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ON

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FOREWORD

It gives me great pleasure to introduce the collected proceedings of the 11th Annual Symposium on Air Cushion Technology, which was presented in Vancouver, B.C. by the Canadian Aeronautics and Space Institute.

The past few years have seen a long hard struggle, not only to develop a technology suited to the Canadian experience, but, just as important, to develop and establish the credibility and effectiveness of the technology with the wide range of industrial disciplines, which might be expected to be the users.

That we are "over-the-hump" with this struggle is apparent from the theme of this year's Symposium - "How we are Meeting the User's Needs" - but we all know that to stay there we need power, stability and guidance.

It is obvious from the standard of presentation at this Symposium that the power, stability and guidance are available, and we can look forward with confidence to an increasingly important role for Air Cushion Technology in Canada.

R. D. Hunt, Chairman
Air Cushion Technology Section
CANADIAN AERONAUTICS & SPACE INSTITUTE

CHAIRMAN'S REMARKS

At the close of another successful Air Cushion Technology Section Symposium, I would like to draw some conclusions, and indicate some directions for future efforts.

Although the symposium was structured around the actual and potential user's needs, it was somewhat disappointing to find very few representatives of commercial users among the delegates. However, I feel that the majority of delegates, from Governments and industry, obtained an enhanced insight into the users' problems, and some legislative problem areas, from the various presentations.

I feel it is important for future symposia that user and potential user participation be even further emphasised. To encourage them, we need to demonstrate operational hardware. Unfortunately, it is a fact of life that most air cushion vehicles and equipment are operated in remote places which are quite unsuited to host a large convention.

As the practical use of Air Cushion Technology becomes more wide-spread, this problem will become less acute, but I feel it should be an important part of all future planning.

In closing, I would like to express my appreciation to those who put so much effort into making the symposium a success; the Secretary of the C.A.S.I. and his staff, the Session Chairmen, the Canadian Coast Guard Search and Rescue Unit, Western Peat Moss Ltd., the Vancouver Branch of the C.A.S.I. and the Vice-chairman of the section (your future Chairman) for taking much more than his share of the load.

I wish the section continuing growth and every success in all its future activities.

Signed by: R.D. Hunt, Chairman
October 19th 1977

GUEST OF HONOUR AND PRINCIPAL SPEAKER

W.A. O'Neil
Commissioner, Canadian Coast Guard

I was indeed very pleased to be able to accept your kind invitation to speak to you tonight. One of the main reasons for this is that for a number of years I have been very interested in the technology that you will be discussing during the next few days because it seems to have so many inherent advantages.

As a Civil Engineer who has always been marine oriented and indeed worked in the marine field for some 28 years, I have had a sincere belief that air cushion technology has a bright future. The fact that this technology, in addition to its conventional applications, is now being used in areas such as icebreaking, air cushion cable ferries, bridge building and peat moss harvesting, strengthens my early feelings.

However, I must confess to having a tinge of disappointment that after a very rapid start, this technology is now experiencing some difficult times and I have wondered why this is. It would be easy to say that the reason is that a new technology is always difficult to get going. Also that there is an odd phenomenon at work in the world today; that on one hand we are making tremendous efforts to achieve almost unbelieveable technological gains, while on the other hand, we are tending to resist the introduction of these into our daily lives. Perhaps this is not just an odd perversity of human nature, but the fact is that in an era of financial constraints and environmental woes, we have no option but to manage our resources with greater skill and caution than ever before.

Certainly there appears to be no doubt that the severe financial constraints that are being placed upon all federal departments will continue for a long time. Also we can expect continued pressure from those groups who have a special interest in the protection of our environment.

These hard facts of life will present the Coast Guard with special problems during the next decade. As Canadian marine activities continue to grow our task will expand. Typical examples are; the tremendous increase that is expected in northern shipping, the steady growth of commercial marine activity in the south. The pressures to extend the St. Lawrence Seaway season, and the increase in leisure hours which has occasioned many people to turn to pleasure boating. All these directly affect the prime roles of the Coast Guard which are search and rescue, provision of navigational aids, icebreaking in support of commercial shipping and flood control, pollution control and containment, northern re-supply, and the very humanitarian role of safety of life at sea. To enable us to meet these expanding roles we have many plans. Some of

which have come to fruition, some of which are near fruition and others which must await the allocation of hard to find money and manpower. An excellent example is the growth of vessel traffic management. It is imperative that as our shipping lanes become more crowded with faster and larger ships, our ability to control their movement become more effective. If we fail, fishing and tourist industries could be ruined by one major marine tanker calamity.

In many ways our challenge becomes your challenge. We strive to do our job in the most effective way that our limited resources permit and we are constantly on the search for equipment that will be more cost effective in the performance of coast guard roles. Those of you who visited our hovercraft unit this afternoon saw a good example of our drive to introduce into the Coast Guard service craft which are admirably suited for the inshore role of search and rescue, as well as being capable of servicing aids to navigation.

Another good example is our work in developing the use of air cushion icebreaking. Certainly we intend to capitalize on this new and exciting means of extending our navigational season in ice infested areas. In a very short span of time it has conclusively demonstrated that there is a new and very effective way of tackling a severe handicap to winter navigation. We have plans to build an air cushion icebreaking bow which will have a performance superior to any existing use of air cushion technology. We believe that our design will give us the capability in three to four feet of solid ice and to operate in ridges of up to four to five feet. Studies as to the possible application of this technology in the Arctic are being undertaken.

