

# THE AUTOBIOGRAPHY OF A NAVAL ENGINEER

## PART I

*This autobiography has been contributed from the original in his possession by Engineer Captain Edgar C. Smith who has also kindly written a short biographical note of the author, Matthew McIntyre.*

The writer of these autobiographical notes, Matthew McIntyre, was born in 1838 and joined the Navy through the work of Chief Engineer George Murdoch who in 1859 was sent on a recruiting tour to the North. He was thus one of the group of 103 naval engineers familiarly known as "Murdoch's Hundred" or the "Murdochites." His career is fully set out in his notes. His retirement in 1889 led to no lessening in his interest in engineering and he was a familiar figure at the outings of the Institution of Naval Architects. He was a fair mathematician and spoke German and modern Greek. In later life he took an interest in the work of the Presbyterian Church, Brunswick, Camberwell. His house was in Crofton Road in that district. At the age of 87 he made a journey by bus to Purley, walking up a hill 200 feet high without distress. Though handicapped in later years by deafness he retained his faculties till his death at the age of 93 in February, 1931.

The story begins in 1854 with my apprenticeship which lasted till 1859—part of it with "Tam" Kirk in Sword Street, Glasgow, and part of it with Cook of Tradeston, Glasgow—five years and a bit of pretty hard work and long hours—6 to 6—Saturdays to 2—and when to that I voluntarily added Evening Lectures, there wasn't much spare time left.

Shortly after my apprenticeship was over, an opportunity offered of entering the naval service. I took advantage of it, passed the necessary examinations, educational and medical, and was appointed acting 3rd Class Assistant Engineer to the *Asia*, Portsmouth Steam Reserve—Supernumerary—17th August, 1859.

During my service in the Steam Reserve at Portsmouth I was employed on the gunboats left over from the Russian war, which were hauled up on the slips at Haslar.

After about six weeks there I was appointed to the *Viper*, a small gun vessel on the West Coast of Africa, and was ordered a passage in the sailing frigate *Meander*. There were four or five of us going out; but I don't remember what our messing arrangements were, except that they were rough enough to please a parcel of navvies.

It so happened that our crew consisted largely of darkies, "Kroomen" from the West Coast of Africa, who had brought one of our ships, the *Trident*, home, as most of her own crew had died of yellow fever.

Whilst the *Meander* was lying at Portsmouth, with these darkies aboard, the *Victoria*, wooden line-of-battle ship, was launched by the young Queen Victoria; and the darkies were mightily delighted with the view they had of Her Majesty.

Our first day out of Portsmouth turned out a wild one—we got as far as Portland, but had to come back to Spithead. We had the first of the gale in which a vessel called the *Royal Charter*\* was wrecked on the Welsh coast with a great loss of life, 26th October, 1859.

---

\* This was described in the opening chapters of Charles Dickens's "Uncommercial Traveller."

However, we got away at last and, going down the channel, it came on to snow. The darkies had never seen snow, and we were much amused when one of them dashed down the ladder exclaiming “. . . By golly, Massa, him rain flour” and declaring that he would save some to show his people at home.

Apparently I was on board the *Meander* about three months and half, 4th October '59 to 20th January '60, and at Ascension I was transferred to the *Arrogant*, Commodore's ship, for passage to the *Viper*.

In the *Arrogant* there was a small breakdown. One of the eccentric straps “fired” on the pulley whilst turning the engines by hand; and the bolts securing the rod to the strap gave out, broken and bent. Fortunately the rod was not seriously damaged; and there was a nice little lathe on board, so after a few hours, the damage was made good.

When we fell in with the *Viper* she was preparing to go home and, as I had just come out, the Commodore (my traps were all on deck ready for going to my ship) cancelled my appointment and kept me on the Station. He appointed me to the *Archer* which I joined 22nd April, 1860.

The *Archer* was, I think, a full rigged ship and splendid sailor. Her engines were horizontal; jet condensing; geared, so that the propeller made three revolutions to one of the crankshaft, and the propeller was fitted for being raised out of the water when the ship was under sail. There were two rectangular, tubular boilers, fitted with vacuum valves to prevent collapse and safety valves loaded to 10 lb on the square inch. Brine pumps were fitted to reduce the density when necessary, as the pressure was usually too low to blow out. The safety valve load, it is true, was 10, but the working pressure was usually 6 to 3 or less. The pressure gauges were mercury with wooden floats.

