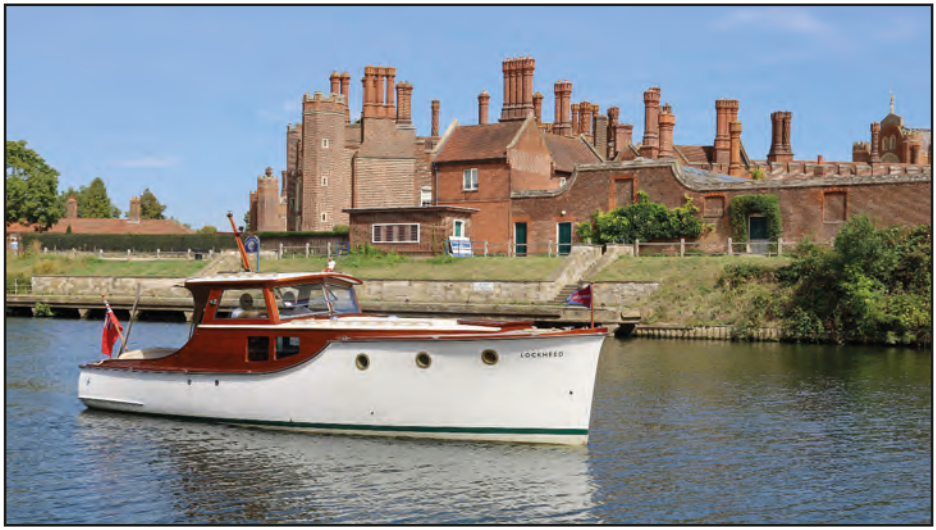
'Lockheed' - Our Featured Boat of the issue

Michael O'Brian tells the story of the restoration of 'Lockheed', a 1937 30ft boat built by Boats and Cars

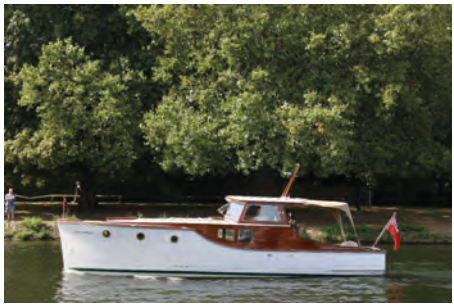


'Lockheed' at Hampton Court September 2023

I have been on the water since I was six years old messing about in little boats on the Thames at Teddington. Later spending time along the south coast around Lymington and making multiple channel crossings. My career has taken me offshore to drilling ships and production platforms, and I have conducted projects in many shipyards in South Africa, Singapore, and South Korea. Seems I have ships and boats in my blood and I have always been happiest afloat.

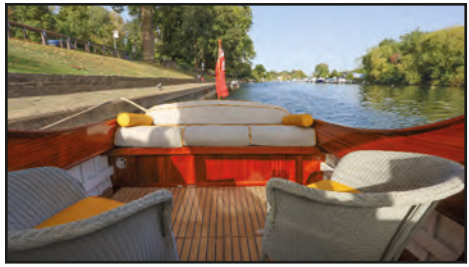
Most of my experience has been at sea on modern boats or new offshore assets, including FLNG Prelude which at the time was the world's largest floating object. I ask myself why did I chose to buy an 83-year-old bare wooden hull that needed a complete rebuild and restoration?

My love for classic wooden boats was realised when I was around 10 years old. I was on the river with my father. We passed the Dunkirk Little Ship (DLS) 'Papillon' which was moored just upstream of Kingston bridge near Surbiton. My father excitedly pointed her out and explained the story of the Dunkirk landings, he was very patriotic and obviously was thrilled to see a DLS. His excitement and national pride at coming across a DLS was fascinating, and the memory has remained with me. A few things coalesced which resulted in me buying 'Lockheed'.

