they are experiencing. The adventure can be an expedition in an unknown jungle, an archeological excavation, a day in the life of another human being and many other things where the exhibits, showcases etc. become the stations of their trip that irritate the adventurers, put them to the test and offer them unfamiliar and therefore informative views.

Deutsches Hygiene-Museum is experimenting with the concept of enacted science and continuously improving on it. In the exhibition "The big dying", which deals with the history of epidemics, we have arranged the exhibits on the history of the plague in front of the silhouette of a gothic dome. Another part of the exhibition, which deals with the history of tuberculosis, has been designed to look like Thomas Mann’s "Zauberberg". The dominating element of the special "antibaby pill" exhibition was the stylised body of a woman. In the exhibition "Gene worlds: man - a workshop?", which is open to the end of this year, visitors enter part of the exhibition through an oversize syringe, they are "injected " into the exhibition, so to speak. In our new permanent exhibition called "The human being", which is planned to be opened until 2002 in three phases, the visitors will be travellers through the exhibition from the entrance to the exit. The trip will

take the form of a search for traces, familiarising the visitors with all the essential "human" aspects. In the course of this trip, they will be confronted with quite different perspectives which encourage them to change their views. They will see man as scientists see him but also from the angle of historians, cultural experts, ethnologists and philosophers.

Though Deutsches Hygiene-Museum supports and practises enacting, it is not its goal to depict reality in a naturalistic way as is favoured by some open-air museums. Apart from the fact that a one to one copy of, say, a historic situation is nothing but a pipe-dream: The transparency of naturalistic backgrounds and exhibit ensembles and their capability of imparting background knowledge are rather limited. For example, exhibits that demonstrate social situations or trends often serve nothing more than just decorative purposes. Where enacted science claims to naturalistically reconstruct reality, it may have the effect of a structural corset and be an obstacle to getting an overall view and to digressions that might elucidate invisible and structural interrelations. Among others, enacted science means that the museum contents itself with showing reality allusively and leave it to the visitors' imagination to reconstruct a situation.

Of course, we have also got some stiff comments on our exhibitions. Quite frequently one meets advocates of scientific-didactic purism who take the view that a museum is not a ghost train and that Disneyland-style antics have nothing lost in an institution which calls itself scientific and has an educational mission. Well, we are of the opinion that the institution `museum' will not have a chance in the 21st century when it understands itself merely as a supplement to or other form of school and restricts itself to presenting facts.

Museum exhibitions have the great chance of becoming a highly innovative form of imparting knowledge and promoting the public understanding of science. They will reach this goal when they tear down the wall that has so far separated the viewer and the viewed, that is the visitor and the exhibit. Roll-playing will become a pillar of the exhibition concept where the exhibits will be part of a playground which differs from everyday life, a playground on which the visitors, in their assumed roles, move around as they like. Once the visitors have taken on their role, they will more or less automatically be prepared to learn something new for this is part of the game. By enacted science, the "infotainment" or "edutainment" principle can be raised to a higher level.

This brings the museum close to the novel theme parks and adventure worlds like the "Futuroscope" in Poitiers or the planned "Millenium Dome" in London. Not few museum people believe that such institutions will be the main competitors of museums in future. The museums will be faced with the task to emphasize the specific and unmistakable features of a visit to a museum, to delimit them clearly from those of a visit to other institutions. In this context, mention will have to be made of the difficulties such parks have to overcome if they want to be more than a fun machine with a few educational "fig leaves". Aficionados of the museum who enjoy a very individual educational, though communicative, experience will only rarely get their money's worth out of such commercial attractions.

At the end of my paper, let me please once again compile the reasons why the medium `museum exhibition' need not be afraid of competition of the new media. As a place of authenticity and originality, the museum can sharpen the visitors' senses as regards the significance of things. It gives both the public and the individual the time and place to contemplate important themes and to develop the ability to get an overall view of things, thus facilitating finding one's orientation in

our complex world. Finally, in the form of enacted science, the museum can become a theatre in which the learning visitor, who is given the possibility to see things under different angles, plays the main part. All in all, one needn’t be a prophet to arrive at the conclusion that the future of the medium `exhibition’ has just begun.

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