400.000 METERS ABOVE SEA LEVEL

-> german version

WORLD – SPACE – ARCHITECTURE
11. NOVEMBER 2003, 19.00
Barbara Imhof, [space]architect (Liquifer, Wien) lecture

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Discussion: space as projection space – about architecture and technology
Barbara Imhof,
Norbert Frischauf, phsicist, system engineer (European Space Agency, ESA-ESTEC, Noordwijk),
Oliver Schürer, architecture analysist, journalist (Vienna),
Hannes Stiefel, architect (stiefel, Vienna/Zurich)

Recent space missions have shown the advancement of robotic probes contributed by several nations worldwide. These unmanned missions are only the precursors of one planned large expedition: a human mission to Mars. Apart from the development of new concepts for the needed technology for such a trip also the architectural design of the habitat and thus the spacecraft needs to undergo a change in the conceptual paradigm. The complexity of such a human mission requires to include more disciplines than only the scientists and engineers such as psychologists, designers and architects – an interdisciplinary co-operation –, who will be necessary to create an infrastructure for the human system, which requires more than just a solution to the engineering problems.

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400.000 Meters Above Sea Level
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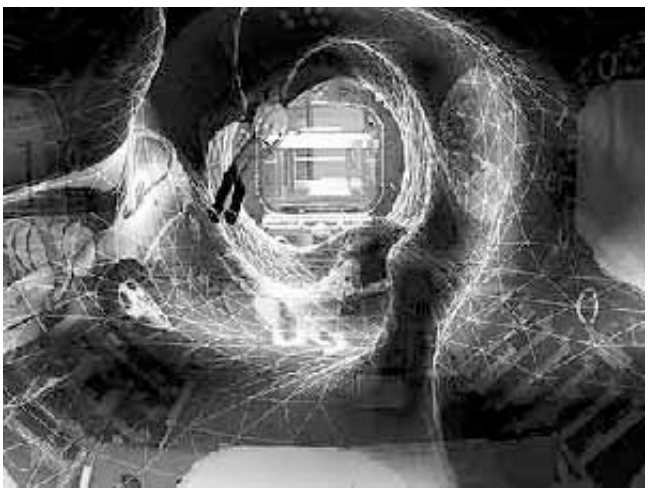
“400.000 m above sea level”: this is the ISS orbit altitude, expressed in a code we are familiar with from our conventional maps and terrestrial geography. In actual fact, the orbit of 400.000 m above sea level – 400 km from our planet’s surface – is no further away from Vienna than Munich, and can be reached within the same time. We simply have to overcome our largely horizontal perception of mobility and be more prepared to integrate the [vertical] z-axis in our perception of ‘world’. After all, the German term for (outer) space – Weltraum - is composed from the words for ‘world’ (Welt) and ‘space’ (Raum).

World – Space – Architecture
Our universe is not finite but expanding, in every dimension and direction. It was not by mere coincidence that, in the early 19th century, Sigmund Freud set out to explore the most profound secrets of the human soul – our innermost ‘space’– just as the astronomer Edwin Hubble used his telescope to study the outer ‘spaces’ beyond the Earth’s atmosphere. Nowadays our sphere of perception is expanded further by the constant progress of computer technology, as modern technologies enable us to learn ever new facts and details about our environment. Space plays a major role in the development of these technologies, with satellites and probes providing crucial information.

SPACE: Einstein taught us that ‘space’ does not exist by itself but can only be seen in relation to ‘time’. Space is an abstract phenomenon we can only perceive via our own physical bodies, as long as we are aware of our physical limits. On Earth this is usually straightforward, we can orient ourselves quite easily by gravitation, light from above, and our built and natural environment, which gives us safety by providing a scale and point of orientation.



Architecture means space and time. Weightlessness leaves behind the conventions of orientation and space:

The focus is on architecture, on world and space, on the overlaps and intersections between extraterrestrial and terrestrial architecture. We are talking about a technical experiment, as it were, designed to identify areas where the two fields of architecture overlap, but where outer space can also be seen as a preview and projection space of terrestrial architecture.

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The human factor is bound to play a decisive role in long-duration manned missions, such as a mission to Mars. By consequence, space design must be geared to socio-psychological requirements. This means that the hardware, the machine, must gradually turn into a piece of “humanware”; the machine we call “space station” and the habitat of its users would turn from a passive service element to an active participant in every mission. 400,000 m above sea level, the ISS astronauts and cosmonauts are currently inhabiting a giant robot at, like humans occupying a technical apparatus. In the future, this apparatus will change into symbiotic humanware.
Environments in space that emphasise sensory perception or are permeated by technology (“technologized environments”) may also stimulate new architectural developments. One approach would be to enhance our awareness of the z-axis and thus increasingly integrate outer space into our conventional, everyday maps. The illustration shows an installation designed for the entrance hall of the Austrian Space Agency – essentially a simulation of space on Earth. It is a little post-it note to highlight potential overlaps between architecture in our horizontal dimension and architecture on a higher level, up above.

A space habitat is a completely technologized space, and as such is of vital importance for the survival of its inhabitants. On Earth, technologized spaces are either designed to make us feel comfortable – a feeling strongly stimulated by consumption – and to enhance our perception, or [they] provide the basis future autarkic systems. In a hospital with an intensive care unit, several operating rooms [etc.], technical services are so complex that we cannot define and implement all tasks involved without the help of experts. Terrestrial architecture, as such, is a specialized field of architecture.

Humans living and working in space will always be entirely dependent on the technology and architecture of their environment. In the longer term, extreme environments of this kind will be inhabited by humans whose lifestyle will be based on technology. In an environment where the only options are ‘life-or-death’ we will, eventually, have no choice as to whether we will or should accept our genetic modification, synthetic generation or technological enhancement (regarding physical capabilities and perception).

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After all, our lives will be at stake. In this situation the need for survival, rather than consumer choice, is the primary reason and motivation for architects to consider the psychological and physical situation of the (prospective) inhabitants and strive to explore new approaches, independent of terrestrial codes and patterns. But just as Kaas Oosterhuis describes an interactive laboratory based on the expandable space of his Programmable Space Station, these developments will simultaneously occur on Earth, or will even influence each other.

Project ‘Backprojection’by ESCAPE*spHERE:
an interactive installation concentrating on the intersection between real and virtual dimensions. It is designed to produce a conscious experience of our current concept of media spaces, to provide a tangible manifestation of how the media have expanded our possibilities of perceiving space in terms of time and virtual space. As a prototype that anticipates these future intersections and overlaps between technologies, ‘Backprojection’ comprises several individual projects including the one by Oosterhuis.

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(Barbara Imhof, Sandrine von Klot, Birgit Trenkwalder)

The space suit: a close-fitting space, the very essence of a habitat. Experts from various fields, such as chemistry, genetics, biology, engineering or design, are working to develop innovative high-tech fibres that usually see their first large-scale breakthrough in the outdoor or sports fashion industry. Data, software and communications solutions are currently becoming integral parts of new clothing items. This trend is not only relevant for fashion as such - it also allows our environment and the space around us to become increasingly responsive and interactive. Our levels of perception are being multiplied and reinforced at the same time.