

(from *Bauen mit Textilien* September 1999)

Textile Roofs '99

The Fourth International workshop on the Design and Practical Realisation of Architectural membrane Structures

17th-19th June, Berlin

a personal report by Robert Off

After already having been a participant of the Textile Roofs '97, expectations were high for the Textile Roofs '99. The only question was, will there be anything new?

Again the now annual event was lead by Prof. Lothar Gründig of the Technical University Berlin. This year the co-hosting institution was the Lightweight Structures Research Unit (LSRU) of the University of New South Wales in Sydney, Australia, represented by Prof. Vincent Sedlak, a well known membrane specialist since his pioneering days at the IL in Stuttgart.

Day one began and it became obvious that a few changes have taken place over the past two years. The morning lectures, afternoon "hands-on" and evening lecture were so well attended that the morning lectures had to be held in the presidents conference room. The participating number has grown to now more than 90 and therefore resulted in the unfortunate restriction of participants.

Prof. Gründig gave us a short and warm welcome and soon Prof. Sedlak took over and gave us a brief overview on the SDA program, an interactive database system providing generalistic information required by architectural designers. A program which was later outlined on computer in the afternoons in more detail. The general introduction into the theoretical background of force density form finding and equilibrium modelling was again explained by Prof. Gründig. This gave an idea on the background the EASY and CADISI programs are based on. Mr. Erik Moncrieff from the TECHNET company, a major sponsor of annual Textile Roofs, then took over and showed the basic features of these instruments. Due to the fact that one of the main intentions of the event is to spread the idea and fascination of textile structures to newcomers, Prof. Rainer Hempel from the FH-Köln underlined the importance of physical modelling and prepared the background for his afternoon exercises with soap film and stocking models.

Finally after the lunch break we were able to start with our own activities at the roof top of the Berlin University. I have to admit, that I skipped the physical modelling and went straight to the computational exercises. This is due to the fact that after my first textile roofs in '97 I was so fascinated by the possibilities of textile structures that I started to dig into the subject and ended up teaching it at the FH-Augsburg myself, building "hand-on" models with students like the workshop had taught me before.

One of my major intentions during this workshop was to learn more about the CADISI and EASY programs. Time went by rapidly that afternoon (especially with computer programs) and soon it was time for the Special Guest Evening Lecture.

Mr. Robert Nijse, from the Consulting Engineers ABT, Arnhem, Netherlands gave the ideal final lesson of a long day by simply showing us examples of his fascinating works. The variety of projects which were not membrane structures, but all fascinating engineering projects made everyone feel like a student again. It was a welcome and necessary hint, that not all structures have to be a membrane.

The morning lectures of day two began with Prof. Marijke Mollaert from the Vrije Universiteit Brussels with her lecture on Good structural Forms. The title was similar to the one two years ago, but the content wasn't. As many more membrane structures had been built during this period, Prof. Mollaert's lecture was absolutely up to date and the perfect introduction of day two.

Next came a new aspect of building by Paul Westbury of Buro Happold Consulting Engineers. He reported his personal experience about Project Management and the Design Process in connection with the Millennium Dome in London. An interesting view on the handling of such gigantic projects which cannot be detected in colourful photographs of the finished project.

This was followed by a panel discussion by representatives of industrial firms which are involved in the process of making a membrane. These were Françoise Fournier from FERRARI S.A. producing material membranes and sponsor of the textile roof events; Hubert Reiter from Koch Membrane Structures and Michael Kiefer from Birdair Europe, both firms fabricating such structures, Hans-Joachim Schock from FESTO AG specialist for pneumatic structures, Paul Westbury from Buro Happold and Prof Sedlak leading the discussion. The discussion was planned to give background information about the professionals involved and information about cost and practical problems. Besides the not very fertile discussion it was a good platform to get to know who is doing what in this field and for myself, it was the perfect circle to contact for my personal project later in the afternoon between "hands-on" and computer.

This afternoon went well. Between the proposed activities of Programs and modelling I was given the opportunity to present a project via video, slides and a model, which I had done with my students in Augsburg. This could start a new tradition for the annual event. The presentation of activities by former participants coming back and showing that the intended effort of the event, to spread the knowledge of membrane structure in general, is working well. My small presentation was followed by encouraging offers to support the realisation of the project.

The architectural sightseeing bus tour of the centre of Berlin at five o'clock, just before our evening banquet, finished the afternoon session of day two.

The excellent banquet itself was held at the "Blockhaus Nikolskoe" overlooking the Wannsee Lake near Berlin.

Day three began with Dr. Hans Joachim Schock's introduction into detailing. Of course the time for such a task cannot be long enough. Many questions were left unanswered. But this was new and profound information for me.

Prof. Rosemarie Wagner (FH- Munich) reported about inflated structures and a deployable airship structure. This was first hand information about her exciting research activities.

The final report of Prof. Sergio Pellegrino from the University of Cambridge followed this path. He spoke about deployable Structures especially needed for space stations and satellites. These structures of course can be used for retractable domes on earth as well. The third and final afternoon modelling session became more of a contact and dialog circle between the participants.

Personal Résumé

The Textile Roofs '99 showed clearly that the event is not a simple annual repetition. Of course the basic topic remains the same. The "hands-on" modelling sessions have to be continued as well as the computational modelling. The basic explanation of the anticlastic principle of such structures will always be a repetition. The danger of stagnation was well overcome by new and highly interesting reports and lectures. But most important to me was the fact, that the initial idea, where specialists meet newcomers and can discuss

freely, remained the same. Additionally it became a truly international event where people from 22 Nations from all continents met, driven by their excitement, idealism and support for the beauty and fascination of these structures. I will definitely come again.

Dr. R. Off Architect; Director of the newly found international Institute for Membrane and Shell structures (I.M.S.); 86399 Bobingen, Germany