

# JRA Hall of Fame - Tom Colvin

by Graham Cox

## Thomas E Colvin:

1925 - 2014

On September 1, 2014, the sailing world lost one of its great characters, when Tom Colvin passed away, aged 89, in Fort Meyers, Florida. He was a colourful, iconoclastic, sometimes controversial, self-confessed non-conformist, a professional sailor, boatbuilder, designer, maritime historian, linguist (he spoke 5 languages, including Mandarin) and writer, whose comprehensive knowledge of ships and the sea has seldom been equalled. Many of the vessels he designed and built were junk-rigged.

Tom was born in Chicago and grew up on the shores of Lake Michigan. He built his first vessel, a 10 foot catboat, at the age of 7, worked in boat shops after school hours, raced yachts at weekends, designed a fish tug at the age of 13 that was built and successfully operated, and left school to join the merchant navy at 14. Starting out as an ordinary seaman, he gained his master's ticket under sail by the age of 20 (any tonnage, any ocean) and his master's ticket under steam (unlimited) by the age of 23. He also studied mechanical engineering and served an

apprenticeship in boatbuilding at leading European boatyards.

This sort of youth is impossible to imagine today. In later life, when he ran his own boatyard, a government safety inspector was horrified to discover Tom's 6 year old son operating a bandsaw, his 8 year old boy welding something up, and his 12 year old daughter up on scaffolding, carving a vessel's name into her transom. They were forbidden access to the workshop until they were 18. Tom lamented this nanny-state mentality and developed a healthy disdain for bureaucracy. On his website he says there are seagoing folk and then there are those shore bastards...

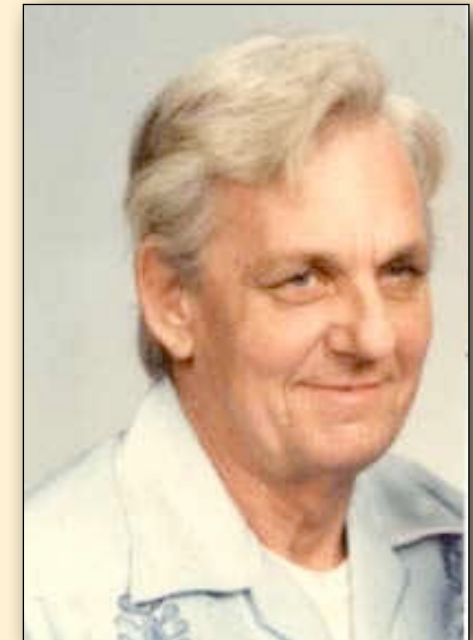
When Tom went to sea he took his drawing board with him and continued his studies of nautical design and construction. He took every opportunity to study the local vessels wherever his voyaging took him. This diversity was reflected in the range of vessels he designed, from aircraft carriers (USS Forrestal), to fishing boats, cargo carriers and yachts. He acted as a consulting designer to several major boatbuilding enterprises. In his own shipyard he built vessels, up to 100 feet in length, in wood, steel and

aluminium, being something of an expert in all of these mediums.

During World War 11, Tom served in the merchant navy, making the notorious run to Murmansk twice, seeing most of the ships around him sunk by enemy action. Later, he was drafted into the army, where he met his wife, Jean. They married in 1953, a union that lasted 52 years and produced three children, Karen, Kevin and Kenneth. Jean played a vital role in all of his subsequent projects. After the war, the command of a vessel was hard to find so they bought some land, developed a timber mill and started building boats.

Tom and Jean eventually developed a base in a cove off the East River in Mobjack Bay, East Virginia. Called Fiddler's Green, it consisted of a house with large glass windows overlooking the cove, workshop, sail loft, building shed and dock. Tom's study reflected his scholarship, being crammed with books, journals, boat drawings and files. The cove was often filled with Colvin schooners either preparing for or just returning from voyages to far-away places.

Before the war, he spent some time in southern China aboard a schooner-



rigged cargo ship, taking the opportunity to study and sail on some of the large, ocean-going cargo junks of the area. These observations formed the basis of his ideas about the proper way to design, set up and sail an ocean-going, junk-rigged vessel.