In these days of tight money, the question of successfully multi-tasking our ships becomes of prime importance for economic reasons. However, from the operational point of view this is very difficult to achieve, particularly when you consider the vast area covered by the Canadian Coast Guard and the many different things we have to do. If we attempt to make our ships "all singing and all dancing" we end up with an extremely uneconomical unit. Conversely, if we develop a specialized ship for each task we end up with a multitude of vessels which are sparsely employed and with capital expenditures far beyond our budget limitations. Also the operational and maintenance expenses become astronomical. We must then have a balanced fleet. A typical task could be the need for a ship to stand by at nights and weekends to meet a possible SAR requirement, to take if need be, emergency action with respect to an oil spill, to check the position of/or service one of our floating navigational aids or if it is winter, to help assist a ship that is beset in the ice. Our experience leads us to believe that an air cushion vehicle with its small crew and quick reaction time could be economically employed in some areas for this work. To perform these tasks the craft must have a very high level of reliability and availability.

There is little doubt that failure to provide adequate and reasonable support for any equipment can quickly give it a bad name. In a new technology, any failure of this nature, reflects on the whole industry and not just the particular product line. I would like to stress that in "meeting the customers' needs" which I believe is part of the theme of your Symposium, you must be most responsive to the vital area of product support.

Earlier I mentioned other applications of air cushion technology and while at present the Coast Guard does not have an overland requirement or particularly civil engineering use - although we do from time to time lay and bury electric cables with our Voyageur - these and other applications are absolutely essential if we are to build in Canada an industry which is capable of fully exploiting air cushion technology. Certainly there is no way that a Coast Guard requirement alone can possibly provide a firm foundation for the building of a sound and capable industry. Like our Coast Guard Fleet, our industry must have the right mix if it is to grow the way we all hope it will.

A relatively new technology such as yours has a particularly tough selling job on its hands. One of the reasons is that many potential users of your product have only the vaguest of notions as to what can be done with air cushion vehicles. They have read and possibly seen pictures or movies of various applications but believe me for the layman it can be pretty confusing in trying to sort it all out. I am sure there are not too many persons who know of the use of air cushion technology for harvesting peat moss, which you are going to have a chance to see in operation tomorrow.

I think the general image of air cushion technology is that of a high-speed amphibious craft which the British invented and called a hovercraft and that North America renamed an "Air Cushion Vehicle" for shortness!! I believe that most Canadians would be very surprised to see the wide range of users covered by this Symposium. Surely then this can be one of your very real problems. The application of the technology is so wide that there is inevitably confusion in potential users' minds. How can he possibly be expected to know what the technology can do for him? If an airline operator is after a new airplane or a shipping magnet is after a new ship, he has very positive ideas as to what an airplane or ship can do and he will also have just as positive ideas as to what he wants it to do. You are faced with a much tougher problem, first of all, the potential operator doesn't know exactly what this technology can do for him and secondly, he is unaware if it will do his particular task in a more economical manner. Certainly he can be quickly scared off at first glance with what may appear to be very high operating costs. He can also be extremely shy of the re-training time and costs which he will inevitably have to face if he moves into a new technology. Finally, as he has had no personal experience with this technology on which to make his judgement, he will ponder and wonder as to the validity of the statements being made by the manufacturer.

I do not profess to be a marketing expert but I have noticed amongst some of my directors a natural resistance to moving into a new technology without being absolutely sure as to what it can do for them. I can readily appreciate their reluctance as we place a great deal of onus on our Managers to ensure that the maximum benefit is derived from their efficient use of Coast Guard resources. If this can occur in a progressive force then certainly in a commercial activity where the balance sheet is the primary yardstick for the measurement of efficiency, the problem will be more difficult.

Earlier when I mentioned the tinge of disappointment I felt regarding the progress being made, I was thinking particularly of the commercial services. As many of you are aware, there have been a number of unsuccessful attempts to start commercial ACV businesses in Canada. There have also been a great number of studies carried out on potential ACV services which have failed to materialize. The reasons for the failure of these to continue or even to commence are numerous, and not always very easy to determine. It is certainly not my intention this evening to attempt to analyse the failures. I will leave that to those who are much closer to the subject. What is very important, however, is the need for the industry to take a most serious look at the past and to analyse in a most objective manner the reasons for the failures. Many thoughts come to mind, the first and foremost is - was there a positive need and the density of traffic to justify the high-speed marine service, if so, was the right ACV chosen, did the operator adequately train his crews and engineers and maintain and operate the vehicle in a professional manner, was essential support provided by the manufacturer, or was it similar to NTCL's experience, that the delays in the openings of the North reduced the need for transportation in the area making it necessary, at least temporarily, to terminate a successful service?

Finally I would like to say that because of the Coast Guard's unique responsibilities, we are appraised in confidence and in many instances our advice sought on proposed northern operations of commercial organizations. There is no doubt that many of todays plans will become fact in future years.

On many occasions the use of air cushion technology is included in these developments. It is particularly interesting to see that the plans for using air cushion technology for advanced drilling systems in the Arctic that were developed some years ago and shelved, are now under active consideration again. Certainly, it is a tribute to the air cushion industry for its tenacity in continuing to advance the state of the art under difficult circumstances and with limited financial resources. I sincerely believe that this tenacity will ultimately be adequately rewarded.

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