



Oral History Interview Transcript

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Interviewee: Frank L. Porter

Interviewers: Tony Thatcher and Don Wilson

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Transcribed by: S. Johnston

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Interviewee L Frank Porter
Interviewed September 19,2006
By Tony Thatcher and Don Wilson

INTERVIEWER: This is a CANDIB Oral History Project interview with Frank Porter that was recorded at Ottawa on 19 September 2006. Frank was interviewed by Tony Thatcher and Don Wilson. The participants have signed the copyright release form. This is tape one side one.

The subject of this interview is the Tribal Class Modernization Project or TRUMP that the Canadian Navy undertook between 1985 and 2000. The three participant groups in this program were the Navy, the Department of Supply and Services as the contracting agent for the Government and the contractor, Litton Systems Canada of Toronto. Today's interview will present these interesting stories from a naval perspective.

Frank Porter has a long and interesting career, firstly with the Royal Navy and later with the Canadian Navy. He spent many years in submarine support both in naval dockyards and headquarters roles. I'd ask Frank Porter to first introduce himself and describe his naval career up to the time of the project covered in this interview.

PORTER: I'm Leonard Frank Porter and I joined the Royal Navy in 1948 as an artificer apprentice at the age of 15. I had four years at engineering school and when I graduated I went to HMS VANGUARD for my sea training. I was promoted shortly after that and after service in destroyers I joined submarines. I found a submarine was very interesting and I stayed with submarines for 20 years. I was very fortunate in being able to serve in Canada in the Halifax Shipyard SRUA - Ship Repair Unit Atlantic with the submarine refit organization there. On completion of that I found that Canada suited me so I requested to come back and I resigned from the Royal Navy and came back to Canada two years later. I was posted to NDHQ in Ottawa, which was a little bit of a surprise as I thought I would have gone to Halifax. But I had four years with DGMEM in DMEM 5 and found this was a very interesting time as well because the submarines were going to be updated we brought out SOUP which was the Submarine Operational Update Project. Then I was promoted and appointed to TRUMP - Tribal Class Update Modernization Program. I joined there just as the Request for Proposal-three proposals from three contractors-had been assessed and they had selected one that was going to be the prime contractor. From then on I was with TRUMP until I retired at the age of 55.

INTERVIEWER: Frank, this is Tony Thatcher, when you joined the program what was the status of the project?

PORTER: The three contractors had all been assessed with their response to the Request for Proposals and Litton's had been selected and we were then into the contract-placing scenario where it was decided what form that the ship would take, how much it would cost, and how they would control [it] as the prime contractor. These negotiations took about a year.

INTERVIEWER: This was with Litton Systems?

PORTER: Litton Systems Limited of Canada in Toronto.

INTERVIEWER: How prepared was Litton to undertake the job? Was a year a long time?

PORTER: No Litton were very well prepared. In fact that they had massive support from Litton

Ingals which was the American parent company and who lent them some very high priced help in the form of naval architects, combat systems engineers. Also they were providing the naval architects as I mentioned with the idea that any change we would make they would be able to compare with the American's experience in Spruance. [A US class of Destroyer].

INTERVIEWER: Then they had their reach back to their corporate other companies that were part of Litton in the states.

PORTER: I think that this would have helped them in their funding because this part of the work was very expensive. They had put together a team to do the actual work other than that they had for the contract negotiations. They subcontracted, as prime contractor (their choice)-work to VSEI and to CAE in Montreal and to Pratt and Whitney for the various elements in the ship.

WILSON: Who is VSEI?

PORTER: Vickers Shipbuilding Engineering.

INTERVIEWER: Sounds like Litton built up a project-group from a series of places. Could you describe where they recruited their folks from?

PORTER: Littons' themselves recruited widely through Canada, some from the military, people who just retired. But also they went to weapons suppliers in the UK and one particular who springs to mind was Eddie Wood from BAE. They also went to VSEI who had recruited some in Canada again from retirees from the Canadian Forces. Also they had a couple of engineers from the UK who were over here and decided they liked the Canadian way of life. Gerry Lanigan was the one I was going to mention here.

INTERVIEWER: Interesting. You mentioned several sub-contractors to Litton. I wondered if you could just explain what their general responsibilities were for the program.

PORTER: VSEI did most of the drawing work and they did the load calculations, power calculations and also the specific requirements for the combat systems that we were going to be fitting. The actual command communications and control systems were done by CAE from Montreal, who was very knowledgeable-they were world leaders at this time. I shouldn't mention it but they also have a bit of input to the submarine control systems so I'd come across them before.

INTERVIEWER: The Davie Shipyard do you have any ideas how that was chosen for TRUMP?

PORTER: This was another contract that was put together by Littons. They went to the shipyards on the east and the west coast and they put out a Statement of Requirements and asked for proposals from the shipyards. There was Burrard Yarrows on the west coast. There was Davie and also there was Montreal.....

INTERVIEWER: Vickers?

PORTER: Where two of the ships were built.

WILSON: MIL?

PORTER: Yes, MIL. With Litton we inspected all the shipyards. Littons actually brought people up from the States who came with us to look at the shipyards. We were looking at the skills of the

work force. The weather as much as anything. The facilities that were available in the shipyard and both Davies and MIL were both well aware of what was required because they had built TRUMP ships there. We were looking for large areas for stores because we were going to be moving pretty well everything out of the ships. We were going to building up the new equipments there so in fact we needed twice as much space as if it was a new ship that was being built. Overall it was a very close fight actually. But overall Davie came out on top with the marking systems we had agreed with Litton.

