

Prostheses: Imitation or Commemoration of a Body Part

Andreas Mühlenberend

Background

Illnesses and injuries are perceived not only via their symptoms and impact but also via the products used to combat them. In the case of amputations, these products are prostheses. Prostheses are part of a medical treatment in product form, a fact which seems – judging by their responses to an everyday life they have yet to comprehend – to fill designers with a sense of either grand importance or grave humility. The model for prosthetic treatment of amputees is usually the undamaged and complete human form. Consequently, prostheses aim to imitate the lost body part as faithfully as possible. The techniques used in such attempts are old. The principle types of prosthetic leg have long been the shell and tubular skeleton forms. Over the course of medical history, the materials used have evolved (from wood, leather and steel to aluminium, plastics, fibreglass and carbon fibre), but even today, the character of the original designs is recognisable. The notion of imitative or masking prosthetics holds the promise of regaining a “normal” appearance. Although prosthetic treatment has come true for a long time in a wide range of contexts, the self-image of human beings has not developed accordingly. Medical, prosthetic and – in future –

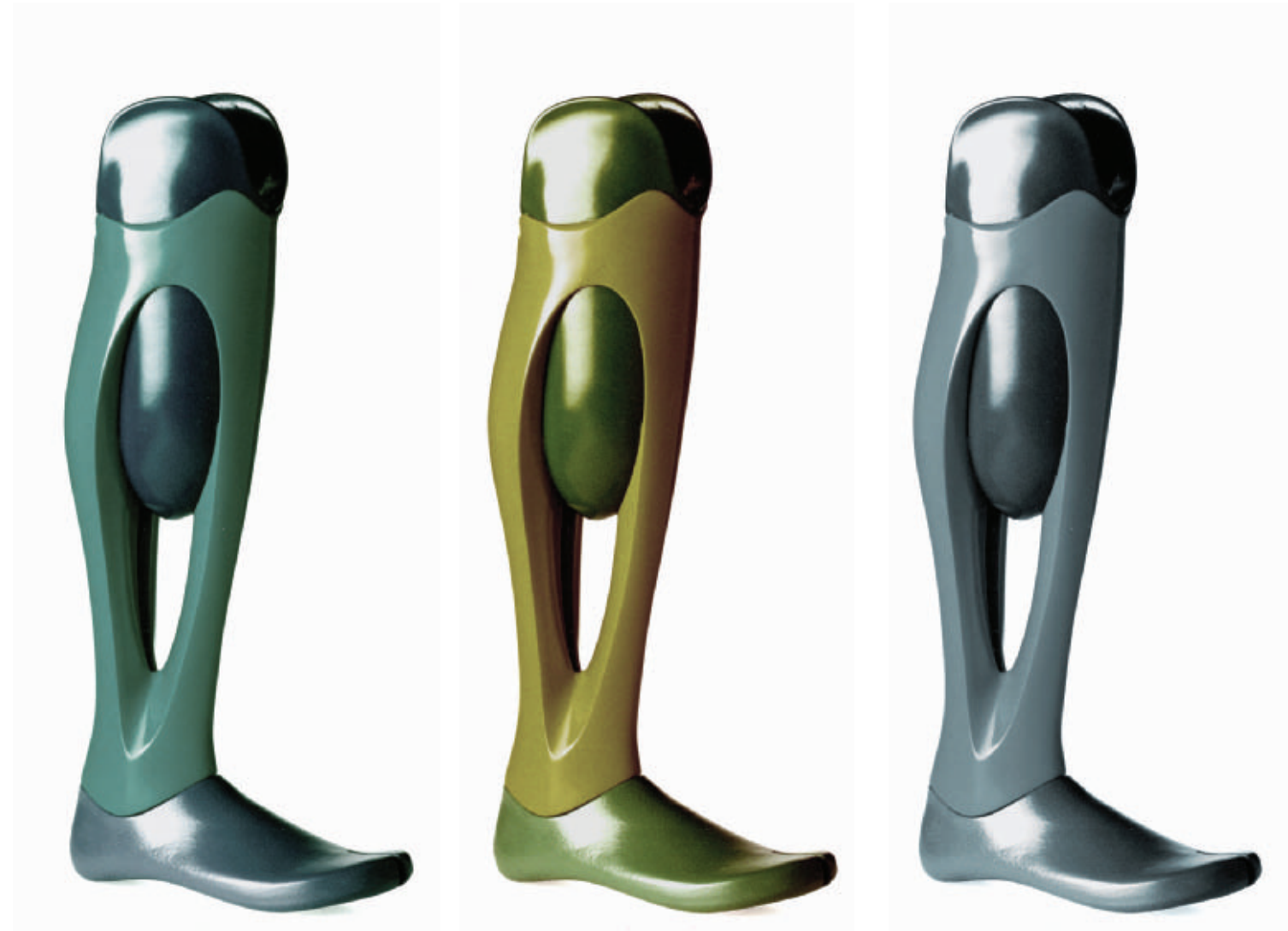
nanotechnological interventions take place out of sight, sometimes concealed by clothing, sometimes by the skin itself. Although this invisibility of progress appears to keep the treatment secret and allay the fear of discovery, the resulting peace of mind is fragile, often accompanied by a feeling of uneasiness about the non-visibility of the technical solution. Every human being has an image or idea of himself/herself and his/her body. This inner image may or may not correspond to the body in question. Among my friends there is a full-figured woman whose inner image of her body is as large as her body itself. In other words: she is capable of animating every gram of her body. That is the stuff “beauty” is made of. If the beauty industry’s insidious appeals to a slimmer self-image were to hit home with her, she would start to feel alienated from her own limbs noticing a difference between her image and her body, and hence become “overweight”. Of course, in the interest of maximum turnover these commercial appeals to the inner image refer not only to corpulence, but to the body as a whole, to its outlines and its surface. The loss of a body part forces the person in question to come to terms with a radically

