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**I. „Degree Thesis“**

**INTRODUCTION**

When I first started to consider the idea of a „Children's Museum“ I asked the Director of the well-known FOLKWANG MUSEUM in Essen for an appointment to gather information. Initially, he did not want to see me at all, because he found a museum for children „unnecessary“ perhaps just as unnecessary as museums for „old people“ or „blue-eyed people“ or „expectant mothers“. In short, he thought the idea of planning a museum for a specific sector of the population was wrong. With my persistence, however, and not least with my enthusiasm for this subject, I was finally successful in arranging a meeting and convincing the Director of the value of my project.

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<sup>1</sup> The translation in English was kindly provided by:

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At another time, I met a fellow student in the modelling workshop and she asked me how my work was progressing. When I told her I was planning a children's museum, she smiled and asked „whether they will be exhibiting children there?“.

I mention both these incidents simply to illustrate how little known - even among professionals in the field - my selected design topic still is, and how little work has been done on it to date. These facts, and the challenge of setting foot on largely new ground and possibly discovering things which had not previously been seen - above all through the selective spectacles of architects - were the decisive factors behind the choice of a „Children's Museum“ as my design topic.

The design is based on the MADE-Project Report: *„Siebensinn“ Children's Museum Systematically Designed*. In order to document the fact that this project report is not only relevant to a single design, but is of general assistance in the planning of children's museums, I selected the topic of a conversion. The important thing was to integrate the stock of ideas on the subject of a children's museum in the structure of an existing building.

Initial considerations of redesigning, for example, a wing of Benrath Castle in Düsseldorf, parts of the Philipshalle in Düsseldorf or the former Natural History Museum in Duisburg's Kant Park (near the Wilhelm Lehbruck Museum) were rejected, until finally the Duisburg planning authority suggested the area in the City's inner harbour.

As there had also been a competition in the course of the Emscherpark International Building Exhibition to design an „Inner Harbour Service Park Duisburg“ (which incidentally Sir Norman Foster won), it interested me to shift my planning into this area. On site, I then discovered the Roters & Buddenberg grain warehouse - a building which seemed optimally suited to my purposes.

## **EXISTING SITUATION**

The building, in dark brick, was erected after the Second World War, and together with the other warehouses lining the waterfront forms a very beautiful group, similar to the „Warehouse City“ in Hamburg - only smaller - documenting the industrial architecture of the Ruhr.

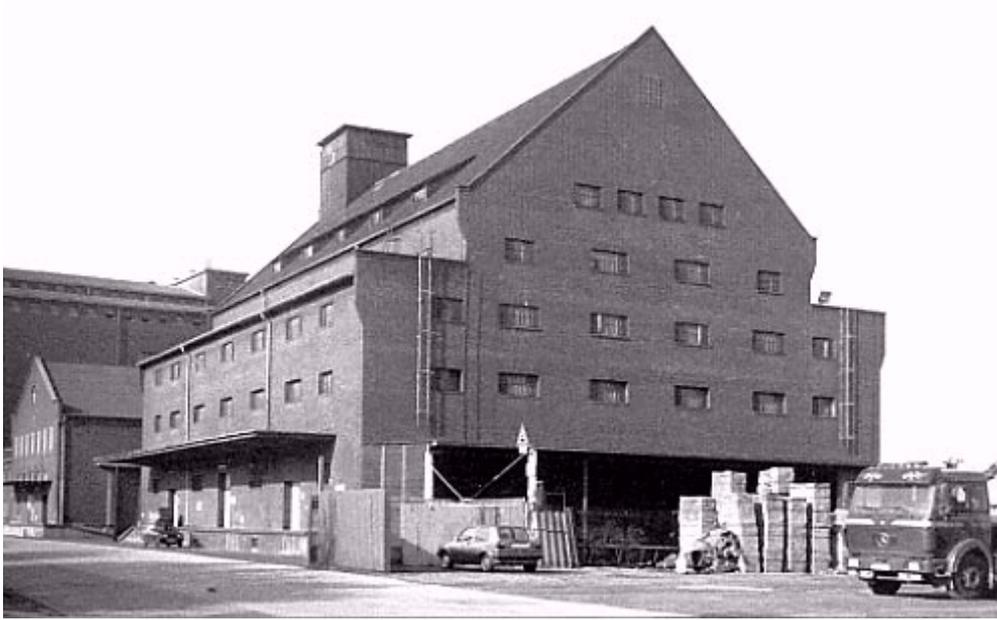


Figure 1: The existing building

From the city centre, the warehouse can be reached on foot in 15 minutes. The route runs along the quayside, passing the new Natural History Museum (also a conversion). The building, with its grid of columns and bars, presents itself as a pure multi-storey structure, free of uprights in the roof space only. This impression is further reinforced by the horizontal arrangement of the windows.