He noted that many of the ocean-going junks of southern China had stayed rigs and carried small jibs. His extensive research indicated that they



*Colvin junk* **Summer Wind**

had done so since at least the 15th century, when Portuguese vessels first visited the area. Like Jeremy Walker (designer and builder of *Jung Jung*), he notes that the high aspect-ratio, unstayed junk rig, in particular the single-masted rig, was only seen on northern Chinese junks that navigated a long way up rivers. Tom noted that the junk rig had evolved over 2000 years of continuous usage and did not believe it made sense to try and modify it with western ideas.

As a consequence, his junk rigs are probably the most traditional of all western designs, using stayed masts, fanned sails with convex leeches, double sheeting arrangements, flat-cut sails, no batten pockets and no fixed

tack line (he believed the boom should be able to lift when gybing). He preferred to use the traditional Chinese sheeting system, where leech lines (sheetlets) all lead back to a single wooden friction block (euphroe), with the sheet attached to the other side of this block. He felt that this allowed infinite adjustment of leech shape, unlike *Blondie Hasler's* continuous sheeting system. The price, however, is that one needs to go on deck to adjust the leech lines after reefing the sail, or when shaking out a reef.

In 1966, Tom published an interesting article in *Rudder* magazine, about trials he conducted on a 26 foot sharpie of his own design, *Pandora*, using a single junk sail on an unstayed mast, and comparing its performance with a Bermudian ketch-rigged sistership. He then fitted *Pandora* with a gaff ketch rig. All rigs were of approximately the same area. The junk rig matched the Bermudian ketch to windward in light airs, was less close-winded in force 6-7 winds, and was much faster off the wind. The gaff ketch was more close-winded, equal on a reach, but inferior on a run. When he considered the ease

of handling of the junk rig, he determined that it offered the best rig for cruising.

Following these trials, Tom designed and built a 42 ft, junk-rigged schooner, *Gazelle*, which he launched in 1967. Being designed for offshore work, the vessel had stayed masts, a small jib on a bowsprit, fanned battens and double sheets. The stays were loosely set up, to prevent the masts from whipping, rather than being tautly strung, as in a modern Bermudian rig. He disliked unstayed masts on large, ocean-going vessels, believing they could compromise either the spars or hull structures.

*Gazelle* probably became his most famous design, with more than 700 sisterships being built, many with junk rigs, some with Bahamian ketch or gaff schooner rigs. More than 10 *Gazelles* are known to have circumnavigated and many others have made significant voyages. One, *Migrant*, made daily runs in excess of 200 miles when sailing down the trades in the South Pacific.

Tom and Jean's *Gazelle*, at 18,000lbs, was probably the lightest and fastest of them all, having neither engine nor any mechanical or electrical devices when launched. The hull was built with 3mm steel and the cabin out of plywood. Others, overbuilt and fitted with heavy interiors, have not been quite so slippery. He admitted, however, that *Gazelle* did not sail to windward particularly well, but did not consider this to be a major problem. For

voyaging, as opposed to racing around the buoys, the rig's handiness was more valuable.

Tom later fitted a 10hp, hand-start Sabb diesel to *Gazelle*, but never had electricity aboard. He used kerosene for lighting, heating and cooking, and preferred deck prisms for natural light as opposed to large portholes. *Gazelle* had a flush deck aft. Tom eschewed cockpits, considering them to be "the supreme robber barons", as well as compromising the safety of ocean-going small vessels. He preferred to use the space for a cargo hold, or sleeping cabin perhaps. Every boat he built for himself had a cargo hold.

He had more in common with commercial sailors than he did with mainstream yachting, and had ill-disguised scorn for many contemporary trends in recreational boat design and construction. He drew heavily on the traditions of commercial sail for his recreational sailing vessels, believing that a cruising, live-aboard vessel was essentially a work boat. He also designed more than 20 sailing cargo and fishing vessels, most of which were successfully built and operated. He later built and operated his own cargo schooner, *Antelope*.

The differences between Colvin and Hasler-Mcleod rigs are partially due to their designer's priorities. *Blondie Hasler* was interested in the development of a rig for single-handed voyaging, that could be handled by one person from the comfort and safety of



Colvin's K'ung Fu Tse

an enclosed central station (what he called an automatic rig). He simplified the rig to achieve this (for instance using parallel battens, with a straight leech and single, continuous sheets).

