

RAindrops

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On the cover is the **Charles H. Cates I** handling a ship in Vancouver harbour some time in the late 1980s. One of North America's first Z-drive tugs, he is still in operation today for Seaspan.

address 230 - 1639 West 2nd Ave
Vancouver, B.C. V6J 1H3
Canada

telephone +1-604-736-9466

website www.ral.ca

email info@ral.ca

design enquiries design@ral.ca

media relations media@ral.ca

supplier enquiries supplier@ral.ca

crew feedback radius@ral.ca

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RAindrops

Robert Allan Ltd. Information & News Issue 18

The Nostalgia Issue



ROBERT ALLAN LTD.
NAVAL ARCHITECTS AND MARINE ENGINEERS

Nostalgia Issue

by Robert G. Allan, P.Eng.

nostalgia / nä-'stal-jə / n. 1 (often followed by *for*) sentimental yearning for a period of the past; wistful memory of an earlier time.

Nostalgia is certainly something that one engages in increasingly with age, probably because one has more time to reflect on the past and also one has more past upon which to reflect! In preparing my paper for the recent ITS 2018, "The Evolution of Tug Design through ITS Eyes", I found myself reflecting not only on the many significant changes in tug design and construction which have occurred in the past 50 years but also how closely the parade of the 25 ITS Conferences since 1969 have paralleled my own professional career. I realized that my entire career and the international success of our business have been inextricably linked with those conferences. Through them we have met the majority of our international clients, have been given the platform from which to draw attention to the important unique design developments initiated by this office, and been able to share ideas about the future of tugs design and operations with a worldwide audience.

For those opportunities, I am personally most grateful to my friend the late Allan Brunton-Reed whose career was devoted to ensuring that the ITS conferences were the very best they could be. What an incredible legacy he has left us all.

In this issue of *RAindrops*, we look back at some of the specific designs which have been milestones in our quest to produce the best tug designs available. That review includes the ground-breaking escort tug design of **Ajax** (below) for Østensjø Rederi AS, the genesis of our extensive and productive collaborations in Turkey, the developments of the *RAstar* series escort tugs which have completely changed the face of escort tug designs globally, the Red Dot award-winning and now much-imitated *Z-Tech*® tug design as well as a few others. We hope these reflections may stir a few nostalgic memories amongst our valued readers! 🚢



25 Years in Turkey

by Robert G. Allan, P.Eng.

Sometimes fortune smiles on one from the most unexpected places. In my quest for business beyond the traditional markets enjoyed in Canada, never did the possibility of Turkey cross my mind. However the early '90's were the age of emerging escort tug technology, and I had written a short paper on that topic

(on what little we knew at that time!) for a RINA conference in London. That paper came to the attention of an engineering student in Istanbul who phoned my office one day to discuss the paper and seek further information. We had a very pleasant discussion; I said goodbye and never gave it another thought. About 6 months later, I had another phone call from Istanbul; "Hello

Mr. Allan, this is Ali Gurun from Istanbul... do you remember me?". That conversation led to our first design contract with Sanmar for an 18 m twin-screw tug based on the very simple and successful Cates 1800 HP design operating in Vancouver (above left). I did some sketches for design alterations to suit Sanmar's requirements and they went on to build more than 30 of those boats as the Sanmar series (above right), and the rest, as they say, is history. The timing was fortuitous as it coincided with the privatization of port operations throughout Turkey, and companies such as Sanmar were spreading their wings. We soon attracted the

attention of other builders and operators in Turkey, notably Uzmar and Med Marine, and within a few months we had numerous design contracts for a wide range of harbour tugs. The first of these were conventional twin-screw tugs, but very soon the demand for more versatile ASD tugs took over. What we had



not anticipated was how quickly Turkey would emerge as the world leader in the construction of tugs for the world market. The owners of these Turkish shipyards saw the opportunity to create world-class, highly efficient facilities and invested heavily in creating what are today some of the most advanced small ship construction facilities in the world.

Since those early days, we have enjoyed the most gratifying, trusting and positive relationships with our Turkish clients. We have established extremely productive protocols between the builders and our design office which provide opportunities to ensure that our designs are production friendly. This has been a recipe for success for all parties involved.

As of press time, a total of 332 tugboats have been built in Turkey to designs by Robert Allan Ltd., a tally of which we are extremely proud. 🚢



The Z-Tech® Design – A TRUE Innovation

by Robert G. Allan, P.Eng.

The award-winning Z-Tech® series tugs were conceived and developed specifically for PSA Marine of Singapore to address their objectives for a versatile tug which would achieve a degree of standardization within their fleet as well as provide operational efficiencies. The design which resulted incorporates the best handling and operational characteristics of both Z-drive tractor tugs and Azimuthing Stern-Drive (ASD) tugs. Now often imitated, but never equaled, the Z-Tech® series tugs are intended for operation primarily in major ports and marine terminals. The Z-Tech® design emphasizes the safe and capable operation of ship-handling operations with large ships, particularly those with extreme flares. Emphasizing the need to work in push-pull mode under the flared ends of large container ships and car carriers, the Z-Tech® has a low forward sheer, and a wide, heavily fendered bow. The wheelhouse is set well aft and inboard, offering excellent visibility over the entire working deck and to the sides. With the

low bow, the tug is designed to make transit or open water voyages stern-first in “tractor mode”. Accordingly, the Z-Tech® tug then functions very efficiently with



only one winch, located for maximum efficiency for both ship-handling and towing operations. The Z-Tech® has been selected by the U.S. Navy as the best tug solution for several of their major bases, including a recent contract award. The Z-Tech® was also selected by the Panama Canal Authority as an optimal tug configuration for their operations.

