



**Oral History Interview Transcript**

**Interview Control Number: 8-C17**

**Interviewee: John Shepherd**

**Interviewer: Roger Chiasson**

**Dates of Interview: 12 December 2007 (start); 31 December 2008 (completion)**

**Location of Interview: Saint John, New Brunswick; Halifax, Nova Scotia**

**Transcribed by: Sue Easterman**

Tape 1, Side 1

CHIASSON: This is CANDIB oral history project interview with Mr. John SHEPHERD that was recorded in Saint John, New Brunswick on Wednesday, December 12<sup>th</sup>, 2007. Mr. Shepherd was interviewed by Roger Chiasson. Both participants had signed the Copyright Release Form. Mr. John Shepherd and his association with the Canadian shipbuilding industry, and Saint John Shipbuilding Limited in particular, is the subject of this interview.

Mr. Shepherd, I would like to start off by asking you to start with an account of your early years in Scotland and how you started in shipbuilding before coming to Canada.

SHEPHERD: I graduated from Bellshill Academy and I went to work with Drysdale Pumps and, at that time, there was national service in the UK and it was mistaken, I did not do the proper clearance from an apprenticeship type arrangement with Drysdale and I finished up by being called up for service in the Royal Engineers. So I spent two years in the Royal Engineers serving most of my time in Egypt and I came back into Drydale's again under what they called at that time an Interrupted Apprenticeship Scheme. So I finished my time with Drydale's through 1954-55. At that time there I had also finished up part time education at the Royal Technical College. And at the end of that I was a graduate of the Institute of Mechanical Engineers, but with very little practical experience. So I decided to go into the Merchant Navy as an engineer to gain two years practical experience to qualify me for my AMI MECH E. This I did and came out and joined the Anchor Line and spent two years on the UK/Pakistan/India run and then I came out and at that time I started looking for ....I had then qualified with an AMI MECH E which at that time was my goal, to get a professional qualification. I did that. So I then decided ... I started looking for other work ... and I looked around and I decided I was going to go abroad. I looked at jobs in India, with Shell. I looked at jobs in Africa with consulting companies and also I had an opportunity in Canada. This opportunity came through Davie Shipbuilding Limited who were looking for design engineers. With my pump experience from Drysdale's, I fitted very well into the design office in Davie Shipbuilding. So I came out to Canada and joined a design group in Davie Shipbuilding. That was in 1957. So I spent six years with Davie Shipbuilding and became Assistant Chief Engineer in Davie Shipbuilding, in charge of the design office. At that time there we worked with the Navy and came up with the design for the HMCS PROVIDER. I worked closely with the Navy personnel, visited the US, did trials of all of the T2 tankers which at that time were the replenishment vessels for the US Navy. So we eventually came up with the HMCS PROVIDER, and I was the Project Manager for the HMCS PROVIDER.

CHIASSON: Well, thank you, Mr. Shepherd that was an excellent beginning to our interview. You mentioned the HMCS PROVIDER. I wonder if you could tell us a bit more about the nature of that project. Where did the design come from? Was it all internally done in Davie Shipbuilding? And a little bit about how the project was managed.

SHEPHERD: HMCS PROVIDER was designed and developed in Davie Shipbuilding Design Office. This was done in close collaboration with the naval personnel, mostly civilian naval personnel, and it was a long, slow process in the development. But at that time there Davie Shipbuilding had a big design office and a big drawing office, staffed mostly by very competent UK personnel, both hull designers, pipe designers and very good draftsmen. This was all done manually on the board and it was an excellent job done by a real good group of immigrants.

We ran into problems with the design basically in the replenishment gear. It was sort of a low pressure hydraulic system developed by Clarke Chapman. The machinery was gas powered was

a steam turbine and posed no problems because the Davie personnel were very experienced in steam vessels at that time. So that the engine room, accommodations, they were no trouble at all, and the replenishment gear was a big problem. And I personally became deeply involved in this and conducted all sorts of tests over at Clarke Chapman [UK] deciding on filters, heaters, coolers, etc. And the whole system was basically designed in place at Clarke Chapman and then moved on to the vessel.