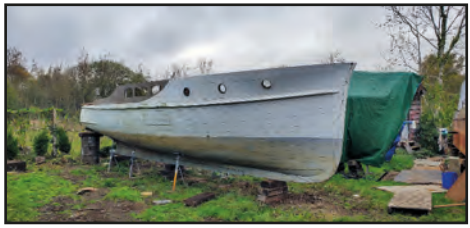


'Lockheed' in Kingston upon Thames – directly opposite where she was built.

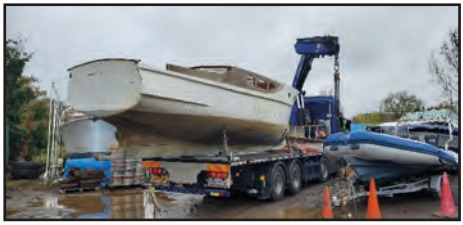
Thirteen years ago, I bought a property which was in need of a complete restoration, it was a commercial property and had been used for light industrial purposes, originally built as a workingman's club in 1891. The project was of course more expensive, harder, and more time consuming than I, in my naivety, had expected. At a difficult moment I had posted on Facebook that I should sell the house and buy a classic boat. Ten years later Facebook reminded me of the post. Now that the house was finished, this reminder got me looking at classic boats. I saw an advert for a boat called 'Cera' and was compelled to go to take a look. I knew 'Cera' from when I was a child as it was owned by a neighbour, and he'd often taken me out on it for happy summer day cruises on the river. 'Cera' was at Shepperton and as I walked down the pontoon with excitement growing, I was utterly convinced that I was going to buy her. Stepping onboard and looking around, she was exactly as I remembered, even down to the same smell. This all changed when I stepped back on to the pontoon and took a couple of steps away. I realised she was not the right boat. A lovely boat, but nevertheless not what I was looking for, and I am not sure I really understood why. In response I looked at many more boats online and realised I was looking for a sociable after cockpit / back decker type of boat, a boat that would be a good weekender for use on the river with friends.



I saw an advert for a boat in Goldhanger. She was a sorry-looking bare hull albeit with beautiful lines and the advert stated she 'may' have been a DLS. I continued to look at other adverts but kept returning to this one particular listing. I decided to take a look. I drove to Essex and found her in a field. After another few months I agreed to buy the boat. This is when I acquired 'Lockheed'. 'Lockheed' was built in 1937 in Kingston-on-Thames by Boats and Cars (Kingston) Ltd, She is 30 foot long and is mahogany planks on oak frames, with an oak centreline and a lead keel.

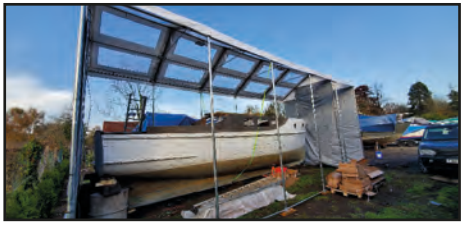


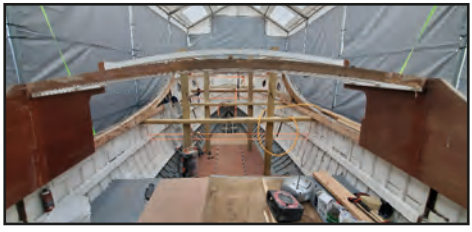
'Lockheed' was delivered by road to the Nauticalia yard at Shepperton, in October 2021. She was without decks, without propulsion, and without a wheelhouse, but did have some parts of the original interior and some bronze came with her.



The day 'Lockheed' arrived at Shepperton October 2020

Work started the next day removing loose items stored within the hull, sorting and tidying what could be reused. A marquee was ordered and erected over the boat. She was now protected from the elements and works could continue despite the wintery weather.