In 2005, the Z-Tech® was awarded the Red Dot “best of the best” award in the product design category. The Red Dot Design Awards is one of the world’s largest and

most prestigious competitions within the industrial design industry.

Since 2004, almost 90 Z-Tech® tugs have been delivered or are under construction to clients around the world, many of them making extended ocean transits for delivery. 🚢



The RAstar Design – The Epitome of Escort Performance

by Robert G. Allan, P.Eng.

The RAstar escort/offshore terminal tug designation is reserved for a distinctive class of very high-performance ASD tugs, with a specific focus on enhanced escort towing performance and superior seakeeping. The RAstar design concept, the primary feature of which is a strongly sponsoned hull topsides, originated from a series of extensive model testing experiments conducted by Robert Allan Ltd. in collaboration with our long-time associates Offshore Research Ltd. wherein we evaluated a series of hull forms and appendage options to assess their impact on indirect escort performance. Over the ensuing years, this design has continued to evolve, particularly with the aid of CFD analysis, to the point where the specific escort performance can now be predicted with a high degree of accuracy. The RAstar concept has been proven in both model and full-scale testing to provide significantly enhanced escort towing and seakeeping performance. Escort

forces are enhanced by the effects of the sponsons as well as by the prominent foil-shaped escort skeg forward. Roll amplitude is less than that of comparable sized "standard" wall-sided tug hulls. Another primary advantage of the RAstar hull form is that the wider beam is only active when the tug is heeled into the indirect mode, thus representing a much more fuel-efficient form than a typical slab-sided standard tug in normal operations. 🚢





A Global Family of 500+ Tugs

Robert Allan Ltd. designed tugs built since 2010.

Map data by openstreetmap.org and opendatacommons.org

Tug location data by marinetraffic.com

Overlay by arcgis.com



Recent Deliveries

- 1 **TRaktor 2500-SX**
Sanmar Shipyards
- 2 **TRaktor 2500-SX**
Sanmar Shipyards
- 3 **RAstar 3400 x 4**
Greenbay Marine Services
- 4 **RApport 1600-SX x 2**
Sanmar Shipyards
- 5 **RAstar 3200**
Cheoy Lee Shipyards
- 6 **RAmparts 3200 x 2**
PaxOcean Engineering Zhuhai



Canadian Navy Harbour Tugs – The Pups That Just Refuse to Grow Old

by: Rollie Webb

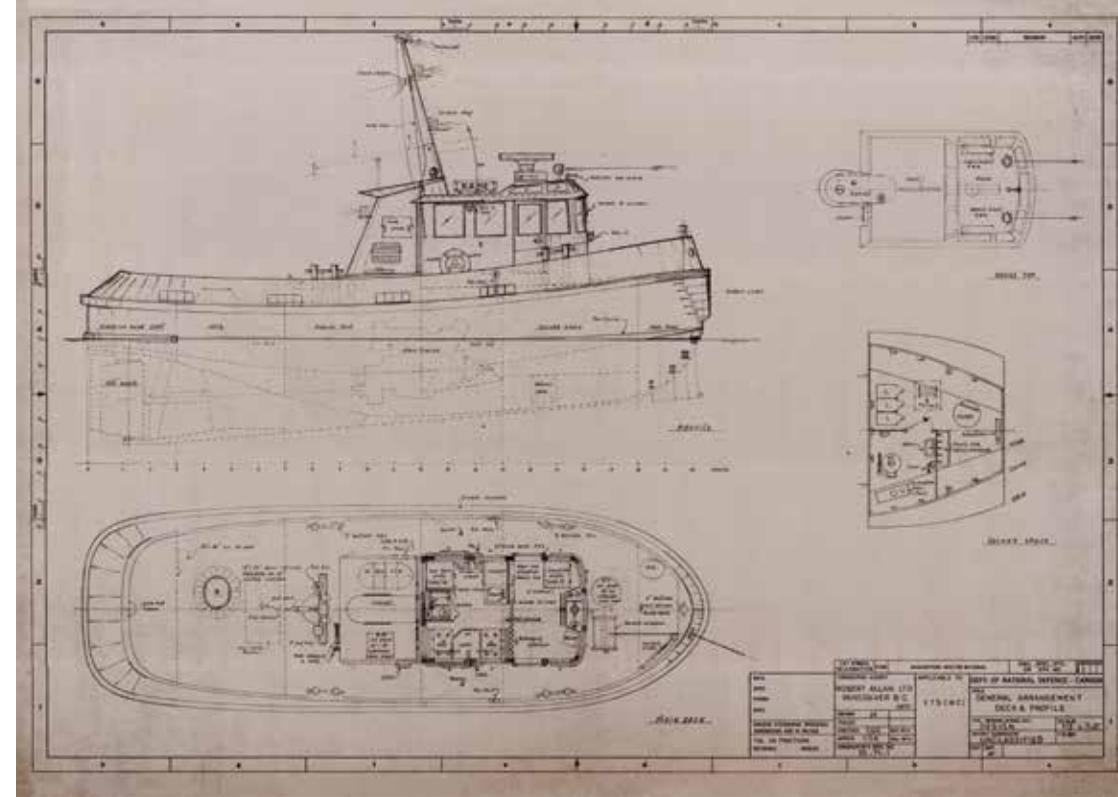
Canada's Navy continues to operate a handful of small harbour tugs that will shortly be 45 years old. Formally designated as the "Ville" class but commonly known as "the pups" they are still going strong and are highly valued by the Navy with no plans being made for their replacement. These five stalwarts began life on the drawings boards of Robert Allan Ltd.'s office in Vancouver in 1971. Named **Lawrenceville**, **Parksville**, **Listerville**, **Merrickville** and **Granville**, the first two vessels named were built by Vito Steel Boat & Barge Co. of Delta for use at the Esquimalt Dockyard and the remaining three by Georgetown Shipyard (later known as East Isle Shipyard) in PEI for use in Halifax. At the time, all the West Coast yards were quite busy and Vito actually had his two hulls fabricated at Wheatley, Ontario by Hike Metal and delivered overland to B.C. All five were completed by 1974.