At that point in time, just as we were doing the trials, we did the basic trials, and by that time my family at that time had a yearning to go back to Scotland. So I had a big decision to make and I finally decided we should try it in Scotland again. So I left Davie Shipbuilding and went back to the old company, but this time instead of Drysdale's I went back to Weirs. Weirs was the parent company of Drysdale so it was like going back to the company that I had actually come out from. So I went back to Weirs and took a job as a Senior Mechanical Engineer there, responsible for the feed systems and practically all of the tankers that were being built in the UK at that time. So I covered every shipyard, that was building, 60,000 Ton tankers and larger. I also had some vessels that were being towed to Europe, so I had finished up doing all of the feed systems, the marine feed systems. I became the Marine Feed Systems Engineering for Weirs. I also moved from there and gradually started taking over power plants. And I moved into taking over power plants.

So after 4 years with Weirs, my colleagues from Davie Shipbuilding, Bill White to be exact, Bill was the Assistant General Manager when I was at Davie's and Bill had moved to Saint John as the General Manager of Saint John Shipbuilding. So they had just bid on the Replenishment Vessel Program. So Bill through Peacocks [Bros, Montreal], who was the Weir representative in Canada, contacted me and asked would I like to come back and take over as Project Manager for the Replenishment Program, which they had just won. So I thought long and hard about that and finally he convinced me to come back to Canada. So I came back to Canada and took over as the Project Manager for the PROTECTEUR/PRESERVER.

CHIASSON: Well, thank you, Mr. Shepherd. I didn't realize that you had gone back to Scotland and come back to Canada. And we will deal with the PROTECTEUR/PRESERVER Project a little later in the interview. I wonder if you could carry on describing your career in shipbuilding from the point that you left the project in Saint John Shipbuilding in, I believe, it was 1973.

SHEPHERD: I took over as Project Manager ...at that time there was a vacancy in the Engineering Department, so I double-hatted and I took on the role as Chief Engineer as well as the Project Manager for the project. So I continued through with the Project Manager and as we were, I'd say about 60 percent through, J.K. Irving asked if I would assume the role of Production Manager. So I moved ... they hired an Engineer and I moved ... and double-hatted then as Project Manager and Production Manager for the rest of the PROTECTEUR/PRESERVER Program. I did that there and continued on after the PRESERVER/PROTECTEUR I became VP Operations in Saint John Shipbuilding, a position which I held until about 1973. I was then offered a job at Davie Shipbuilding as VP and General Manager. So I moved to Davie Shipbuilding and took over as VP and General Manager in 1973. By that time we had run into union problems ... big, big union problems ...with a big PQ involvement. So, I being an Anglophone had to work through that very, very difficult period. By that time there we built about ... we finished off the 80,000 Ton tankers for the Greek owners and they then took on a series of six 40,000 Ton tankers for Cunard, Tate & Lyle Sugar Company and another Russian company. We finished these vessels,

but at the end of it Power Corporation had decided that they wanted no more of the problems with the union and Davie Shipbuilding. So a group headed by Louis Rochette and Bill White bought out Davie Shipbuilding.

So at that time I decided to instead of moving back to CSL [Canada Steamship Lines – Power Corporation] head office, I decided to leave and I went into a consultancy agreement, formed my own company and worked with Montreal Engineering as a joint venture. So I set up my own company. We worked at that from 1976 through 1978. And actually with Montreal Engineering and my own company, which was JS Management and Consulting, we actually won a contract in the beginning of the CPF [Canadian Patrol Frigate] contract.

At that point in time J. K. Irving was experiencing problems in Saint John Shipbuilding and he approached me and asked would I take over; would I come back to Saint John Shipbuilding? I initially refused and took as an assignment a project with Hawker Siddely, Bob Faulkner was the President at that time, once again one of my old colleagues from Davie Shipbuilding. Bob Faulkner hired me to finish off the contracts in Halifax Shipyard and then actually to close Halifax Shipyard. This I did, and at that time J.K. Irving came after me again, finally visited me in Halifax and asked if I would come and work for him at Saint John Shipbuilding. So this time I gave in and we moved back to Saint John where I have been ever since.

CHIASSON: Well, again, Mr. Shepherd, thank you again for that excellent introduction and your description of your varied and long experience in shipbuilding, both in Scotland and in Canada and also the allied industries, allied to shipbuilding.

Next I would like to ask you to talk about the impact of Scottish shipbuilders on the Canadian shipbuilding industry. This is a very broad question, I understand, but I will let you answer it the best way you see fit.