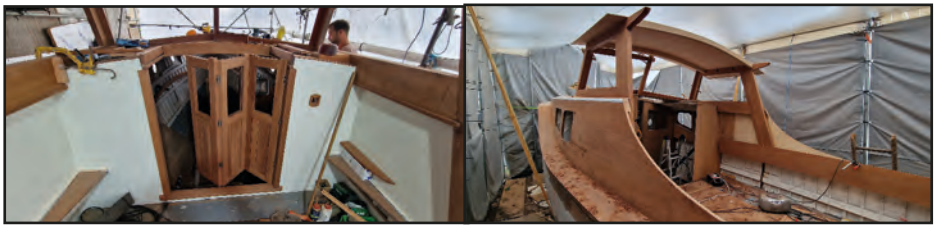




'Lockheed' in her marquee and while raising the cabin roof

Once the hull was clear she was measured as accurately as I could, and this data was used to draw her up to scale on my computer. Many evening hours were spent online finding components and their specifications. These were then also drawn up to scale and slowly through around 12 revisions and some 3D models I arrived upon a new layout for 'Lockheed'. During this time, I contacted the ADLS and was informed that 'Lockheed' was not a DLS but two of her sisters, 'L'Orage' (Surrey) and 'Latona', were. This enabled me to proceed with my new interior layout and to build the boat I wanted rather than to restore her to original specifications. Had she been a DLS I would have felt the responsibility to preserve as much of the original interior and be faithful to the layout.

The boat had fallen over while she was on the hard in Malden, at this time the wheelhouse and decks were removed as they were damaged in the fall and needed to be rebuilt. Time had also taken its toll on the superstructure. Some work was done to repair the hull, a little new planking, some other hull repairs, and a new transom was fitted, but then works stalled. She'd been out of the water for around 10 years before I acquired her. I continued with the hull. I learnt to sister ribs with traditional copper rivets, to steam bend oak, and to glue laminate new deck beams. The hull has a slight twist to it, so I had to decide which element I was to consider true. This took a lot of head scratching, measuring, and adjustment to the props under the hull to level the

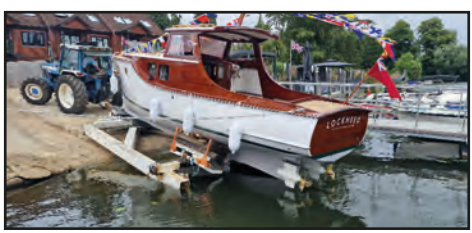


Building and fitting companion way doors, structural components: wheelhouse and main bulkhead

boat port to starboard, and fore to aft. I decided that one of the floor timbers, the one at forward end of the engine bearers was going to be my datum, and all levels and measurements were taken from it. I levelled the remaining floors accordingly and laid a temporary sole. The same floor timber was at the location of the new companion way hatch to be built. The only full bulkhead in the boat is also at this position.

Through lucky happenstance the original butterfly hatch and the datum floor timber were aligned fore to aft, so a few of the deck beams could be retained even if they were to be raised. The whole cabin top was raised by seven inches to allow adequate cabin headroom. Before removing the deck beams the hull was braced to prevent it splaying. The beams were raised, some new beams were made to ensure a pleasing line would be produced, new cabin sides were installed and everything was slowly reinstated. I removed the temporary beams leaving only one in place amidships. The last temporary beam was cut rather than being unscrewed; this way I could tell if the hull had splayed by watching to see if the kerf widened when I released the ratchet straps. It was a high stress moment and the kerf expanded by about 4mm – this was an acceptable and encouraging result. This was the first of the two major structural changes completed.

This was my first wooden boat and also my first restoration project. This being the case I had asked John Tough to cast his experienced eye over the boat and to sense check my plans. During this conversation I explained my plans for the new propulsion for 'Lockheed' and how I was a little concerned with a single prop and rudder and my inexperience with single screw boats. John asked, “Why not make her twin screw?” I had not thought of this being possible as the original shaft log was part of the heavy oak keel. Make her twin screw? This I pondered for a while.