Although Tom's designs do not need large crews (the south China junks he sailed on usually had crews of up to 20), it is also true that his designs reflect their origins in commercial sail. His smaller vessels like *Gazelle*, and even *K'ung Fu-tse*, have occasionally been sailed singlehanded but it wasn't his priority. Colvin designs are worked from the deck like traditional vessels. The curved leeches, for one thing, need double sheets, or someone to move the sheet around to the windward side, and, as noted before, the euphroes require making adjustments to the

sheetlets when reefing or unreefing the sails.

Tom disliked parallel battens. He felt they tended to pull the leech down, resulting in a sail with poor windward performance. He believed that fanned battens were more efficient. He said that if you held out your hand,

with the fingers outstretched and the thumb horizontal, the resultant angles were about correct for the fanning of the battens. In recent decades, fanned sails have gained in popularity. It is now widely accepted that fanned battens provide a better sail shape on the wind, unless of course you add camber to the sail, when the equation changes again.

Interestingly, Tom did try putting camber in the sails of his 48 ft junk, *K'ung Fu-tse*, aboard which he and his family lived from 1973 until 1989, sailing some 75,000 miles, but he said it did not work well. He came to the conclusion that traditional, fanned Chinese junk sails perform better when flat. His method of inducing camber was to put a halyard on each end of the yard and a lizzard on each batten, thus

adding belly to the sail when easing halyard tension. He did not experiment with cutting camber into the sail itself. He had more success flattening the sail by using a downhaul on the boom, increasing windward performance by 5%.

*K'ung Fu-tse* was an aluminium-hulled, three-masted junk. Unlike *Gazelle*, she had a traditional junk hull design. Tom stated that her three-masted junk rig (no jib) was the handiest rig of all, provided it was married to a traditional junk hull. JRA members, David and Lynda Chidell, built their own version of this vessel, *Tin Hau*, in South Africa and sailed it to England via Mauritius, the Seychelles, Sri Lanka and the Red Sea. They made some modifications to the rig (including adding spreaders to stop the sails from fouling the standing rigging) but generally agree with Tom's approach. (See their book, *Cutting the Dragon's Tail*, available from the JRA library or as a downloadable PDF from the JRA website.)

Tom favoured bamboo for battens, though noted that only certain types of bamboo were suitable. (The Chidells had excellent results with their bamboo battens, though it is instructive to read about how they prepared them.) Tom's next preference was for pole vaulting poles, but claimed to have used up the entire North American supply of reasonably-priced seconds! He then went on to use extruded epoxy and fibreglass battens, 50mm diameter for smaller sails, 80mm for larger, with

good results. He was of the opinion that battens should be stiff enough not to flex in strong winds.

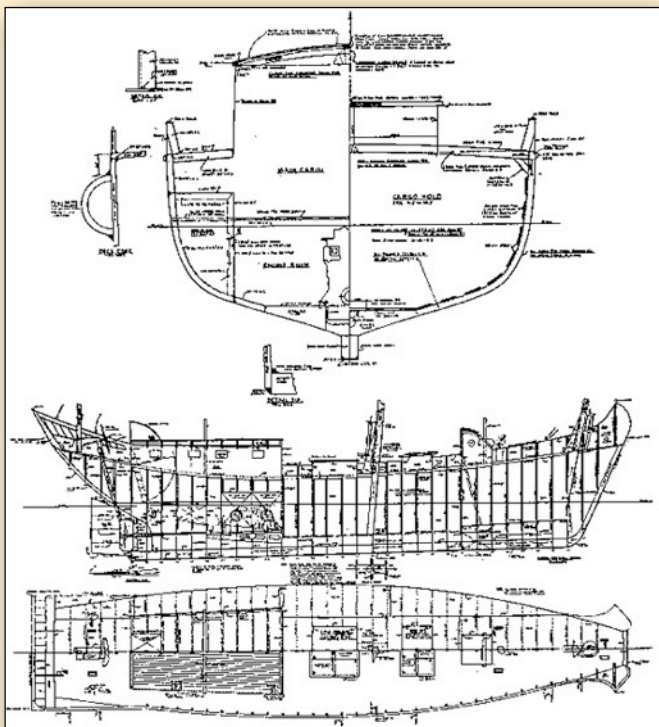
He disliked batten pockets because of the difficulties they impose in trying to replace or fish together broken battens. He preferred to put a chafing patch on the sail and tie the batten to the sail through grommets. He joked that the only improvement he had been able to make to the Chinese sail was the use of electrical cable ties to secure the battens to the sail. (The Chinese traditionally used wire.)