SHEPHERD: When I came out to Canada in 1957, I was quite surprised that a number of Scots who were actually working in Davie Shipbuilding, right from the General Manager, Bert Black to the Production Manager, Archie Kerr; two of the senior individuals there were Scots. In addition to that the Chief Designer, Donald MacLeod, was from Scotland and then throughout the 100 designers, draftsmen, I'd say that there were probably 40 to 50 of them from Scotland. All of these individuals finally evaporated I'd say throughout Canada and the States. Some went down into Newport News, others out to San Diego and then others moved onto Port Welland [Port Weller], Collingwood and back to Scotland. Most of these people moving to better paid jobs because of their expertise and knowledge. Another person I should mention here is the Chief of the Design Office, who was another Scot, Bob Gilden. So and again, one that everyone got to know, Ian McGregor, who was the Ship Repair Manager. So at that time there at Davie Shipbuilding there was a very, very strong contingent of Scots and as I have said earlier they gradually dispersed throughout the Canadian shipbuilding.

There were also at that time in Vickers. Vickers also had a contingent of Scots and I can't remember clearly the names, but I think they are well known throughout the industry. I won't attempt to mention their names. As I said earlier I was surprised at the number of Scots in Davie Shipbuilding. In Quebec City especially, when I arrived in Canada, there was a very, very strong group and I'd say that you could see that once you .....even going to the lengths of .....and I'll introduce something here ... the Presbyterian Church. The Presbyterian Church in Canada, which is the oldest Presbyterian ... is the oldest ... one of the ... it is the oldest Presbyterian Church in

Canada, the one in Quebec. And it was quite amazing the number of shipbuilders who were part of that congregation. It would give you a real good idea of the number of people and the influence that this group of Scots had on Canadian shipbuilding, especially in Quebec. I'd say through the years from '57 through the '60's into the early '70's that complete group had vanished. And they are all gone.

CHIASSON: Thank you, Mr. Shepherd. The next question has to do with your impressions of the Canadian shipbuilding industry's relationship with the government and the Navy over the several decades that you spent in the Canadian shipbuilding industry. What I am looking for here is your impressions as to what proportion of the shipbuilding industry's business was attributable to the Navy and what were some of the peculiarities about dealing with the Navy and the government that might have been different from dealing with commercial shipbuilders or shipping lines.

SHEPHERD: In Davie Shipbuilding there the naval work, I'd say, was probably no more than 15 to 20 percent of Davie Shipbuilding at that time. For instance, to give an example, one particular year Davie Shipbuilding delivered 7 tugs, 4 commercial laker-type vessels and one, I'll call it, a destroyer. That will give you an idea of the volume. Dealing with the Navy ... it wasn't so difficult dealing with the Navy personnel but the joint ... the team that came from government was DPP, DSS, PWGS, whichever you want to call it, they were the contracting agent whilst the Navy was the technical agent. You could get agreement on technical, but not necessarily agreement on contractual. This was one of the difficulties in dealing with Canadian government. It meant that you could finish up spending a lot of time resolving a problem. But when you have a big commercial project going at the same time you cannot afford to have all of you senior people working on this 15 to 20 percent.

Moving to Saint John Shipbuilding, with the Navy, it became ... it was the volume of the work, it was such a time you put all your resources and it became Navy 80 to 90 per cent and commercial 10 to 20 per cent. So you could afford to put your senior personnel to look after the Navy work. And once again you had this two-phased/ two-pronged approach coming from government; the contractual and the technical, especially on PRESERVER/PROTECTEUR. This was initially started out as a commercial vessel to be built to Lloyd's. Contractually that sounded great, technically from the Navy point of view it was a disaster. They did not want Lloyd's approval. They wanted Navy approval. However, the specs were not to Navy standards. They were Lloyd's standards. So we get into a battle where the Navy kept pushing the Navy standards where we had a commercial contract. This was a very, very serious condition.

However, Irving's attitude has always been if you have a problem fix it and never, ever stop work. You keep working. So this was something we did. We kept working, but each and every problem we had was not resolved, was put on to the back burner for claim situation later. So Saint John Shipbuilding finished both PRESERVER/PROTECTEUR, battled the Navy at almost every technical issue, and at the end of it Saint John Shipbuilding submitted a claim. Saint John Shipbuilding was successful with the claim. And as it so happened that the project, which had started out prior to the claim, was showing a loss. The amount of settlement made Saint John break-even in the PRESERVER/PROTECTEUR. It was an experience. But an experience that I personally think was good for Saint John. Saint John Shipbuilding was a very ordinary shipyard, in fact probably at the lower end of the scale, when it started with PRESERVER/PROTECTEUR. It was a hard slog, but it finished it and Saint John Shipbuilding finished up much better shipyard and better prepared to go forward into new shipbuilding projects. They came out with a good

technical staff, a good production workforce and a good group of management for the production. So all in, that's what Saint John Shipbuilding gained from that project. They made no profit.