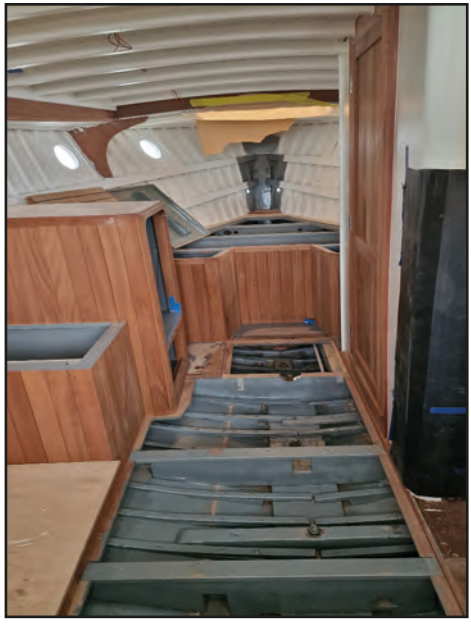
Launch day! 'Lockheed' just touches the water for the first time in around 13 years. Twin steerable electric pod drives clearly visible

'Lockheed' was built in 1937 – she is now fitted with twin steerable electric pod drives. A traditional hull with cutting edge propulsion. More about the electrics later, I mention it here as this was the second of the two major structural changes. The drives are mounted through the hull planking either side of the keel. This required a considerable amount of engineering to ensure the thrust from the motors was properly transferred to the hull and was not a point load on a single plank each side. Heavy oak timbers were used to brace the rudder bearing tubes; forward to the original engine bearers, aft to transom, and also port and starboard to the stringers. The rudder bearing tubes are held within an oak log which runs from below the waterline to above the waterline and spans across the hull. The rudder stock runs within the bearing tube and is topped with a steering arm. It was critical to ensure that when power was applied to move forward that the top of the bearing tube did not pivot backwards at the hull due to forward thrust at the bottom of the assembly, and vice-versa when in reverse. Also, as one motor could be in reverse and one in forward with very high torque even at low RPM, the new structure had to prevent any back and forth 'sawing' of the planks which would damage the fixings, the frames, and the caulking. This conversion was not trivial, but the design and build were immensely interesting.

It was around this time that I realised I was going to need help, and not just from friends and family who would come to the yard, chat about the boat and drink coffee. While these days were amongst the most enjoyable, they didn't progress the project very far. I engaged Dennis Nissen, a boy and man boatbuilder of exceptional knowledge, to help with the rebuild of 'Lockheed'.

Myself (left) with Dennis, proudly holding the burgee.

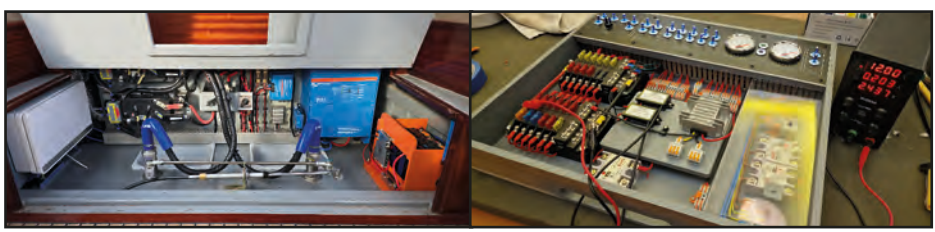
Together we mocked-up and built a new wheelhouse and Dennis fitted out the interior often challenging my design. These challenges expressed his experience, highlighted my shortcomings and nearly all were adopted. Dennis built the new decks, fitted and caulked the teak and built the wheelhouse roof. The wheelhouse roof contains space into which the canopy support structure slides for easy and quick stowage. This leaves very clean lines when the canopy is removed.