altered physique. What can be said about the updated self-image this involves? For one thing, the paths to physical and mental healing are as varied as the personal dispositions of patients. But it also depends on the offers made to those concerned. If the proposition is to conceal physical difference with an imitation, this also means that the “old” body image remains intact for outsiders (and perhaps for oneself), even though it no longer corresponds with the physical reality. In this case, a coming to terms with the altered body takes place either not at all or in private. Younger and mostly more active-minded amputees choose a different approach. They do not hide themselves and their different fate has imposed upon them. They upset the more simple-minded characters of those who stand and stare, claiming respect for themselves and the way they are.

On prosthesis design

A real limb must only function aesthetically in the context of the body as a whole. When separated from the body, it belongs to the realm of horror. An arm, a leg or a head without a body is shocking. A prosthesis must function aesthetically both in the context of the body and in its own

1995: Design study for a below knee prosthesis – three struts run out of an ankle element. The struts hold the socket. The open framework does not imitate but interprets the principal volumes of the limb. Controlled torsion movements and bouncing effects are part of the constructive concept.



Design meets Paediatric

Michael Scherer

Innovative concept for child-friendly hospitalisation

1. Starting situation

An overnight or prolonged hospital stay often means a new and sometimes frightening experience for a child. Especially in paediatrics important actions are required, in order to make the hospital stay as comfortable as possible for the child and also for the parents. Unfortunately, nowadays most paediatric units do not meet the requirements of child friendly facilities and do not consider the importance of a corresponding surrounding and atmosphere for the children's well-being and recovery. Therefore it is absolutely necessary to establish the standards for excellence in the health care of infants and children. Additionally, the use of design elements enhance the healing process of the young patients. This means to work on shapes, colours, material quality, surface treatment, and functional solutions to create a special relation between the patient and the objects, which surround him.

Our thoughts are as follows:

Safety as a medical approach must be understood in an integral sense which means that

the interaction between medical treatment on the one hand and sustainable design techniques on the other hand can decisively contribute to enhance the healing process. The development of a harmonic relation between patients, parents, medical and nursing staff can only be supported by providing dedicated spaces and furniture that establish positive feelings.

The project "Design meets Paediatric" started up two years ago with the intention to develop a new concept of paediatric unit, where it should be possible for the child to recover from illness in specially designed inpatient rooms meeting the requirements of the end-user.

In the first working phase, which was concluded in December 2003, we thoroughly interviewed child psychologists, teachers and the medical and nursing staff of several hospitals round Europe with the intention to scrutinise and evaluate the actual situations of paediatric facilities. We organised a painting competition for the children regarding their hospitalisation and searched for innovative material concerning the hospitals' organisation, design and structure. After analysing the collected information and the results of the research we defined certain design guidelines for the realisation

of the following five prototypes for an inpatient room: an inpatient bed, a trolley, a couch-bed for parents, a wardrobe, and a lighting system with integrated electrical outlets (see the pictures).

2. Project aims

Based on the above mentioned contents the intention of the concept staff now is to optimise the existing prototypes in order to realise a full equipped inpatient room in a South Tyrolean hospital within December 2005. This model room will show a new way of "healing space", including all those design elements that are needed to make the child interact with the furniture and equipment surrounding him. The goals for this second working phase include the creation of an interdisciplinary working group involving the concept staff and the medical and nursing staff of the paediatric unit in a South Tyrolean hospital. This will help all the persons involved to understand the vision of how a paediatric unit should look like and to better define the facilities' needs. Additionally, with the systematic analysis of the existing prototypes examined by the medical and nursing staff the resulting information will help the concept staff to optimise the existing prototypes. In the first



Maritime Living Areas

Dirk Schumann

Kamar – concept for a living complex in the near-coastal areas

The Kamar concept (Figure 1, 2) is designed to allow people to live for a short or longer time between the above-water and underwater worlds. The construction comprises two areas: the underwater complex and, connected to it, a surface platform. The underwater complex is permanently anchored to the seabed running downward at a shallow angle. The highest point of the rectangular construction emerges from the water surface allowing access to the interior. The access can be closed by a water-tight bulkhead.