He observed with interest the activities of some JRA members to understand how junk rigs work and to improve their performance. He stated that he wasn't interested personally in the theory but only in the possibility of improving performance. It must have amused him that many of the conclusions indicated that a fan-shaped sail was more efficient, something he'd always advocated.

He did not observe any difference in the placement of sails to port of starboard of the mast, or whether the sail worked better to windward or leeward of the mast, but did say that putting the sails on opposite sides, in a multi-masted rig, allowed the sails to have more clearance from each other when tacking or when furled.

He was also the first person to use Top Gun material for his sails, pointing out that it was less critical to put sailcovers on, unless making an extended layover. He also favoured heavier sailcloth. On





Typical Colvin drawings

they formed a smooth, S-shaped curve, with the centre of effort of the upper panel being forward of the total centre of effort, so that it does not move aft as one reefs, which will cause the sail to sag off worse than a gaff-rigged vessel. All of Tom's observations, naturally, apply to his traditional, flat-cut, fanned sail-plans, and may not be correct for more recent developments in cambered sails.

After the Colvins sold K'ung Fu-tse and moved ashore,

Tom built a 37 ft cargo-carrying junk schooner, Antelope. It was engineless once again, partially because Tom liked simplicity, and partially to circumvent restrictive American legislation for commercial vessels. Antelope could carry 5 tons of cargo in its hold and another 5 tons on deck. He successfully traded with this vessel for a number of years, while continuing his designing and writing careers.

Interestingly, he later converted Antelope to gaff-schooner rig, noting

that almost all of the sailing cargo boats and fishing vessels he had designed had also converted to gaff rig. The cargo boats did it to allow them to use their booms as derricks for handling cargo, and the fishing vessels to make handing the fishing gear easier, as well as to allow them to heave-to with backed jib when drift-netting.

Although Tom greatly admired the junk rig for cruising, he did not share the opinion of some that it is the only rig worth considering. He was a pragmatic man, a professional sailor, who could see the benefit in any rig well-suited to its purpose.

In an email to the JRA, he wrote: Now my youngest son has sailed and voyaged his Gazelle for over 20 years and wouldn't be happy with any other rig. His older brother has one of my gaff ketches and wouldn't have any other rig. However both are competent sailors and can sail any rig. For me a sailor is an individual that can sail any rig and is a competent seaman and can hand, reef, and steer in all weathers. Which is vastly different than those who just own a sail boat who only go out if the wind is light and it is not raining.

Tom was a prolific writer and wrote many articles and a number of books. He revised and re-issued his books in recent years in the light of further experience. His most popular books are *Coastwise* and *Offshore Cruising Wrinkles*, which incorporates text from an earlier work, *Cruising as a Way of*

*Life*, a book called *Sailmaking*, which also includes a treatise on how to sail a junk-rigged vessel, and *Steel Boatbuilding*, which has become the classic text about metal boatbuilding. Tom was regarded as one of the world's leading exponents of metal boat construction. These books remain listed for purchase on his website, though it is unclear how his estate will manage his affairs in the future.

Although some of his ideas differ greatly from the Hasler school of thought, nobody can doubt the contribution he made to the understanding and use of junk rig in western society, boat design, sailmaking, the art of voyaging, the history of commercial sail, among so much else. The memory of Tom Colvin will live on for as long as sailors ply the sea. He was a unique individual, a seafaring renaissance man, as well as being a tough, independent sailorman of the old school, and the world is poorer for his passing.

Tom remained mentally alert to the end, carrying on an extensive international correspondence until the last weeks of his life. His wife, Jean, died some years ago and he is survived by his three children and grandchildren.

Vale, Tom Colvin.



*Gazelle* he used 10 oz cloth and on K'ung Fu-tse, 13 oz. While on the subject of sails, it is interesting to note that Tom believed in plenty of sail area. If he was designing vessels for less experienced sailors, he stuck to 10% more area than equivalent Bermudian rigs, but when designing for himself, or for experienced commercial sailors, he liked to add 35%.

With regard to sail shape, he said it was imperative to note the centre of effort of each panel and ensure that