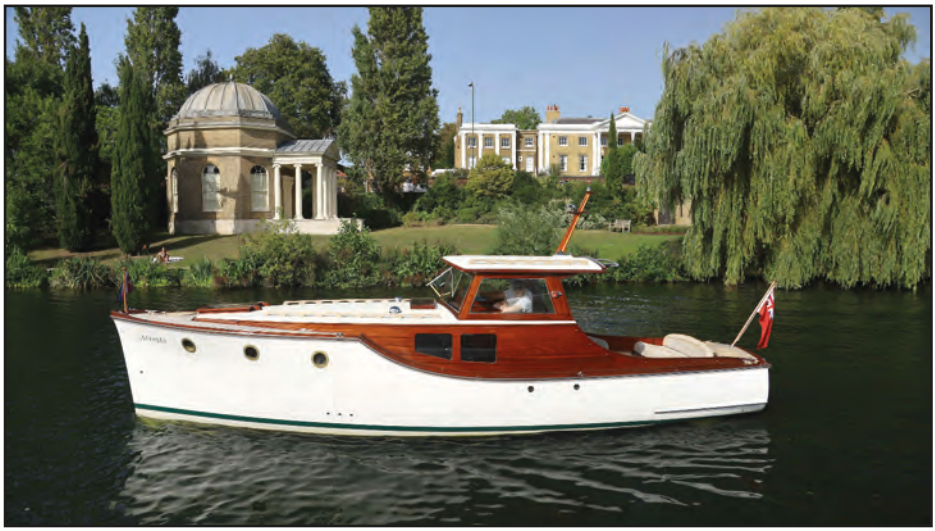
Interior fit in progress

As the build continued, I wired up the boat, built the control panels, and installed the electric drives, each has a 10Kw motor. 'Lockheed' has a 93.4kWh LiFePo4 battery pack arranged in a 16S 6P 48V configuration, an additional 12V 304Ah house battery has been fitted. When I ordered the cells, I ordered four extra expecting some variation in the cell capacity and balance, but when tested all the cells were practically identical. This left me with four serviceable cells with which to make the 12V house battery. It is estimated the propulsion battery will take 'Lockheed' from Shepperton to Oxford, and back on a single charge. This has not been tested, but it is hopefully going to be attempted this summer (2024).

'Lockheed''s maiden voyage was to the Trad at Henley, it was also her shakedown cruise. She was launched two weeks before the Trad 2023 to give her time to take-up – in reality it just allowed me to test if the bilge pumps would keep her afloat. As the boat was completely untested, unknown range, unknown buoyancy, unknown capability of the drive systems, and critically unknown skills of the skipper. We took the boat to Harleyford marina for a few days to give us the chance to re-charge the batteries and to finish her fit-out. The upholstery was delivered to Harleyford, windows installed, and final pieces of deck hardware were fitted. The big surprise was the how much, or indeed how little, of the battery power reserve had been used on the two-day trip to the marina. We'd used only 14%. An overnight charge saw this topped up and the next time we

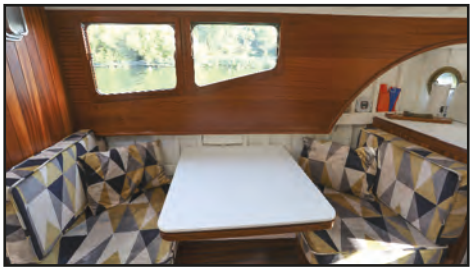


Motor controllers, power distribution, and wiring for switch panel – both shown incomplete

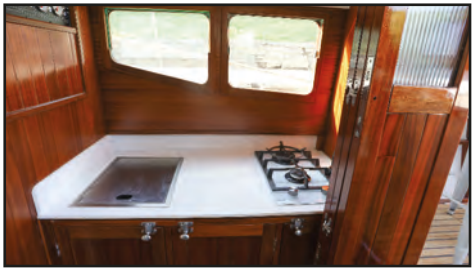


Cruising past Garrett's Temple to Shakespeare

connected to shore power was upon our arrival in Shepperton after the return journey from the Trad; we still had an indicated 68% of power in reserve.