CHIASSON: Well, thank you again, Mr. Shepherd. I'd like now to move on to the Canadian Patrol Frigate project. And eventually in this interview I hope to be able to compare some of the differences between the Canadian Patrol Frigate project and the PROTECTEUR/PRESERVER project in Saint John Shipbuilding. But I would like to dwell for the next little while on the Patrol Frigate project, and this, of course, was a massive undertaking with Saint John Shipbuilding taking on the prime contracting responsibility and also responsibility for what was then called, and still is, Total Systems Responsibility. So I'd like to start off with your recollections of the Project Definition phase – how it came about, who you competed with and what some of the challenges for that phase were.

SHEPHERD: The CPF Project was the first major Canadian Military procurement which industry was required to assume total system responsibility or TSR as we called it. Previously the Department of National Defence (DND) supported by the Department of Supply and Services (DSS) designed and procured such services maintaining a large staff in the process. Source qualification began in 1977 with invitations to national and international shipbuilders with the understanding that the CPF was to be a 'design to cost' project with a large ceiling price, target ceiling price of \$2.2M for six fully supported frigates.

Saint John Shipbuilding was initially part of the MIL team, which was disbanded due to lack of funding and financial problems within MIL. Sperry assumed the lead role with Saint John Shipbuilding as a ship builder. At this time there were three competing groups, the government decided that they required a Canadian company to be the prime contractor. After much internal review, Saint John Shipbuilding assumed the role of prime contractor and was chosen by government as one of the two candidates to participate in a funded Contract Definition (CD) contract.

Saint John Shipbuilding and Scan Marine were awarded CD contracts for the definition of the implementation phase of the contract. The Saint John team had comprised VVSI (Versatile Vickers Systems Inc.) as the designers, Sperry as Combat Systems integrator and Saint John as the shipbuilder and project manager. There was a 15 month scheduled CD phase and the Saint John team came out as a successful bidder. At this stage the design was considered complete at the time of the contract award. Saint John then were required to design and build six state of the art frigates, design and integrate the software, train Canadian crews, provide integrated logistic support and build the facilities for training the naval personnel.

The Saint John proposal required that all six ships be built in Saint John, but political intervention decided that three would be built in Saint John and three in various ...in the Vickers, Montreal Vickers, ... by the Montreal Vickers consortium. Further political intervention said that one and a half would be build in Vickers and one and a half would be built in MIL Sorel. The complications involved in such a split were too complicated to imagine and would have been unmanageable. Fortunately for all, Versatile Vickers bought MIL and Davie and allocated the three ships to Davie. Actually MIL retained some of the work by building units, which were transported to the Davie yard for final assembly. Unfortunately for Davie, these three vessels had to be built for the budget which was resident in Saint John Shipbuilding. There were no additional funds for the complications that were going to arise out of this. This political intervention or interferences, I

personally call it, did not obtain a modification to the contract price, at the time of the directed, and it was directed by government – at the time of the directed allocations. The impact of the interference would be felt later in the program.

I stated earlier the design was supposed to be complete and all with the help of negative guidance furnished by DND, we proceeded with this understanding. Negative guidance meant that DND would disapprove a concept or proposal, but would not tell you what they really wanted. As I said, pick a number!

I have mentioned earlier that the project was for the building of six ships; Saint John having the lead as Project Manager building three and the follow-yard, Davie, responsible for building three. At that point in time, it was agreed that Saint John Shipbuilding would build the lead ship, Davie Shipbuilding would build number two and Saint John would build three and four and Davie five and six. However, I negotiated with Davie that number two was too close to number one and, therefore, I would suggest that Davie take number three and that they take three, five and six and Saint John take one, two and four. This was still not a good enough split because, as I said earlier, the design was supposed to be complete, and quite frankly, it was nowhere near complete.