A large saddle roof, fitted with small dormers, closes off the building at the top. The roof surface is interrupted by the stairwell with its flat roof, and a projecting tower-like structure.

One characteristic feature of the building is the two loading ramps located on the long sides on the ground floor, which also indicate that the ground floor is around 1.20 m above ground level.

Knowing the historical significance of this building - although it is not listed as a monument - I have tried to honour the existing structure while at the same time confidently adding to it. The aim is to demonstrate clearly that two generations have been at work here, each respecting and harmonizing with the other, without either having to lose its identity. The financing of the design took account of the fact that approximately 75 % of the existing structure could be used.

## **THE DESIGN**

Drawings and models certainly say a lot about a design - but not everything. They often fail to reveal anything of the thoughts hidden behind the objects.

For this reason, I would invite the reader to accompany me on a tour of the „Siebensinn“<sup>2</sup> Children's Museum, while I attempt to describe the subjects and background details which assisted in the establishment of the design.

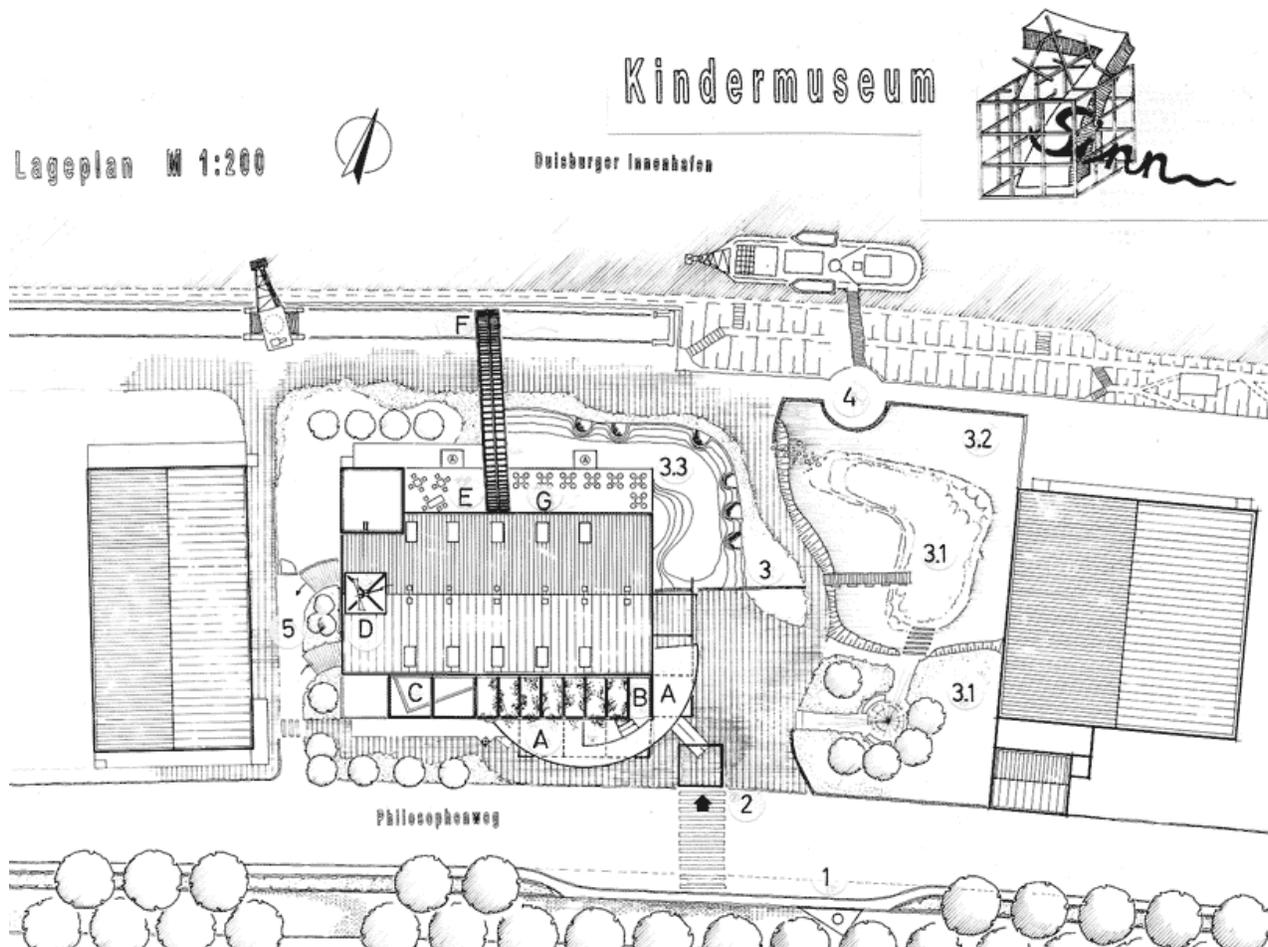


Figure 2: Site plan

- |                     |                               |
|---------------------|-------------------------------|
| A Balcony           | 1 Bus stop                    |