The machinery was in a sad state. Pistons leaky, slide valves leaky, one boiler very leaky, and even the lubricators were leaky. As for the bearings, they clattered-clattered all the day long, but kept going when needed.

There were no link motions, only single eccentrics loose on the shaft, with a stop for ahead or astern position, once the engines were started, but the slide valves had to be moved by hand at first. This gave us no difficulty until we were on our way up the Thames to pay off when we found the eccentric of one engine fixed by rust (we had been using water to cool the eccentric pretty freely) on the shaft, and had to work the slide valve of that engine by hand when going astern.

I was much amused one day when the Engineer-in-Charge asked me to let him know if I found anything wrong, but my difficulty was to find anything right. However, I reported one of the crank head lubricators leaky, and next day I found him busy soldering up the leak himself, evidently tender towards his juniors.

By and by something went wrong with him and he was suddenly sent home for the disposal of the Admiralty. Then we had a Chief Engineer and he certainly made things hum. It was seven days a week then, and long hours every day; but we, the juniors, got tired of that, and to guard against surprise, when inclined to rest a bit, the stoker who was standing by to assist as necessary, had orders to say “Here's the long straight edge, Sir,” when he saw the senior Engineer in sight, and if the Chief came along he had to announce the “short straight edge, Sir.” In two or three months we got the engines in something like good order, but unfortunately there happened to be a ball at St. Helena whilst we were there, and our chief had to be helped on board when he came off in the early morning, and that led to his being superseded. After that we had James W. Steel, Chief Engineer, and he remained in charge until the ship paid off at Woolwich, 5th October, 1861.

After the engine repairs we had the boiler leakage to contend with and many a swear word could be heard as one of us after the other tried to locate the leak in the starboard boiler. It was a box boiler, flat bottomed, resting on cement ; and the bottom inside was pitted all over as far as one could examine. The pits varied from pin holes to patches as big as the palm of one's hand. We had prongs made to drop into the big hole, if we could only find it. But the search seemed fruitless. At last, one of our number, a big Cornishman, damned the leak and threw the prong from him in disgust. Luckily for us it dropped into the hole, and we soon had a huge poultice of red and white lead clapped over it and secured from the tubes overhead.

The question of density of the water in the boilers was then, and for many years afterwards, considered a very important one, and fifteen by our hydrometers was the established standard. As the water could not be blown out at our working pressure, we were fitted with brine pumps, but that seemed a clumsy plan and after a little discussion we blank-flanged the pumps and, I fancy, let the water run into the bilge to reduce the density. On one occasion we gravely discussed letting the density go, and possibly choking up the leak by deposit ; but that was (1) clean against orders, and (2) the possible deposit an uncertain quantity, so we decided to go on with our usual. But one difficulty we had there which had not been anticipated by the powers that were. Our hydrometer was marked 55° ; but the sea water was 80°, and the atmosphere anything up to 98 or more. How then cool the water down to 55° ? Failing an ice machine we devised a new scale, and carried on.

We had a big breakdown one day. We went after a ship which we hoped should prove a slaver, with its £5 a head prize money. We had the engines going faster than ever before and the big Cornishman had commandeered all the cook's slush to help the fires, when a jolt, followed by a series of crashes, brought us all to our feet. Of course the engines were stopped at once, and we were soon all gathered on the platform. We found the big driving wheel had been stripped of most of its teeth, which were of wood, and the ship had perforce to continue the chase under sail. Fortunately we had a spare set of teeth in rough, and we soon had all the available carpenters at work fitting them in place, and shaping them to our marks.

We overhauled the stranger, but she had no slaves on board just then, and we had our repairs to comfort us.

My certificate tells me that I was lent to do duty from 28th June to 20th August, 1860, to H.M.S. *Falcon*, and my memory tells me I was pretty comfortable on board, and a couple of drawings I have left seem to shew that I had not been idle when there. But there were no breakdowns to record.