Saint John Shipbuilding had started cutting steel far too early because there were certain steel drawings done, and they started, but very soon production caught up to drawing office and production had to stop. So it was decided to delay the production work and proceed further with the design. However, the impact of the lack of drawings and the impact of suitable drawings to the follow-yard complicated the build process for the follow-yard. Number three was actually showing impact from the lack of engineering information. It was only after we actually sat down [and] prepared the curves showing the impact of lack of engineering information and the impact of change, which we had in the various vessels. And the impact hit 1, 2 and 4 and started to taper off, and I will mention here, the second phase which we will come to later, had started to taper off with ship number 7. This meant that Davie Shipbuilding had to go through the same learning experience for 3, 5 and 6 as Saint John were experiencing in 1, 2 and 4. And finally I will put this to you, a lesson to be learned number one. 1, 2, 4, 3, 5 and 6 had almost identical man hour totals, which meant that the government paid for three high end vessels where they could have had three very low end vessels, and in fact I paid in excess of 8 to 9 million man hours worth of work by splitting the contract. Lessons to be learned number one – do not split the contract once you've got it.

CHIASSON: Interview with John Shepherd. End of Side 1

Tape 1, Side 2

CHIASSON: Mr. Shepherd, thank you very much for that very interesting insight into the challenges of the CPF project brought about by the splitting of the first six ships between two yards. As we all know, the CPF contract was eventually extended to twelve ships. Tell us please tell us how that came about and how the second batch went compared to the first.

SHEPHERD: The second batch of ships was really, I'd say, a sole source contract. St. John Shipbuilding was invited along with Davie, or Vickers at that time, to put forward a proposal for the six remaining vessels. We initially set out with Davie. Davie gave us a proposal for three, and we took that and we put forward a combined three plus three, against six from St. John Shipbuilding. Initially it was intended that we split again and then the government finally came

out and decided to go for six in St. John Shipbuilding, so we had to tell our friends from up the river that they were not included in the six that had to be added to Saint John Shipbuilding. So we negotiated a price once again with Paramax and we negotiated a price with DSS/ DPP/Public Works. So that was then added and we agreed price and delivery date. We actually set out and when we did this one here we had some recovered costs, mainly from Number 1, so what we did was we plotted 1, estimated 2 and 4 and drew up a curve and then we projected that curve on down. We then came up and out of that we came up with a total number of man hours of 28.9 million man hours for the total program. That was more or less the number that we went forward for the total with the additional 6 ships. What we were experiencing was that the first ship was running at that time with, we bid, roughly 3.4 million man hours for the first vessel. The first vessel actually took 5.2 million man hours. However, we came down as the project approved, as the drawings finalized we actually came down a learning curve, which saw the 9<sup>th</sup> vessel out of Saint John Shipbuilding at 2.2 million man hours. So it was a tremendous learning curve, which demonstrated and with a full integrating package, all of the material available, that Saint John Shipbuilding could build frigates and compete with anybody else in the western world. We visited US, Germany, Holland, UK and we checked all of these shipyards and we found that none of them could compare with the learning that we were experiencing at Saint John Shipbuilding. So from that point of view, I think we demonstrated, with the drawing package available sitting on the table and the material available, the Saint John people could produce.

However, up the river the three ships there the man hours, the Davie man hours of the ship were almost identical at 5.2M man hours. The second one identical again within a couple hundred thousand man hours of around 4.5, 4.6. And the third one again around 3.8, 3.9 million man hours. So Davie actually suffered the same problems that we suffered from the lack of proper, fully releasable engineering drawings. We have on file the learning curve plus a learning curve of the changes experienced during the program. The two of them really match. We finished up with something like 48,000 changes, drawing changes. So this will give you an idea. And the sad thing was no one was ever willing to accept impact, the impact that drawing changes caused on production.

We actually came up with a formula and I called it the five, three, two, one formula. And this means that when you introduce a change and this change affects the ship which is sitting down there finished and a trial period to introduce that change would cost 5 ... I'll start at the other end ... To introduce that change when a unit is empty, lying in a panel line assembly line, it cost the estimated number of man hours, number one. When you move from the panel line to a unit assembly stage and drawing changes are introduced; twice that of the cost of one. Next time we introduce it and you are now starting to put the units together with the outfitting; three times that of one, and then you come to when you introduce it down the berth and the ship is actually finished; five times. Because when you introduce a change let's say change a hanger. You come down and first of all you unhitch everything on there, clear the area, bring in a grinder, grind off the paint so that get the welder in, bring in the safety man, bring in the fire protection, weld the hanger on there, then grind it up again, paint it and then reassemble. That is a simple hanger change. So that is the type of thing we worked out. It took a long time to convince both Navy and the Supply and Services what the impact of change really was. In fact it took a long time to even convince my own inside technical colleagues that this is what was happening.