| B „Nature Workshop“ | 2 Main entrance               |
| C „Music Box“       | 3 Sensorium                   |
| D „Research Tower“  | 3.1 Sculpture garden          |
| E Open-air studio   | 3.2 Water area                |
| F „Sun Prism“       | 3.3 Grotto                    |
| G Terrace Cafeteria | 4 Moorings for tug „Heinrich“ |
|                     | 5 Garage entrance and exit    |

Even before we catch sight of the main museum building, the „**Research Tower**“ shows us the way from a distance. With its coloured vanes and rotary motions, it sets the scene for what awaits us in the museum (more on this later).

<sup>2</sup> The name „Siebensinn“ means „Seven Senses“, these being the following: smell and taste, vision, hearing, touch, balance and motion.

Arriving at the bus stop in front of the museum, we initially stand below a structure which combines the features of a roof and a display column. Here, visitors can find out in advance what is currently on show in the museum.



Figure 3: Main entrance view

Our gaze is directed to the logo at the main entrance - the elongated cube, penetrated by an enormous „7“. This cube derives its form from the existing building structure, and the placing of the figure through it indicates that the imminent unfolding of the senses is to take place not only inside, but also beyond the exterior of the building.

We enter the building on a small ramp, moving into the entrance hall. This is the centre of the museum.