When I returned to the *Archer*, after a while we anchored at the mouth of the Congo River to wait for a vessel, some distance up, which was believed to be a slaver. We got yellow fever on board and had to go to St. Helena to recruit. In our absence, "our" slaver fell an easy prey to an American man-of-war, some of whose crew, spending the night on shore, heard where and when the slaves were to be taken on board ; and the necessary steps were taken to trap the lot.

The squadron on the African coast were there to do what they could to stop the slave trade. The *Archer* was too deep in the water to go up the rivers, but sometimes she went up a little way into the larger rivers, such as the Calabar, Cameroons and Congo—as already noted, we suffered rather badly from our Congo sojourn. In the Calabar River we had the misfortune to carry away the upper valve of one of our air pumps. If I remember rightly, it broke in two, but we worked hard, night and day, with coffee occasionally

to keep us awake, until the repair was completed and we had got out of the river safely.

We were unlucky, too, in the Cameroons River, for we ran on a bank there, and there was some chance of our toppling over as the tide fell, but the spare spars were got out and we were shored up until the tide flowed and pulled off into deep water. When on the bank the pressure on the starboard bilge was so great that the injection pipe got broken and the water was flowing into the ship pretty freely. To make matters worse the top of the Kingston spindle had been broken off long before and no attempt had been made to repair it. However, we got hold of what was left of the spindle, got a spanner end through the cutter hole, and with the help of block and tackle, closed the Kingston valve, and we were able to bandage the pipe and stop the leak.

Comparing the dates and notes on my different papers I see that some time in 1861 the title of 3rd Class Assistant was changed to 2nd, that of 2nd Assistant to 1st and that of 1st Assistant to Engineer.

The *Archer* paid off at Woolwich in October, 1861, and I had six months in the Steam Reserve there, enjoying home life ; and, to quote the certificate, "conducting myself with sobriety and attention to my duties," but my duties were few and simple so they were easily attended to.

From there I was appointed, April, 1862, to the *Adventure*, a sort of mongrel troop ship—horizontal engines, jet condensing, four boilers, single screw fixed on the shaft, two bladed, Griffith's pattern blades.

Very early in the commission it was found that the crankshaft and propeller shaft were not in line. So much of a bend, so to speak, was there that a bucket held under the stern gland was soon speckled with particles of brass rubbed off the surfaces of casing and tube at the forward end. The defect was partially made good but occasional fractures of the coupling bolts were caused, I fancy, by the shafting being still somewhat out of line.

One of our early trips was to St. John's, New Brunswick, with the wives of some of our soldiers in Canada. It was a wretched voyage for them as we had very heavy weather part of the time and for their sake we lay-to for several days. We finished up that voyage by running ashore in the fog ; and the poor women were in a terrible state of excitement. The pilot, who had no idea where the ship was until that moment, when he recognized the glimpse he had of the land, soon got the ship into a better position. But what damage had been done ? She was making no water, thanks to the fore peak being filled with some mixture of cement and pitch, and we went on to Quebec, where we had a diver down to examine. He brought up such a doleful tale of the hole, that the Captain was urged to have the ship docked there and repaired. As that meant a detention of three months or more, for the winter of 1862 was just coming on and the ice would soon bar our way out, the Captain didn't like it. So, the lower deck over the damage was shored down, the bulkhead below was shored up, and a huge mat was secured over the hole, and we made for home. Heavy weather washed away our mat, together with the small gun for signal purposes we had on the forecastle, but we got home and into dock at Woolwich. There was a clean cut through the stern at the 12 ft mark, and then stem and keel were torn away to about 20 ft aft. The hole was sufficiently big for me to walk in off the blocks, sideways.

The ship must have struck the rock and mounted up until its way was stopped. One of the Engineers who happened to be on the forecastle at the moment, when he saw the high land over the fog in front of the bow, made for safety, didn't wait to get down the ladder, but jumped down to the deck.

He declared the deck met him. He expected to jump about six or seven feet, but didn't have more than two feet to go.

Whilst the ship was at Woolwich under repair, I was examined by Mr. Trickett, 30th October, 1862, for promotion to 1st Assistant. My commission (5s. stamp) reached me some 12 months afterwards.

