

#### THE CONFERENCE OPENING CEREMONY

The 17th ITTC was officially opened at a Ceremony in the Knights' Hall of the Carlsten Fortress on Sunday 9 September 1984.

Speeches were given by Dr. Hans Lindgren, President of 17th ITTC and Managing Director of SSPA Maritime Consulting AB, by Mr. Åke Norling, Governor of Göteborg and Bohus Län (Inaugural Speech), by Dr. Hans Edstrand, former Director General of SSPA (Conference Address), and by Mr. William A. Crago, Test Facilities Director of British Hovercraft Corp. Ltd.

#### INAUGURAL SPEECH BY MR Å. NORLING

Ladies and Gentlemen! Honoured Guests!

We are very happy that you have once again chosen to have an International Towing Tank Conference here in Göteborg on the west coast of Sweden.

Not being a technician myself I wisely desist from plunging into the technological field which is yours by profession. Nor am I a historian but I think that the surroundings here simply demand an historical briefing.

Gothenburg and the coastal region nearby have ancient traditions concerning shipbuilding and naval architecture. Frequent rock-carvings a few miles from here dating 3000 years back are indicative of that fact.

The natural harbour of Marstrand with approaches from different quarters has been used as long as people have sailed in these waters. Marstrand was a stronghold for the vikings and its history is forever connected with the sea. With shipping, trade, naval warfare, fishing and, alas, devastating fires. The wooden houses huddled up against the wind are even today in great danger, if a fire should start somewhere among them.

Looking at Marstrand today it's hard to believe the important role it once played in the history of Scandinavia. Until the middle of the 17th century it belonged to the united Denmark-Norway and for a long period it even competed with Göteborg in economic significance. When pirates and hostile war-ships were a constant threat, ships sailed from Marstrand in convoys for the south of Europa and the Far East. For periods of variable length, returning roughly once per century, the herring - the silver of the sea - used to appear in shoals of incredible amplitude. During those periods Marstrand really flourished. I hardly need to say that herring is scarce these days at least in comparison with the herring periods.

This fortress was built during the Swedish time which began in 1658. It was once considered to be one

of the strongest in Europe. The construction of these huge walls must have cost tremendous efforts. Part of the work was done by prisoners, as the fortress served as a prison as well.

One of the prisoners, a notorious thief with the nickname Lasse-Maja, is legendary in Sweden. The name Lasse-Maja is composed of one male and one female part, which refers to one of his peculiarities. He often committed his crimes dressed up as a woman. Very few prisoners left the fortress alive but Lasse-Maja did. He even ended up as a candidate to the Swedish parliament. The ladies will hear more about the fortress in a short while.

As I said Marstrand and Göteborg were once rivals in significance, strange as it may seem today. Marstrand today is a charming sea-side resort. It has a shipyard though. Göteborg on the other hand has developed to be the second largest city of Sweden with about half a million inhabitants - about the same size as the Norwegian capital, Oslo. Göteborg has the biggest port in Scandinavia, a worldwide network of commercial contacts and an advanced industry with companies as Volvo, SKF and, of course, the Swedyards.

The two remaining shipyards in Göteborg have specialized in ship repairs and offshore products. As a matter of fact the GVA shipyard and a handful of other companies such as Stena AB and Consafe have managed to give Göteborg a position as an offshore centre in Scandinavia.

Our host company, SSPA, has been instrumental in this achievement and I rest assured that the responsibility for the Conference is in competent hands.

I hope that you will find the contacts and the discussions with skilled colleagues from other nations rewarding. I also hope that you will have a jolly good time while you are here. With these words I declare the 17th International Towing Tank Conference opened.

#### CONFERENCE ADDRESS BY DR H. EDSTRAND

In the Book of Genesis in the Bible there is a description of Noah's Ark. It agrees surprisingly well with the present day opinion concerning the proportions of the main dimensions. The length is given to 300 yards and the breadth to 50 yards. Noah chose an L/B figure of six. A quite reasonable value. However, it is, of course, unlikely that Noah carried out model tests before his decision.

In historical time the first, or one of the first, to carry out model experiments in our field was the French priest Edmond Mariotte. Around 1650 he demonstrated the functions of water mills (Moulins de la Seine) at the Castle Chantilly and in Paris.

One of the earliest proposals known for the use of towed models for the investigation of ship resistance is that of the two Swedes Christofer Polhem and Emanuel Swedenborg. In a paper (concerning ships' speed at sea) they recommended the Royal Swedish Academy of Sciences in 1717 "that ship model tests be carried out".

Fredrik Henrik af Chapman is the first Swede known to have carried out ship model investigations. He was responsible for the Swedish Naval Shipyard at Karlskrona in the south east of Sweden. (A naval base still of interest to the Swedish Navy and also, as we suspect, to the navies and submarines of other nations, as you may have noticed from your newspapers).