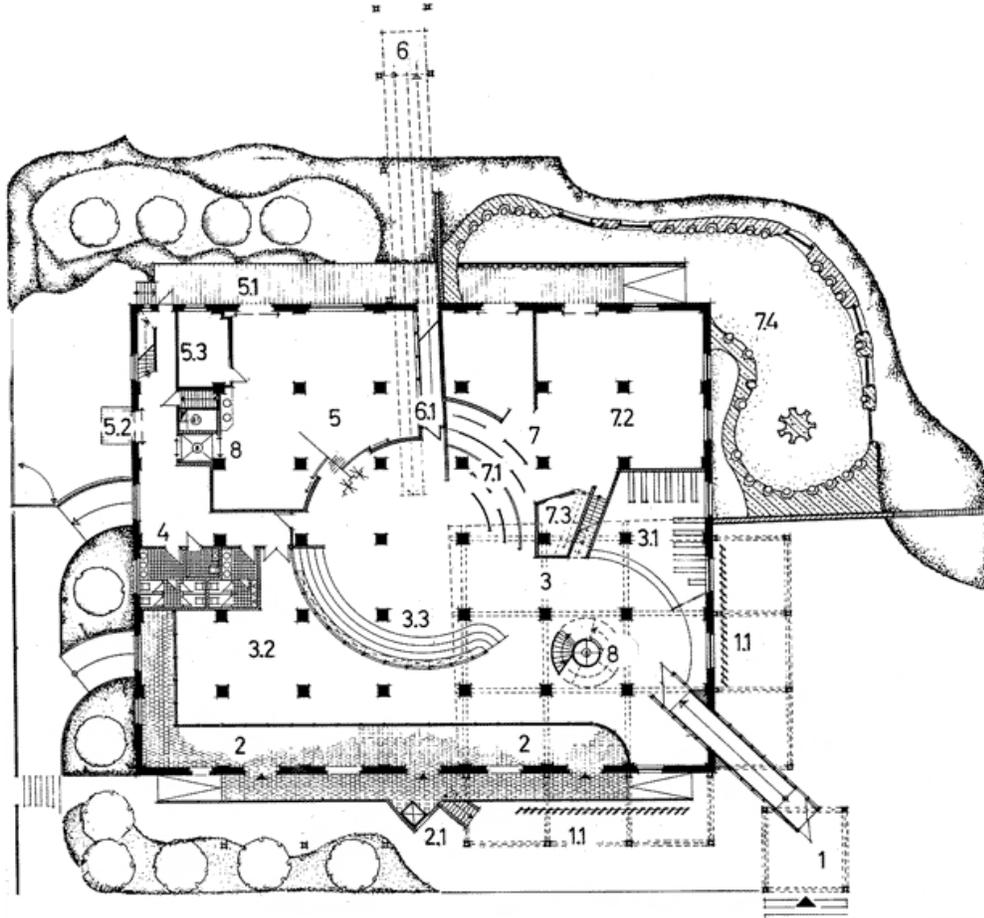


Figure 4: Ground floor plan

- |     |                     |     |                  |
|-----|---------------------|-----|------------------|
| 1   | Main entrance       | 6   | „Sun Prism“      |
| 1.1 | Cycle stand         | 6.1 | Ramp             |
| 2   | „Museumsarcade“     | 7   | „Sensorium“      |
| 2.1 | Garage entrance     | 7.1 | „Mirror Section“ |
| 3   | „Stair Tower“       | 7.2 | „Hall of Sound“  |
| 3.1 | Cloakroom           | 7.3 | „Echolos Room“   |
| 3.2 | Museums-Shop        | 7.4 | „Blue Grotto“    |
| 3.3 | Seating area        | 8   | Lift             |
| 4   | Sanitary area       | 9   | Utilities shaft  |
| 5   | Studio „Himmelblau“ |     |                  |
| 5.1 | Open-air studio     |     |                  |
| 5.2 | Delivery            |     |                  |
| 5.3 | Material store      |     |                  |

A place for encounter and motion. In the middle, there is the „**Stair Tower**“, formed by a glazed lift shaft and a stairway winding around it. At various landings, small bridges connect the stairs with the museum floors. The entrance hall is an enormous airy space,

in which only those columns and joists which are structurally necessary can be seen. Here, the museum is to be experienced as a totality.