When ready for sea we were employed carrying troops of sorts, mostly West Indians, between the West Indies and the West Coast of Africa, and, as our bunker capacity was comparatively small, and our coal consumption per I.H.P. comparatively large, our speed was limited. But we had the satisfaction of completing the voyages across without recoaling for the first time in troopship history.

On one of our voyages we loaded up coal on deck, but the weather bade us make haste to get it into the furnaces, and we did. On another occasion we had to pull up short of coal near Teneriffe, and wait until some could be brought, but if I remember rightly, a passing schooner, laden with wood, was brought alongside, some of the wood bought, and we reached harbour safely. It appeared afterwards that the coal we had would have sufficed, but the Captain thought well to keep a little in hand.

We returned to Portsmouth to refit and after a few months we left for China. Our voyage out was rather tedious—an attempt was made to reach Ascension under sail from one of the West African ports, but the ship could do nothing under sail against the South-East trades and current, and we ultimately made for Bahia for coal. Thence to Rio de Janeiro and the Cape of Good Hope, coaling at other convenient ports on our way to Hong Kong. The machinery gave no trouble and we jugged along pretty comfortably all the way out.

We made rather a stir in Hong Kong harbour for we fouled a number of ships lying there, on our way in after dark; carried away a lot of their spars and some of our own finally bringing up with the figure head of our last opponent through the bottom of our port cutter.

When we had settled down to our work on the Station, we had plenty of it, but our trips were short ones, and the machinery kept going pretty well. We sent our slide valves on shore at Hong Kong on one occasion to be faced up; with one or two of our Engineers to lend a hand. On another occasion we were docked at Hong Kong and the propeller, which had worked loose on the shaft, was taken off, re-bushed and re-layed.

A little bit of "farget" caused us a good deal of annoyance on one voyage. We lost the vacuum completely, and much of our time on watch was spent trying to find the leak. This went on for several days, until we accidentally found that the bilge injection cock had been left open. It appeared that the bilges had been smelling badly, and a lot of sea water had been run in to wash them out. Then the bilge injection had been used to clear out the water and the cock forgotten to be closed.

Japan was in a very disturbed state on our first arrival, and no officers were allowed on shore in plain clothes. Two military officers, who had come from Hong Kong on board of us, went out for a stroll one day at Yokohama and were cut down on the highway by one of the two-sworded gentlemen and killed. The alleged murderer was afterwards beheaded at Yokohama whilst we were lying there, but I did not care to attend the execution.

On another occasion when we were lying at Yokohama we were witnesses of the great fire which swept over the native town and wiped it out clean. There was absolutely nothing to show, two days afterwards, where the shops or houses had been, except the big safes built of brick in which the valuables

were kept to protect them in case of fire. On that occasion, unfortunately, there was some loss of life among the prostitute girls in the Island where they were kept.

We had the Admiral on board for some days having a look round the Station. We took him through the Japan Inland sea, but the route was an uncertain one as the only guide they had was an old Dutch track chart. We stuck on a bank and, as the engines were working badly just then, the condenser doors were taken off and we found a great quantity of *small* pebbles which had got in with the sea injection. When we had cleaned them out, it was found that we were clear of the bank with plenty of water under us. It appeared that the bank was a shifting one and during the night the current had moved it elsewhere. A Japanese fisherman undertook to pilot us into safety for some ridiculously few dollars, but he valued much more the certificate of his pilotage from the Admiral. In the end he had the dollars and the certificate ; and a bag of biscuits was thrown into his boat as " cum-shaw."

Hong Kong fever was rather rife one summer and most of the Engineers on the *Adventure* were down with it, myself amongst them, and Engineers had to be lent from elsewhere to run the ship. There were no deaths, but the effect was very bad, both on the patients and on those who escaped. One of the latter went off his head for a while, crawled through one of the ports, whilst we were in harbour in Hong Kong in the night, and went overboard ; but the ridiculous thing was the fact that he was a good swimmer, and as the water brought him to his senses a bit he made for one of the Chinese boats (sampans) which brought him alongside and the quartermaster helped him on board. He had to be invalided home ultimately for insanity. His Irish friends reported him dead, but there is some reason for believing that his friends kept him in hiding, to prevent him breaking out as a crazy Fenninn.