On accessing the underwater complex by a staircase, one first enters an anteroom from where a sloping walkway leads to the lower sections. The anteroom is connected to a construction carrying the static elements of the whole complex and being attached to the supporting system of the floating surface platform. After the anteroom a gallery is reached which is fitted into the side walls and the roof with large windows that open a clear view to the surrounding sea. At the lowest point of the construction there are three lookout domes which make the underwater world perceivable, as far as possible, in three-dimensional form. The architecture of the construction is a simple

cubic form expressing the connection to the seabed. The windows in the gallery use classical architectural elements, which in this environment also provide a good hydrostatic function. Going deeper into the interior, the visitor experiences a gradual transition from the familiar above-water world to the new and completely different underwater environment. In the gallery the effect is still similar to that of a large aquarium, while the bottom dome room generates an increasingly intensive contact to the under-sea world.

Surface platform (Figure 3, 4)

The surface platform connected to the below complex by a lever system has a raft-like character. The lever system has to compensate the differences in the water level caused by the tides. As the whole system is considered being installed in protected areas, such as atolls and lagoons, the expected wave movements can be absorbed by the surface platform itself. As a more dynamic variant, a system of links using universal joints could be used. In contrast with the static underwater complex the form language of the platform and its sub-elements is softer and more organic, as this is the interface between the two worlds and is exposed to the dynamic of

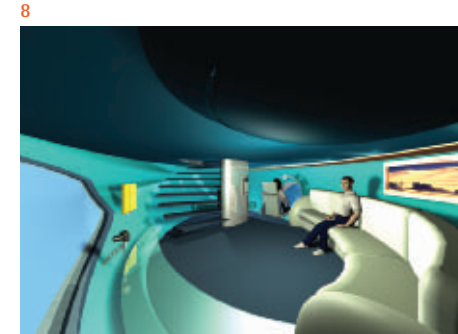
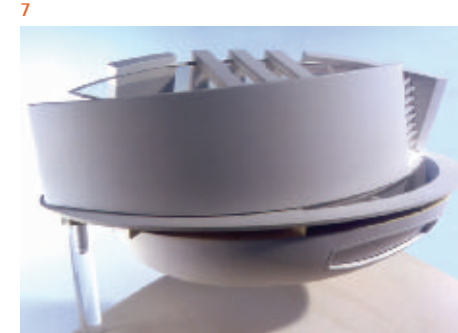
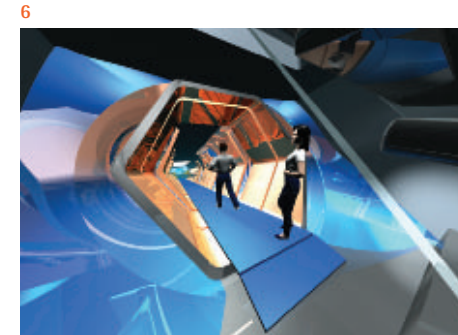
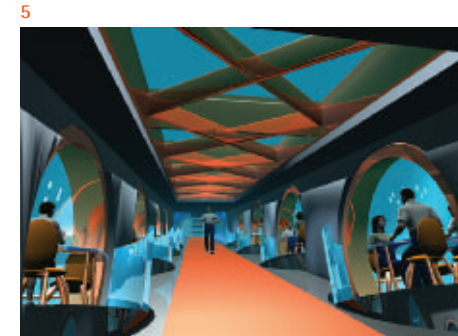


the elements of water, air, waves and currents and the interactions between them. The underwater complex, on the other hand, is located in the more static, all-embracing body of water.

The surface platform comprises several living areas, which likewise embrace both the above-water and the underwater world. The architecture of the superstructures refers to tent structures or to sails. The character of the individual is sheltering and gives a sense of protection. The individual elements are grouped protectively around a small central open space. There are similarities and allusions to Arabian or Mediterranean urban structures, with narrow alleyways and small squares. Viewed from the above, the whole group gives an impression of a blossom floating on water.

Living areas (Figure 5, 6)

In the upper part of the living units there is a room with a bed and sanitary installations. One side of the room is open, allowing a view of the sea. From here, there is an access to a capsule-shaped space below that lies under the surface of the water. The space as well has a large viewing window. Diagonally opposite the viewing window there is a smaller, quiet hemispherical observation window which integrates the viewer



even more closely into the underwater world. Part of the ceiling of this underwater space is cut away in order to let daylight in. These small living units are all linked to a somewhat larger general-purpose room. This also has an underwater area in which the dining room is located.

Locations and use (Figure 7, 8)

The complex can be installed in various areas throughout the world. The ideal location would be the near-coastal areas of tropical seas as this is where the fantastic underwater can be most intensively experienced. Depending on intended use, aspects such as infrastructure, accessibility, supply and waste disposal have to be taken into consideration. The complex can be used for different purposes: e.g. as a small hotel providing very high experience value, or as a personal residence. In either case, it offers a life between two worlds, and the possibility to enjoy the seclusion and peace of a small island combined with the ability to explore the underwater world in various configurations, i.e. either in the company of others or alone.

Ecological concept and infrastructure (Figure 9, 10)

As the underwater complex is firmly anchored to the seabed a location should be