CHIASSON: Well, thank you, Mr. Shepherd, again. You mentioned earlier in the last question and also in the previous question, all the challenges you faced with follow-yards. You also mentioned

the major departure from previous Navy contracts in that as the prime contractor SJSL, Saint John Shipbuilding Limited assumed total systems responsibility under negative technical guidance from the Navy. This was a very significant change from the arrangements that existed with the PROTECTEUR and PRESERVER project. So in this context I wonder if you could highlight the challenges you faced with other major subcontracts including Paramax and the engineering challenges that you faced and how you resolved them in the CPF project.

SHEPHERD: When Saint John Shipbuilding agreed to take over as prime contractor, J.K. Irving and I visited Sperry down in Great Neck and made it very clear that we had had no experience with combat systems. Sperry promised to fully support us in this particular section of the contract. So we proceeded, but as we started to more or less go through the drawing process and finalize drawings, we found that Sperry/Paramax had not yet fully designed the combat system. Therefore, they hadn't fully sized the size of the units, what circulating water was required to the units, what cooling air was required to the unit and what space was actually required of the units. As a result, this became a major concern and had high impact on the drawing side of this, in fact a high impact on VVSI. And on a personal note, I feel VVSI took the thick end of the stick in this one where the blame for late drawings, etc. was fully lumped onto VVSI. I feel that Paramax had a big impact on this. However, this was my personal opinion. But I still stuck by that, although in Saint John it was decided that VVSI were the culprits, and as a result we eventually cancelled the VVSI contract and introduced into it the program McMullen [John J. McMullen Associates Inc.] from the States. So McMullen in conjunction with SJMCL, a local engineering group, they took over and finished the drawing work on the CPF contract. Dealing the Paramax, I very quickly became convinced that, if we were going to build the ships properly, then we had to start and dictate. So as a shipbuilder for the total systems responsibility we had to now manage Paramax, as the promised help that we were going to get did not come, so we finished up setting up a combat systems group. This group finally reached... we had at one time almost 50 people in our combat systems group, something we had never intended, but to make sure that we were in control and managing, we set up this group. And it is one of the better decisions that we made on this project.

We started to manage Paramax and we told Paramax what we wanted, when we wanted it and guided themselves accordingly. And we did this right throughout the testing and trial period where one particular area the machinery control system which was subcontracted from Paramax to CAE. So CAE we felt, at one time we felt this was engineering, let's take it back from Paramax. But for some reason Paramax wanted to retain this contract. However, when we finally came out and we presented as with the control system supposedly ready for installation, when we started trialing this we found all sorts of problems. And I personally felt that we would never really see this, see the total problems, unless we got a ship into the water. And against Navy's recommendation and Paramax's and everyone else, we decided to put the ship to sea and test the machinery control system. Once again, this was a good decision. We found all sorts of problems that we then started to manage the integration of the machinery control system on a day to day basis with each iteration be punched up to CAE back down to within days not weeks or months and we did this and we managed to go through about eight or nine iterations and finally got this control system working. We feel we managed it and we told CAE ... we actually finished CAE and Paramax's project. That was a big problem for the sub-contractor. As I say, we decided we'll manage Paramax- they were a big problem to us. However we finished up managing them and directing them.

So for those two there, but then we suffered other bankruptcies. We were, I'd say, forced to go with Wagner [Wagner Engineering Ltd] for the steering gear. Once again I say negative guidance, but to me it meant we were being directed because every other steering gear we put for them was turned down so it left Wagner, as I used to say, I could see the spirits of Wagner in the background. I could read it through the print so it was Wagner. However Wagner failed to meet our requirements, and failed. The first ship was fitted with a Wagner gear and then we cancelled, we finally moved the contract to Brown Bros. All other ships were fitted with Brown Bros. and the first ship was retrofitted with Brown Bros. That was one of the major bankruptcies that we experienced.

Then it was the uninterrupted power supplies. We were asked to go to the local Halifax supplier who quite frankly, it turned out, hadn't a clue of what was planned. So we cancelled them out and had to go to a US company for the uninterrupted power supplies. All of this bearing in mind that we had to fix our costs as part of the total systems responsibility package.