Late in 1864 (4th November) one of our smaller ships, the *Racehorse*, went ashore during a gale in the Gulf of Pecheli, with the loss of all but one or two of her crew. It would appear that the ship drifted on the beach with her broadside exposed to the full fury of the storm. The huge waves beat down on her deck and swept them clean, and as the weather was extremely cold at the time the unfortunate men were half frozen and unfit to do much to help themselves. The Commander, I think, was saved by the Boatswain, who lashed him to a stanchion, and I heard that the Paymaster was washed ashore on a part of the beach some distance off and escaped with his life. The Engineer Officers, of whom there were four, were all drowned, or frozen to death—a rather sad feature in the case of the Senior was his body being found hanging by the middle over the lee side of the ship, presumably owing to his having lashed himself to some fixing and being unable, perhaps too numbed, to secure the inner end properly, and had been washed overboard.

It was commonly said that the China Station was the dumping ground of the " Queen's Hard Bargains," that is, the tipplers, or such as had been court-martialled, and that they were sent out there in batches as opportunity offered. I have no doubt that there was some truth in that oft-repeated assertion, but there was little misconduct during the three years I was on the station. The old " Devil-me-cares " had been weeded out by death, or sickness, or court-martial, and the dumping had all but ceased.

While I was on the Station a group of twelve came out on one of the P. & O. ships, which all but foundered on the way, in a typhoon, but which was saved thanks largely to the Naval Engineers on board, for the Engineers of the ship were in a state of funk and helpless. There is no doubt that the ship had a narrow escape, the seas were washing over her, the engine room and stoke-hole

were flooded, and fires out—steam was available from the donkey boiler, but the pump suction was choked, and the passengers were reduced to baling the water out of the engine room with buckets, but they could hardly expect to keep the ship afloat by such means.

The outlook was desperate, when one of the Naval Engineers volunteered to cut the donkey suction pipe as far under water as he could. This was done, and the stream of water from the delivery led to a cheer from the well-nigh hopeless folks on board, and as the seas subsided, the water below was gradually pumped out, until the fires in the main boilers were available, at least on one side, and the main engines were got to work.

I am not sure of the name of the Engineer who acted so timely and to such purpose, but am under the impression that he was a namesake of my own—Angus McIntyre—at all events, Angus kept his head, and did his best by his quaint remarks to keep up the spirits of his fellows in distress.

That group of Engineer Officers was spoken of afterwards as the “twelve apostles” to distinguish them, I suppose, from another group of forty, who had come out some years earlier, in the *Sanspareil*, and who were nicknamed the “forty thieves.”

I am informed that in Hong Kong cemetery in Happy Valley there is a memorial column to the 42 Engineer Officers who died on the Station from 1857 to 1867. It contains the names of 1 in 1857, 8 in 1858, 4 in 1859, 2 in 1860, 6 in 1861, 7 in 1862, 3 in 1863, 7 in 1864, including 4 drowned in the wreck of the *Racehorse*, 1 in 1865, 2 in 1866, and 1 in 1867—a pretty serious rate of mortality, especially in the earlier years.

I was a good deal surprised on entering the Service to find that the Assistant Engineers had no place in the List of Naval Officers, so I set to work and for three or four years collected all the published notices of Engineer appointments, courts-martial and deaths which came under my notice, and when in company with other ships, I exchanged details with the Engineer messes. In the end there was goodly collection and at Hong Kong I had a book bound and ruled to my liking and posted the names in it. The publication of the excellent Engineers' Navy List by Spry of Devonport rendered unnecessary any further collection of names on my part, for he had gone to work in a different way, and had got the details from the Admiralty.

My book was lost, but it happened that a messmate of mine in the *Adventure* had made a complete copy, and after his death a few years ago, I wrote to his people asking for it, but no trace of it could be found.