Around 1760 Chapman arranged a towing tank with ship models towed by falling weights at his farm, Skärva, outside Karlskrona. The dimensions of the tank were 68 x 15 x 4 ft. In 1794, at the age of 73, he carried out systematical investigations in this tank. For example, he tested logs with systematically varied angles of entrance and runs.

Chapman died as a bachelor in 1808, 87 years of age. He worked hard at his hydrodynamic problems up to the last day of his life.

The 200 or 250 years after Mariotte are characterized by rapid progress and two lines of development can be distinguished: one experimental and one mathematical-analytical.

Concerning the experimental line one name must be mentioned especially - the Englishman William Froude, who in 1869 formulated his "Law of Comparison", stating the conditions under which model tests could be used to predict full-scale ship resistance.

From 1900 and on many new ship towing tanks were established with experimental arrangements based on William Froude's Law.

In Sweden the first new small towing tank was built in 1921, connected with the Royal Institute of Technology in Stockholm, and for almost twenty years it was the only tank in Scandinavia. Our host establishment, SSPA in Göteborg, was opened in 1940. Dr. Lindgren's and my predecessor, Dr. H. F. Nordström, was successively in charge of both these establishments.

It is impossible for me to enumerate all the ship towing tanks built during the last years. I personally believe that there are too many. National prestige, fear of competition and other reasons have forced nations and firms to over-establish in this field. The enormous investments are not giving the return they ought to.

#### ITTC

In May 1932 an International Hydro-mechanical Conference took place in Hamburg. This Conference was initiated and organized by the German Towing Tank in Hamburg (die Hamburgische Schiffbau-Versuchsanstalt). The Proceedings of this Conference were published in 1932, "Hydromechanische Probleme des Schiffsantriebs". In an after-dinner speech at this Conference one of the delegates, Mr John de Meo, pleaded strongly for international technical cooperation in the field of ship propulsion. Professor L. Troost of the Wageningen Tank in the Netherlands took up this idea and invited his colleagues present in Hamburg to come to the Netherlands in 1933 to discuss what form the cooperation of the tanks should take.

Thus the first International Conference

of Tank Superintendents (this was the name of the ITTC at that time) took place in the Hague in the Netherlands, on July 13 and 14, 1933. It was attended by 23 delegates.

The discussions, which were informal and confidential, led to the appointment of a committee of four (Baker, Barrillon, Kempf, Troost) to set down the general conclusions in a more definite way. Thus apparently already at the first Conference a Committee was necessary in order to sum up all the different opinions.

Before World War II three further Conferences were held - in London 1934, in Paris 1935 and in Berlin 1937.

The first International Conference of Ship Tank Superintendents after the war took place in London in 1948. Since then a Conference has been held every third year in various countries.

Among the scientific and technical achievements of the Conference I will mention only a few. In 1935 in Paris the formula for calculating friction resistance was agreed upon. In Madrid the ITTC 1957 Model-Ship Correlation Line was adopted. In 1978 in the Hague the ITTC Member Organizations were recommended to use the 1978 ITTC Performance Prediction Method for Single Screw Ships.

For some reason the ITTC has always been very popular. The demand for invitations for Delegates increases all the time. Not only professionals

in tankery, but also university professors, consultants and shipbuilders' and shipowners' representatives have shown considerable interest.

In the Preface to the Proceedings of this Conference, Volume 1, Dr. Lindgren asks: "Will ITTC still exist 30 years from now, ...?" My answer is "No!" At least not in its present form. You simply cannot afford it.

At SSPA we had in the past two men who were directly responsible towards the shipbuilders and shipowners, and thus built up the reputation SSPA may have had. They were Mr. Rödström and Mr. Warholm. Today it is Mr. Loid, Mr. Williams and Mr. van Berlekom. None of these five persons have ever had anything to do with the Conference. I think the picture is the same at most establishments.

The Head of the Tank is a Delegate of the Conference. His duties at home mostly concern administrative and economic matters. Besides the Tank Leaders the Conference mainly consists of Technical Committee Members. They are hydromechanical scientists, professors from universities and so on. They travel around the world to each other places, have Committee Meetings and write more or less sophisticated Committee Reports, which are of little immediate use to those responsible towards shipbuilders and shipowners.

I believe my old friend and colleague Mr. David Moor expressed the situation very clearly in 1969 in Rome when he said, discussing the Resistance Committee Report: "Why all this, why

not instead try to give us a good and reliable method to correct for blockage effect?"