Others like-we had some of the naval programs that had been going on at the time and I'm just struggling for some of the names. At the time we were working on all of these problems, the Navy had introduced some, what I called, experimental prototype programs, SHINMACS, SHINCOMS, SHINPADS. SHINMACS was supposed to be the machinery control system. We actually moved ahead and developed the machinery control system ahead of SHINMACS. SHINCOMS we actually overcame and bypassed SHINCOMS. So we did not get the benefits of the naval ... all of the money the Navy spent on these programs. This benefit was not passed down to the CPF project. We actually developed these programs during and with our budget.

CHIASSON: Mr. Shepherd, I just want to interrupt you at this point because I think you have raised a very interesting observation regarding the SHIN family that is SHINPADS, SHINCOM and SHINMACS. What do you think was the root of the problem in having to basically take over from where the Navy had left off?

SHEPHERD: I would say that the programs in the Navy issued out to the various companies had not reached adequate maturity that we could take them and insert them into our program. I also feel that there was a reluctance on the Navy to say here is our program, use that, because that would have involved them taking some responsibility. So I say that they also realized that the programs were not sufficiently mature to give them to us to help speed the program along. So we were left to struggle and to more or less develop and continue on with our own ... in our own manner.

CHIASSON: Well, thanks again, Mr. Shepherd. The next question, in the same context namely total systems responsibility, I wonder if you could highlight the relationships between Saint John Shipbuilding and the Navy and PWGSC during the CPF project and how it would have differed from your experience in the PROTECTEUR and PRESERVER and maybe even the PROVIDER experience.

SHEPHERD: The CPF contract was a very detailed contract and there was no misunderstanding. It was a Navy contract, Navy standards everything had to be in accordance with the Navy totally, with quality control very ...at the top of the list, so that there was never any misunderstanding of what we had to do. As well the Navy then was within their rights to demand everything on the contract in accordance with all the Navy specifications. That was never ever challenged. It was contrary, which was contrary to the process that we had with PRESERVER/PROTECTEUR. We did

not know what the Navy was going to ask for. We accepted TSR without any fight of any kind. We assumed ... we knew we had to do it and we set about doing it. And once again we did run in ... when they set out some of the earlier milestones some of the earlier milestones were Paramax related milestones where they had to do certain things, Combat Systems wise. They failed us miserably. So DSS put us into contract default. DSS was ready to put us into default at the slightest, the slightest hitch and we were into default. So we then had to tell them how we were to get out of default. So these early milestones, they were in retrospect, were ridiculous. There was no way they could ever have been achieved. So as a result early up front payments were not forthcoming from government. This is where that giving the contract to Irving was probably the best thing the government ever did because Irving at that time had the strength and the financial resource and once again, as I said earlier, the PRESERVER/PROTECTEUR, Irving always told me "John, do not stop work. Keep on going." We continued on, and there was almost for the first year there we continued on through that contract with very little payment from government. Irving carried it all. And then we started making milestones and we managed to start getting monies in to progress payments-some of them were a bit heavy loaded which helped cover up the problems of the past. So, as I say, choosing Irving was a big plus for government.

The initial relations with the Navy and with PWGSC were strained, and by that time there, PWGSC, in my opinion, were calling the shots. But the Navy program management were not strong enough to control PWGSC, so as a result, we had the Navy, more or less, backing up everything that PWGSC would do by putting us into default and then set up holding back payments. This was a big game, I thought, was being played by government at that time. However, Navy started to bring in some stronger individuals at the Program Manager level and there was a ... you could see the change coming. Navy were gradually dictating, "this is our program, this is what we want. You PWGSC say, you are the contract person working for us and this is our program". That shift was very obvious such that by the time we came to the second six vessels the shift had taken completely and the Navy were now saying "This is what we want". You PWGSC, you tell us how to get it. How we fix it contractually, but this is what we want and this is what we are going to get. As that started to evolve, the shipyard and the Navy started to work together. They started to address the problems together. And the program, as you can see in the learning curves, started to show really good progress. And we started delivering these vessels. We were delivering one of these vessels almost every 4 months. So everything started to click into place as, and I put it down, as the Navy took control. And they realized that the more we worked together with the shipyard the quicker the better the vessels would come to them. This happened and as a result the last ship was delivered 3 months ahead of the contract schedule.

CHIASSON: Mr. Shepherd, I would now like to focus on the lessons learned from the CPF Project from your perspective as the prime contractor. Now I know you have already mentioned a few namely the problems associated with cutting steel too early and splitting the work between shipyards. But are there any other lessons you would like to highlight?