On one occasion, whilst the compilation of mine was in hand, a group of Engineer Officers arrived at Hong Kong from home, and in the usual way I sent the details of our mess on board and asked for theirs, asking them to correct the details I had of their seniorities. That led to some trouble with the supposed senior, who had been posing as such all the way from England, but who in reality was junior to some of the others, and my figure shewed his proper place. He was indignant, but I heard no more about it. As a matter of fact, he had been tried by court-martial and lost some time, and I had had the list of courts-martial in my hands shortly before.

At that time Naval Engineers were simply workmen in uniform, necessary evils and treated as such. But that has all been changed and the change is due to persistency of the more far-seeing among them, and by the growing importance of their profession. Every step in the change has been forced upon the powers that be and accepted, just as one accepts the inevitable.

I was examined for Engineer at Hong Kong, 18th January, 1866, by John

Oliver, who was then the Inspector of Machinery there. He was very fond of keeping possession of all drawings produced for the examiners, but he listened to reason, and I got mine back after something of a protest, and he endorsed my certificate "highly creditable."

My promotion to Engineer came about 12 months afterwards, with seniority 3rd December, 1866; and I see there was another 5s. to pay for the stamp on the commission.

We had a rather cute specimen of Chinese "child-like and bland" dishonesty at one of our coalings at Shanghai. The coal was loaded into barges at a wharf a little way up stream, and supposed to be brought alongside when filled. In the evening when the tallies on shore and on board were compared it appeared that there was a barge load missing. That particular barge had evidently been allowed to drift down stream and quietly emptied at a wharf lower down. After that we had a couple of men on the loaded barge to make sure it arrived safely at the ship.

The Engineer of the *Adventure* decided one year when at Hong Kong to have a big Christmas dinner, and each one of us invited another Engineer of his acquaintance from one of the other ships in harbour. I forget how it happened, but we counted thirteen. That would never do, so we invited the boatswain, a gentlemanly, good looking Warrant Officer, to join us. Our next hitch was mess traps, and we thought the Paymaster would lend us some of the saloon traps, for the occasion, but he, like all his kind, refused.

Our "comprador," or Chinese Hong Kong dealer, who makes a business of supplying the mess with sundries and who happened to be on board just then, was referred to. He was told the number to be dined and in a couple of hours or so he had a boat load alongside comprising linen, crockery, glass, silver and everything we could possibly need for the occasion. After that the paymaster could go hang, and I have the "comprador's" photo still in my box.

We had the troop deck forward to ourselves, the boatswain got the flags and decorated the place, two or three of the stokers, dressed in their Sunday best white, made excellent waiters; we had an hour or more extra lights, and we were all happy. One or two of our guests were perhaps a little too happy, but they were all got safely on board their own ships.

We had the Duke of Brabant (the Heir to the Belgian throne) on board the *Adventure* for a little while visiting some parts of China. Amongst other places we took him to see the Great Wall. Some of our Engineers went ashore to have a look, but I stayed on board. One of the others brought me a bit of the wall as a curiosity, and I have it in my desk still. On the news of the illness of his father, Leopold I, we had to hurry with him to Colombo, where he re-embarked on one of the Indian Marine Ships for the next stage of his homeward voyage. I see he succeeded to the throne 10th December, 1865, as Leopold II.

The *Adventure* was paid off at Hong Kong 27th May, 1867, and her Engineers with a number of others were ordered a passage home in the *Urgent*. There were some twelve or fourteen of us, and we took duty in turn with the engineers of the ship, one or two at a time. Our voyage lasted nearly four months, and we were pretty comfortable. Little to do and plenty of time to do it in. We got up a concert on the way, a sort of Christy Minstrel affair, which was quite a success.

The *Urgent* arrived at Portsmouth in September, 1867, at all events my *Urgent* certificate ends on 13th September (from 28th May) a not unpleasant voyage with home at the end of it.



To revert for a moment to the *Adventure* my certificates tell me there were two changes of Commanding Officers. Captain Lethbridge commissioned her 24th April, 1862, and was in command until 26th November, 1863, when she came to Portsmouth to refit for China—Captain Curme was in command whilst at Portsmouth—26th November, 1863, to 4th March, 1864, and he was succeeded, 5th March, 1864, by Captain Waddilove, who took her out to China and remained in command until she was paid off there, at Hong Kong, 27th May, 1867.