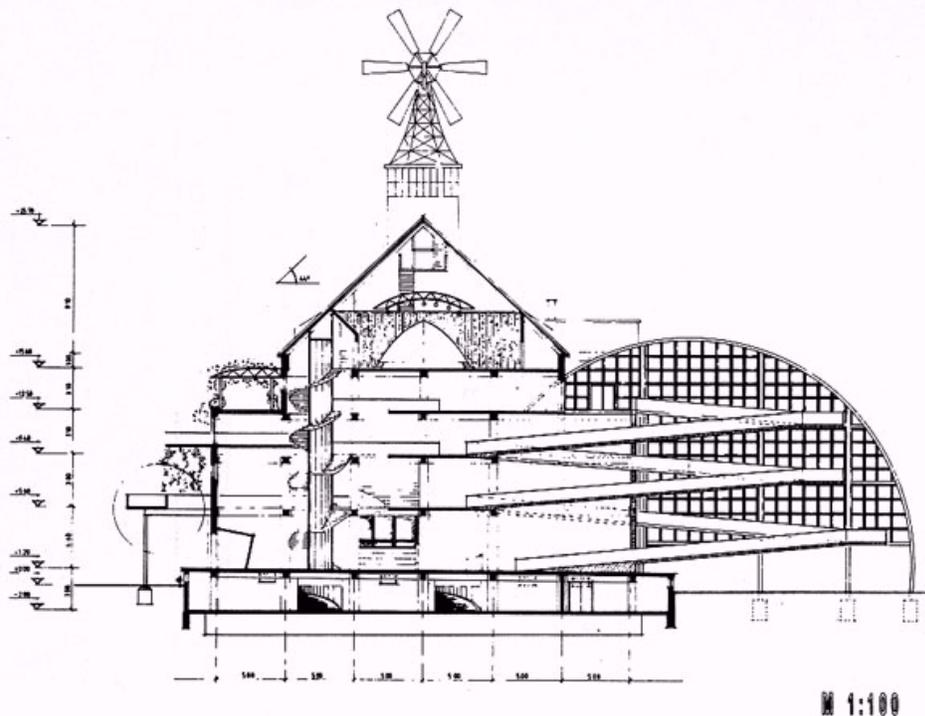


Figure 5: Section A-A

From there, we move on into the „**Sensorium**“, which is mainly intended to put into practice the ideas of Hugo Kükelhaus<sup>3</sup>, including the development of the senses and their application in fields of experience. This section of the museum fundamentally consists of the „**Grotto**“, the „**Hall of Sound**“ and the „**Spellbound House**“. In the „Grotto“, visitors are to „grasp“ and „under-stand“ - at best barefoot - three-dimensional scenarios in the dark. Everchanging experiences of touch are facilitated by the alternation of scenes.

As the name itself reveals, the „Hall of Sound“ is concerned with the phenomenon of hearing. A wide variety of noises, worlds of sound and musical instruments can be tried out here. This hall has its counterpart in the silent, an echolos room, a place where no vibrations at all are perceived, and familiar sound pictures are thus alienated. The room is bordered by a staircase leading upwards into the „Spellbound House“. Here, the aim is the experience and development of „non-senses“. Normal visual habits are suspended, experiences of touch ignored - the entire house is a caricature.

Also located on the ground floor is the „**Ideas Workshop**“. This is extremely important to the museum concept, as it predominantly facilitates active and creative involvement with

<sup>3</sup> Hugo Kükelhaus, 1909-1984. Initially learned carpenter, later studied mathematics, physiology, sociology, medicine. Writer, illustrator, architect and pedagogue. Admirer of Goethe but not of Rudolf Steiner. 'Rediscovered' the senses and sensual organs. Became known through lectures, symposia and publications as well as by his „Versuchsfeld“ at the EXPO 1967 in Montreal.

objects. This type of involvement comprises both the creation of small masterpieces in isolation and work on major projects in groups. This workshop is reached through the mechanical „**Wonderworks**“ - a mechanism of gears, pulleys and drive shafts which opens the way to the workshop when cranked, turned and moved by hand. One important thing here is that everything can look somewhat askew, untidy and improvised, as such an atmosphere provides an incentive to action.

In the Museum Shop opposite, the objects and materials created can then be sold. This shop derives its special quality from the glass facade set back by around 2.50 m, resulting in a small external passage which is intended to make the inside of the building transparent.

We now leave the ground floor, and move over a ramp, half of which is inside the building, and the other half, glassed in, on the outside, to the first floor. This floor, apart from the Spellbound House and the stair area, mainly houses the „**Bookworm**“, winding through the room between the pillars. This meandering motion creates reading alcoves, galleries, reading steps and the lending library counter. The connection from the interior to the exterior is established by the large balcony, which invites visitors to read in the open air. A small bridge is also provided for access to the balcony from the stairwell.

To reach the next storey, we enter the „Stair Tower“. If we experienced the interplay of interior and exterior when walking along the ramp, we now experience the sensation of movement through space. Constantly changing views into, out of and through the building make ascending the staircase much more than just a climb from one storey to another.

On the second floor, the spatial appearance of the building is determined by the visitor himself. In the „**Changing Room**“, a shell without any theme, deriving its character from the current exhibition topic alone, is presented. This shell is not even clearly delimited. Every exhibition has to find its own boundaries.

Obliquely opposite, there is the educational area. These rooms are important for class visits, homework or teaching events. A link between the interior and exterior is provided here by the open air teaching space, which is also intended to provide additional light to the adjacent rooms.

The extensive variety of spatial experiences now makes a coffee break welcome. Across the small bridge we reach the „Stair Tower“, and enter the „**Coffee and Tea Shop**“ on the third floor. This is a meeting point and relaxation area, predominantly for adults. A small gallery as a crawling corner provides the smallest visitors in particular with an opportunity to move around freely.