SHEPHERD: I would say that government, to me, is issuing contracts without really doing a proper review of where those contracts are going. I'd say even to the extent of shipyards. We give out contracts to shipyards without doing a review of the capability of the shipyard or the capability of the engineering department and the production departments. This is one of the faults, I would say, is a fault that I would put clearly on government shoulders and I state the

example of the PROTECTEUR/PRESERVER. A proper review of Saint John Shipbuilding, at the time they issued a contract, would have said that it was clearly established that Saint John Shipbuilding was not equipped to do those two very sophisticated vessels. However, by the time Saint John finished Saint John was in a position to take on public contracts. Secondly, equipments, government saying 'We want a certain equipment because it is Canadian built, because of the industrial benefits'. Once again, without really establishing the strength of the company, either financial or capability-wise. Or state Wagner, or state KB Electronics, that's two of the ones plus some of the group that did SHINCOMS there. So once again there was not sufficient study or review of the capabilities.

One of these problems landed on Saint John and Saint John had to fix it. When we have drawings ... one ... a group ... the engineering [process] comes in different phases - contract definition, then you have to design this or that, then basic design drawings, then come the working drawings. There is never enough time given for engineering to prepare proper working drawings. And these drawings "complete" is not just complete the steel drawings therefore you can start the vessel. It is complete the steel drawings with all the appropriate outfitting available, which means that the drawing package has to be advanced much more than just basic steel. There has to be the basic layout with all of the various outfitting requirements so that the hot work can be done at the proper stage, otherwise the production costs increase dramatically. So proper engineering, sufficient time for engineering to allow them to prepare proper working drawings [is needed].

CHIASSON: And now Mr. Shepherd I'd just like to ask you one final question. Having discussed the challenges of various Navy contracts through your career, I would like to end on a slightly more positive note perhaps. And that is; what from your perspective were the major achievements and successes with the various Navy projects with which you've been associated?

SHEPHERD: Going a way back to PROVIDER, I feel that out of that program there the Canadian Navy finished up with a replenishment vessel which was way ahead of everything that we had actually visited and seen in the States at that time. So the Canadian Navy did jump ahead and came up with a vessel which was far superior to that which we had visited down in the States which was the best they could show us at that time. So with that one there I'd say that was a big plus. And when we go to PROVIDER/PRESERVER we finished up creating another good shipyard in Canada. It set up Saint John Shipbuilding with a management structure, a good workforce and an upgraded facility, which set Saint John Shipbuilding up to compete, and I'd say, compete well, in the commercial market. Saint John Shipbuilding went on to build a series of tankers for Shell, ESSO, Swan and Irving. Shell and ESSO being two of the world's majors, so to win contracts from both those countries we now had a shipyard that was capable of competing in the world market. That was a big positive. From the frigate program we again came out and during the program Saint John Shipbuilding made a big switch. We decided after visiting several of the world yards and taking in all of the good things that we were doing, we put it all together and brought all of this expertise into Saint John Shipbuilding, and actually finished up with a facility that was the best medium sized shipyard facility in the world, building finally outfitted, densely outfitted, units weighing up to 800 tonnes, and assembling a complete frigate at about 7 units - something that was not being done anywhere else in the world. We took a big leap forward and became as I put it, the world's premium naval frigate building yard. Unfortunately, the Canadian government did not follow through with the shipbuilding program and to date, Saint John Shipbuilding is producing wallboard. So maybe that's not positive.

As a result of the good things learned from the frigate problem, we took all of these good things when Irving bought Halifax Shipyards. We took all of the good things to Halifax Shipyards; personnel, refurbished the facility, a stoppage to the present program to allow engineering to catch up and produce proper engineering drawings. And as a result we also came up with an excellent learning curve on the minesweeper program [Maritime Coastal Defence Vessel project] ... first ship 4.2 million man hours; 12<sup>th</sup> ship 2.3 million man hours. Another excellent learning curve using all of the learning and expertise which had been developed during the frigate program. We then went on and took this expertise again into commercial work. So these are the positives that really came out of that.

CHIASSON: Mr. Shepherd on behalf of the CANDIB Oral History Project, I would like to thank you for this very thorough and interesting account of your career and your contribution to Canadian shipbuilding. And specifically your experience and leadership while in Saint John Shipbuilding and the PROVIDER, PROTECTEUR, PRESERVER and CPF contracts. You have made a tremendous contribution to Canada and its Navy and I thank you for sharing a bit of it with me in this interview. Thanks again.

John Shepherd Interview

Tape 1, Side 2

End