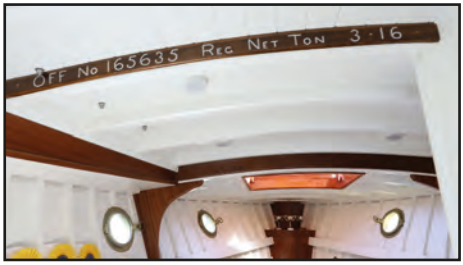
Convertible dinette



Galley

Some observers can seem almost affronted by a 1937 classic mahogany cruiser which is electrically propelled. One irate boater shouted at me in a lock "start your engine damn you man!" When subsequently 'Lockheed' silently progressed down the lock his face changed from one expressing his ire to confusion. Generally, when onlookers are told that 'Lockheed' is electric, they are genuinely surprised, almost shocked. Having now used 'Lockheed' for a season I am certain that electric propulsion was the right choice. The boat is incredibly quiet, with vibration levels well below a similarly powered diesel, and she's completely emissions free. The loudest noise is the fenders splashing in river when I am lazy. I have encountered issues when kayakers or paddleboarders don't hear her coming – luckily we have plenty of torque in reverse, and keen eyesight. Her range is more than adequate for her intended

use as a weekender and for spending occasional longer periods on the water. I would recommend electric propulsion to anyone.

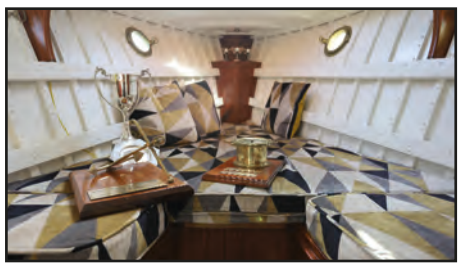


The official number and tonnage in the deck beam, reinstated 2023, carved in 1937

The interior is entirely fitted out in Sapele with painted elements, the worktops are high density laminates. It is a typical layout with a v-berth forward, galley and seating area aft of the cabin. The head is midships and it forms another structural bulkhead supporting the cabin top. It is a contemporary, but sympathetic interior in an old boat. The fabrics hark back to the Art Deco period in which 'Lockheed' was built. The cockpit was extended by a metre, achieved by pushing the main bulkhead forward, this reduced the cabin size but resulted in a very large and sociable aft deck. As there is no engine the aft deck is completely level, and this emphasises the deck space.

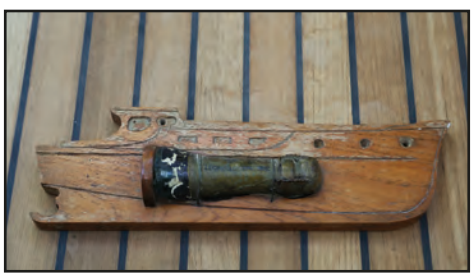
When I set out on the project I got it all wrong. I got the budget wrong, significantly wrong. I got the timescale wrong. I got my own abilities wrong. I got the mental picture of the finished boat wrong. During the project I learnt many things and developed many new skills. I met many supportive and knowledgeable people. I was exposed to a strong and very positive community of classic boaters. One thing which didn't waver was my enthusiasm and enjoyment of doing the works.

'Lockheed' far exceeded my expectations – the result was far beyond what I had hoped for. This was confirmed by the judges at the Trad. 'Lockheed' did very well and won four prizes; The best structural restoration, the best restoration and presentation, the best electric boat, and the Best in Show.



The forward berth with 'Lockheed''s prizes from the 'Trad' 2023

Will I do it again? Yes, but no; I am content with 'Lockheed' and can't see any reason to replace her. It's an utter joy to be onboard on beautiful days.



The original bottle of champagne and half-hull model from 'Lockheed''s launch June 1937

Article & Photos by Michael O'Brien