Remember also the costs involved. To keep a Member on a Committee is expensive. For a Tank establishment to keep somebody as Chairman or Secretary in a Committee is very expensive indeed. One has to calculate with something between half-time and full-time for three years and added resources. It will hardly pay back.

I suggest that you decrease the size and the scope of the Conference, say down to the size of the present Advisory Council. Abandon the elaborate and expensive system with large Technical Committees and use smaller groups for more immediate problems in the experimental field - just what the ITTC from the start was meant to do. The work of the present Technical Committees is of course of great value, but it does not belong to tankery, but to the mathematical-analytical line and ought to be taken care of by the representatives of Education, the Technical Universities.

Since 30 years ago, when I was the Secretary of the Conference last time it met here in Göteborg, I

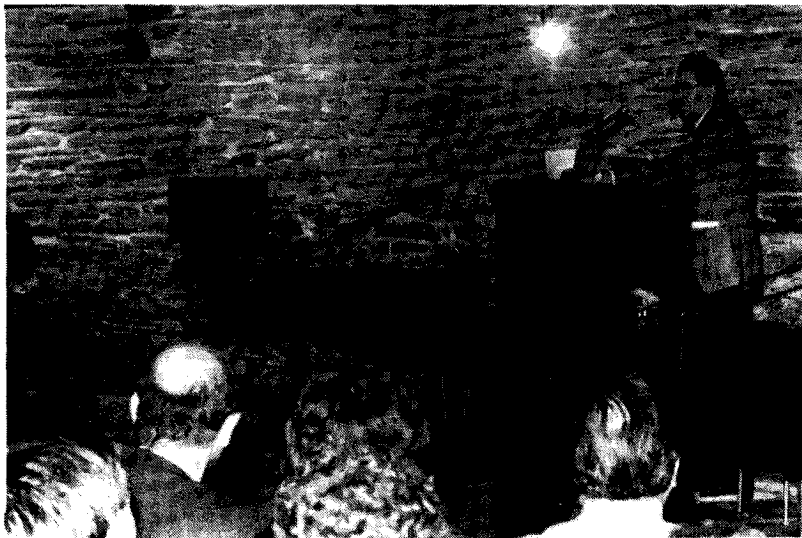
have followed the work of the Conference very closely in different positions in different Committees.

Against the background of the very serious economic situation for shipbuilders, shipowners and the offshore industry, at least in the Western Hemisphere, Europe and America, I believe it is necessary for the ITTC to do something to rationalize its work and bring down the costs involved.

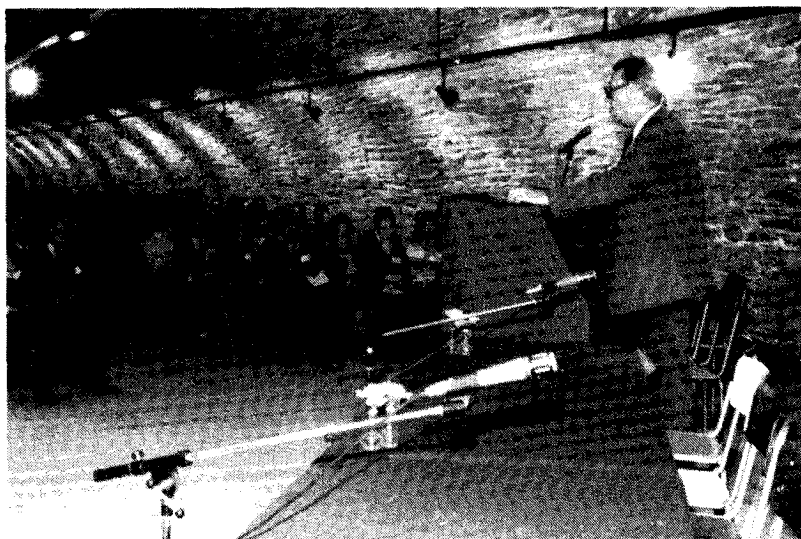
After all, the main task for the ITTC must be the same today as the one John de Meo pleaded for 52 years ago, namely for customers to get the same or at least a similar answer, when investigating the same technical problem at different experimental facilities.

May be you had not expected me to say just what I have said. I hope, however, that you will take my ideas under serious consideration. I believe this is important for the future and may mean the survival of many ship towing tanks.

I wish all the Delegates and Observers some interesting days and I wish you all a pleasant stay in our country.



Dr. Hans Lindgren, welcoming old and new friends in ITTC



Mr. Ake Norling, opening the 17th Conference



Mr. William Crago, speaking for the foreign Delegates



Dr. Hans Edstrand, delivering the Conference Address

Listening, and arguing, in  
the Knights' Hall



The Kongahälla Folk Dancers



Luncheon in the Battery Hall