INTERVIEWER: How prepared was Davie to take on the job?

PORTER: At that time we thought that they were very well prepared. They had the skills; they were a little bit short of work so they were hungry. We got a good price from them. We were actually putting money in there in that we built our own offices and we put in a team that was going to supervise the work in the refit. This was the TRUMP project together with Littons. They were very well aware of the maintenance of the equipment coming out so we had covered stores and that, right alongside the dry dock.

WILSON: If I recall Davie was a supplier to Ingals, were they not?

PORTER: Yes.

WILSON: The bow sections and the bow sonar were built in Lauzon [Davie] for Ingals?

PORTER: When we say the skills, they actually built the big sonar domes for Spruance ships. They had a system where they had a flat plate and they had a man, with a torch that was contour controlled, went along sort of heating up a line along the steel. They sprayed it with water and that is how they actually bent the plate and this is how they formed the whole dome so there was no cutting. It was just heat and spray. It was terrific. This was one of the skills that they had developed there at Davies.

INTERVIEWER: I would imagine that was one of the reasons why Davie would have been attractive to Litton.

PORTER: It was. We thought that any hull work or anything that needed to be done there because we didn't want to cut if we could avoid it. But also we were changing...well that is your side. This is Thatcher interviewing Thatcher when it comes to combat systems.

INTERVIEWER: Yes I recall the combat systems were developed by Signaal in Holland and provided to the shipyard. But I presume the shipyard had quite a role in preparing for that. So they would have had to have had that expertise as well.

PORTER: The other thing.... are we recording this now?

INTERVIEWER: Yes.

PORTER: The other thing that they were doing was the fiber optics systems that they put in there which they had to get some special training for.

INTERVIEWER: That is interesting. That was a new technology in those days.

PORTER: It was, and we were a little worried about it but ideally came to.....

INTERVIEWER: I just touched wood.

WILSON: We had HSA in both the original 280 builds as well. So they knew something about it.

INTERVIEWER: I think you may have touched on some of it, but... so you feel there were other significant industrial benefits for Litton and the shipyard?

PORTER: Yes. There were new technologies coming in which Litton were able to take advantage of. They were doing other things. They were building defence vehicles for air-fields abroad which used surface to air missiles, which they could sort of feed back to our vertical launch system that we were having. Davie, of course they were involved, as you mentioned, in fitting in all these new combat systems plus the gun which was definitely a 21st century gun.

INTERVIEWER: The Otto Melara gun as I recall.

PORTER: That is right. The command and control communications systems were all fairly well new. We were looking at different architecture for the systems in the machinery spaces. Also different support systems, we were using the hot spare alongside. I think that Davie when they could feed some of this into some of the merchant ships. Not the weapons systems but the control systems.

INTERVIEWER: TRUMP included a number of innovations because it was quite a state of the art project at the time it was evolving. Could you describe some of those innovations that you recall?

PORTER: Well the biggest one for this type of ship was the vertical launch system Martin Marietta and using the SM2 missiles that the Americans allowed only Canada to have. But getting them into this ship which was small by American standards required quite a lot of naval architects or investigation and this was mostly carried out by VSEI with some Litton Ingals input. The Americans were very good about it. They let us use part of their Spruance model to work out our calculations. Once again I believe it has been very successful.

Another one that came to us was that the FT12 cruise engine needed replacement and the Detroit Diesel Allison industrial engine was selected by DMEE. It had to be fitted in as part of TRUMP. The starboard engine was fine that was direct drive, but the port one, because it was a fixed rotor required to have a gear-box to give us the counter rotation of the propeller. This was all done by Pratt and Whitney with VSEI and NDHQ assistance.

One of the problems with the ships was the funnel signature which showed up very well on infrared. So the innovation from, I'm told it was Defence Research Engineering Establishment Suffield, the "DRES Ball", was fitted into the funnel. So we took the rabbit ears off (a reference to the shape of the ship's funnels] and we put on a central funnel which had air intake down the outside, the "DRES Ball" on the inside. In fact it reduced the signature significantly.

The SHINCOM was designed for naval ships that was incorporated. SHINMACS we altered slightly to fit into our system. DCIEM was the defence establishment at Toronto, (diving mainly) but they also did a mock up of an ergonomic bridge so we were able to redesign the bridge to make it more comfortable for the sea going personnel and also to give the machinery control systems and that control up on the bridge itself.

To have constant displacement we went to the water displaced fuel system so that we were able to

stabilize the weight of the ship. It was always at one depth which made navigation much easier and also improved the range.

INTERVIEWER: Certainly a lot of innovations for them. Were they all developed by Canadian industry?

PORTER: They were designed or developed by the Canadian Department of Defence supported by Canadian industry. I think that this was fairly unique in that a lot of countries don't do it this way but we could do it here in Canada.

INTERVIEWER: I would like to explain several acronyms which were used in the conversation just a moment ago.

DMEE is the Director of Marine and Electrical Engineering

SHINMACS is Ship's Integrated Machinery Control System

SHINCOM: Ship's Integrated Communication System

DCIEM: Defence Civil Institute of Environmental Medicine.

INTERVIEWER: Thank you Frank. This concludes the interview with Frank Porter for the TRUMP project.

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