On this floor, the facade is set back by around 5 m, providing a good opportunity to use the flat roofs thus created as terraces.

The small kitchen attached to the tea and coffee shop is embedded in the „**Teapot**“, a circular experiment area for cooking and eating. Similarly to the „Ideas Workshop“, the

intention here on the third floor is active involvement with objects. This guiding idea also gave rise to the „**Film and Photographic Studio**“ with its external studio room, the music workshop with its sound studio, the „**Painting Palette**“, and in particular the „**Nature Workshop**“ in the open air. Here, the intention is to convey an experience of the natural elements of life - sun, wind, water and earth. The experience should also include playing with these media. There is an opportunity here to convey to children something about the planet on which we live, giving them an incentive to treat their environment more carefully.

Posters draw attention to a puppet show in the „**Loft Studio**“, which we do not of course want to see now, but we will have a look at the scene of the action. The loft studio is the only room without columns, and thus optimally suited to use as a theatre. The stage is designed as a triple, revolving stage, thus providing an opportunity to work with various sets at the same time. Furthermore, the stage can be used from other rooms. In the „**Lumber Room**“, for example, one can set up one's own scenery and improvise. The lumber room is a place for those not quite new objects one would never throw away - a place to rummage and discover.

Discoveries of quite a different kind are made in the „**Research Station**“ Here, research, experiments and work are to be carried out with the natural elements - a supplement to the Nature workshop.

The „Research Station“ is terminated by the tower, which rises up like a formal signal from the roof ridge. The windwheel, as we have seen, is a symbol of the whole museum but also a way of harnessing wind energy and using it in one way or another. The same possibility exists for solar energy and perhaps also for water.

- The sun
  - Mirrors guide light
  - Solar collector generale energy
  - Light and shade
  - Sun-sails change light into colour
  - The sun's passage, the sundial.
- Water
  - Beauty of water, water play, spouts and fountains
  - Piping and collecting rain water
  - The water mill as a source of energy
  - Gutters, streams and means of transport.
- Wind
  - The wind-wheel as a source of energy
  - Hearing the wind, the wind organ
  - Creating life in sculptures and wind structures.

Below the wind wheel is a continuous window strip through which a panoramic view can be enjoyed over the roofs of Duisburg and its port. From the „Research Tower“, we reach a small gallery from which the entire roof space can be experienced in its beautiful three-dimensional character.

Below the windmill, there is an all-round strip of windows, through which one can enjoy views far over the roofs of Duisburg and its harbour. From the research tower, one passes through to a small gallery from which one can pleasantly experience the three-dimensional spaciousness of the roof space.

Our visit ends with the exploration of the loft, and we return to the stair tower. The glazed lift takes us back to the ground floor. Past the „Teapot“ on the third floor, with its „**Spout**“ projecting out into the air, past the „Changing Room“, where the exhibition „My Museum - What Children Collect“ can be seen, and past the „Bookworm“ on the first floor, where we found the meandering forms so pleasant, to the ground floor, where we again see the entrance hall. We leave the building.

The site on which the museum stands is designed as an area open to the public. It would of course also be conceivable to enclose the site and thus assign the external area firmly to the building.

The forecourt serves as an area for experience, in which passers-by and visitors are challenged by a wide variety of sensual perceptions. An experience path *en miniature* for the unfolding of the senses could leave the forecourt and wind around the building.

From the entrance, we move diagonally across the forecourt, where we see the tug „**Heinrich**“, moored here as an attraction.

From here, the building appears in a totally different light. Suddenly, we discover the „**Grotto**“, hidden behind a massive retaining wall. In a flowing motion, we are led around the building and now also see the „Sun Prism“, with its internal ramps which we have just walked down. Like a rainbow, it links the surrounding land with the museum. We simply pass through the rainbow, and follow the quayside.



Figure 6: View from the harbour

Alongside the old crane, we look between the museum and the neighbouring building. Here, there are dry, sober things like Garage Entrance and Exit, and Delivery Ramp, which really do not need to be examined from immediate proximity. We leave the museum site and return to the City centre.

## CONCLUSION

I have now described the fundamental stations of my „*Siebensinn*“ *Children's Museum*. I hope I have designed a building full of opportunities and less so one of given facts and restrictions - a building where an old Chinese proverb is reflected:

I hear - I forget

I see - I remember

I do - I understand.