While the design was new, the names commemorated five earlier vessels that were part of a much larger class of World War II harbour tugs built by Russel Brothers Industries Ltd. of Owen Sound, Ontario. That design was developed prior to the War for use in the Eastern Canada coastal & inland towing market. A total of some 37 tugs of this design were ordered by the RCN from Russel. All were completed for naval service with most being sold after the war and operated by various

Canadian owners for many years. Some are still in service, more than a few of which have become yachts!

The Robert Allan Ltd. design was truly a West Coast product, developed from a long line of 'rule beater' 15 grt tugs built in B.C. during the 1950's and 60's. This class of tug was usually 41 feet in length and fitted with a single diesel engine of between 350 and 400 bhp. A steerable Kort nozzle was fitted to most of these designs, enhancing thrust and manoeuvrability. When the Navy came shopping for a new design there was no need to 'beat the rules' as DND tugs were not registered and the pups were lengthened to 45 feet and fitted with a single 365 bhp Caterpillar diesel. Real powerhouses in their day, they were reported to develop a bollard pull of 7.5 tons!

While remarkable for their longevity



and continued operation, albeit at very low operating hours per annum, they also stand out as the first Robert Allan Ltd. tugs designed with all-weather ship assist in mind. Prior to this most West Coast

tugs used for ship assist and similar harbour work were fitted with a duplicate set of controls on the wheelhouse top. Overhead windows in the wheelhouse, providing enhanced visibility without

exposure to the elements which made practical sense for winter operations in Halifax, were a novelty at the time. The installation of a towing hook, very common in Europe and elsewhere, was a real departure from the usual West Coast practice of a tow post and later a towing winch being fitted.

How long the "pups" will last in naval service where they are well maintained and lightly used is anyone's guess. Measured in dog years, they are approaching the ripe old age of 300+ with no end in sight. 🚢





2018 Robert Allan Memorial Scholarship Award

On September 7th, the Robert Allan Memorial Scholarship for 2018 was awarded to Mr. Samuel Kobierski, a fourth year student of naval architecture at the University of British Columbia. The award was presented to Samuel by Robert G. Allan, Executive Chairman and Mike Fitzpatrick, President and CEO of Robert Allan Ltd. It was a pleasant coincidence that this presentation was made on the 102nd anniversary of the birth of Robert F. Allan in whose memory this scholarship was created.

After initially training and working as an apprentice boilermaker with DND in Victoria, he obtained trade qualifications as a welder and metal fabricator from

Camosun College and BCIT respectively. These skills which will be immensely valuable in his future design career. He subsequently obtained an Advanced Diploma in Mechanical Engineering technology from Camosun College before enrolling in UBC.

The Robert Allan Memorial Scholarship was created in 1981 and has been awarded every year since to deserving Canadian students of naval architecture or marine engineering. Information on the criteria for acceptance and for applications can be found on the Robert Allan Ltd. website: <http://ral.ca/scholarships/> 🇨🇦

Recognition of the Critical Role of Tugboats in the B.C. Economy

In late May 2018, a handsome bronze plaque provided by Parks Canada and the Historic Sites and Monuments Board of Canada (HSMBC) was unveiled on Granville Island in the heart of Vancouver. The plaque recognizes the national historic significance of the tugboats of Canada's West Coast. Although focussed on the historic role which tugboats have played, the event also highlighted the importance which tugs continue to provide in the commerce of British Columbia. 🇨🇦