## II Paper by Prof. Dr. Wolfgang Klauswitz<sup>4</sup>

*In the past two decades, new museum buildings have proved an el dorado for prominent architects. They have been able to design and execute generously styled works to the highest principles of the modern art of building without any obligation to respect severe constraints and limitations. However, this article simply describes a project which was written as a university degree thesis and is highly significant from two angles: firstly it involves the planned conversion of an old industrial building into a complex designed for a museum; secondly it expresses the ideas - in some respects highly creative - of an architect at the start of his career for the design of a museum intended exclusively for children (although the definitions used by the DMB<sup>5</sup> and ICOM<sup>6</sup> would make it rather difficult to designate such a versatile house for children and young people as a museum). Even if interior architectural design is only touched on in general terms and the aspect of exhibition didactics is completely lacking, the contribution does contain a series of significant architectonic suggestions. These may be useful for the refurbishment or creation of a museum for children or the children's department of a larger museum. However, the overall concept might also be suitable for the design of a museum of modern art.*

*Although the project has not yet been implemented it is a real plan in the sense that it puts an existing building, i.e. a grain warehouse in the inner part of Duisburg, to a new use. This building was suggested by the town planning office. The existing structure has therefore been fully integrated into the plans.*

*By choosing the designation „*Siebensinn*“ (= seven senses) the architects allude to a sense of balance and movement added to the five well-known senses (sight, hearing,*

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<sup>4</sup> Past President of the „Deutscher Museumsbund“ (1975-1983)

<sup>5</sup> DMB = Deutscher Museumsbund, Bonn

<sup>6</sup> ICOM = The International Council of Museums, Paris

smell, feel and taste). A range of activities in the planned museum will appeal to all these senses.

### **Existing children's museums in Germany and the USA**

Museums have had a teaching function for children in Germany since the late 19th century, as in the USA.

Experts acknowledged the need to gain the support of young people if a museum is to survive but, contrary to the situation in the USA, this knowledge was not put into practice, whatever the reason may have been. It was not until 1970 that the decision was taken to create areas at existing museums in which the child was made the focal point of all pedagogical efforts, e.g. in Berlin, Frankfurt and Karlsruhe.

### **Museums for children in Germany include the**

1. Museum for Children at the Ethnological Museum of Berlin in Dahlem opened in 1970, floor space round 130 m<sup>2</sup> - temporary exhibitions and working courses
2. Children's Museum in the Frankfurt Museum of History opened in 1986, floor space around 190 m<sup>2</sup> - exhibitions for children on the same topics as the current museum exhibitions
3. Children's Museum in Karlsruhe State Art Gallery opened in 1975 - floor space: children's museum 515 m<sup>2</sup> and working area 240 m<sup>2</sup> Exhibition topics:
  - Felix Knits and Katrin Kicks
  - Valley becomes Mountain. Giant becomes Dwarf. Changes
  - The Cat, the Cow and the Cockatoo. Animals in the museum etc.

### **Children's museums in the USA e.g.**

1. Pacific Science Centre, Museum of Technology.  
Built 1962. Atrium building with floor space of around 3,200 m<sup>2</sup> with an expanse of water forming the inner courtyard, different levels, galleries and corridors create links between the buildings
2. Children's Museum in Boston, Museum of Cultural History.  
Built 1976. Conversion of a warehouse, approximately 9,000 m<sup>2</sup> exhibition centre with garden gallery, about 500,000 visitors each year.
3. Brooklyn Children's Museum, Natural Science Museum.  
Built in 1975. Museum with floor space of around 2,000 m<sup>2</sup> and an outdoor area focussing on the natural elements - wind, water, earth and light.

### **Difference from other museums for children**

1. This is a museum which offers encouragement for perceptions of the senses, i.e. to experience the senses, magic and knowledge, personal activity and pleasure
2. The distinctive location and stringent structure of a former grain warehouse with its interior spaces and exterior areas determine the design of this museum so that the question as to whether a specific and different architecture might be appropriate for children's museums did not arise
3. An attempt was made to arrive at a concept for the children's museum which not only offered facilities for limited installations and participative exhibitions in the „hands-on museum“ style, but also areas for play and learning with a continuous experience of

*the properties of the structure and space throughout the range of the „Seven Senses“.*