

A Shipyard Apprenticeship Part Four

Hope Ferguson, and McIvor, and examinations

The concluding part of Cachalot Eddie Hunter's memoirs of his electrical apprenticeship in the Belfast yard of Harland and Wolff

Hope

At the beginning of my Fourth Year, I found myself working in Hope Ferguson's squad again, on one of the Union Castle ships, she could have been the *Dunbar Castle*, I can't quite remember. But I do remember the back-breaking job of helping an electrician to heave out and clip up a run of thick, heavy mains cables along an alleyway. And, given my reputation, I was closely watched by Hope and could not slide off. . . I also remember thanking my lucky stars that she was a DC ship and there were only two of the damned cables.

When installing main and sub-main cables - the first job was to fix a run of heavy duty cable tray to sturdy brackets welded to the deckhead. The next job was manhandle two wooden cable drums through the ship to the alleyway and set them up on drum jacks. Next job was to haul the cables off the drums and drag them down the alleyway, usually that was carried out mob-handed. Today the same cables would be pulled out by a winch, run along the top of the tray, and held by plastic cable ties, but not so then - the cables had to be heaved up and tied at intervals to the underside of the tray using lengths of heavy brown rope previously draped in place. Then the cables were affixed to the tray every nine inches using specially-made heavy-duty brass cable clips bolted through the tray. Dull, brutal, heavy work. Yes?

One Friday, when we were only about half-way along the alleyway and still only at the stage of tying the cables in place, the electrician didn't turn up for work. It transpired that he had done his back in at home that morning - tying his bootlaces!

Well, being an enterprising young lad, and not to be beaten, I gave the problem a good coat of looking at, then a dose of thinking about before deciding that, yes, I *could do* the job by myself.

I found some empty cable drums, rolled them into place under the tray and turned them on their . sides to give myself a working platform. I then commenced to heave one of the cables across my shoulder and pushed it up to the tray. Supporting the cable and tying reef knots to hold it ready for the clips was real donkey work, but this donkey was managing bravely. Or so I thought.

I had managed about ten feet with one cable by ten o'clock when the great Hope came along. He stood watching for several minutes, while I fought and struggled. Presently, he put his head to one side, summoned my attention with a "come 'ere" flapping hand gesture and said, with a lift of his chin, "Son, you'd better go to night school - you'll never make a bloody electrician!" Sarcastic bugger.

And I was convinced I was doing so well, showing determination, initiative, and ingenuity. Just doesn't pay to be enterprising, does it?

That evening at close of play, I received a transfer order with my pay packet. It told me to report for work in the Electrical Test House on Monday morning.

I next saw Hope some four years later, just before I left the Company and went off to sea.

By then I had finished my apprenticeship, and he came across me one morning on a recently completed ship. I had a roll of draft "as fitted" drawings under my arm, and I was wearing a collar and tie and the Draughtsman's ship-visiting attire - a pristine white boilersuit.

Hope stopped, and looked me for a few moments, not a flicker of recognition, then the head went to one side, he leaned slightly towards me and he said, "I see you took my bloody advice."

Definitely a sarcastic bugger . . . Good memory, though.

That weasel McIvor. and Examinations

By about the middle of my third year, there was a marked decline in the number of boards taken by managers in connection with tea boiling episodes on the ships under construction. The Pope, the Brown Bomber and the others congratulated themselves on the ultimate success of their sustained anti- tea-boiling campaign. I don't think they ever discovered the truth, which is that Frank Mac and I had solved the tea-boiling problem using technology, and our solution spread throughout the workforce quicker than bad news.

For the benefit of anyone who has never visited a shipyard, - ships under construction were lit internally by temporary lights strung along the alleyways and extending into the various void spaces, cabins, etc, like ugly industrial fairy lights in stout wire cages. In the Belfast shipyard, the voltage of these temporary lights was 110 volts DC which came from numerous substations containing motor-driven generators. The distribution system was crude but effective.

Tired of the Tom and Jerry antics that took place at least twice a day, and the resentful of the resulting waste of time, Frank and I experimented in a laboratory at the technical college and perfected the design of a crude but effective immersion heater which could be plugged in to the temporary light wiring. The immersion heater consisted simply of a calculated length of Eureka (resistance) wire which replaced a lamp-holder.

In place of the usual Ohm's Law, the $I^2 R$ rule applies to the design calculations - I can't make this machine insert powers! But I'm working on it. . . Wait. . . Yes, I can, I've just done it.

The method of using the immersion heater was as crude as the device itself - it was simply dipped in a tea-can containing cold water then plugged in to the temporary lighting wiring. The water boiled in seconds!

But - there's always a but - there were two principle difficulties arising from the use of our crude elementary immersion heaters.

- 1) As the element was bare, the body of the tin can was alive at 110 volts - and 110 packs quite a nasty punch. Not good.
- 2) The live can was resting on the steel deck! Dead earth! Also not good . . .

The solutions, however, were simple . . .

- 1) Avoid touching the can when the element was in action ... Hence no nasty electric shocks.
- 2) Stand the can on a piece of dry timber . . . End of earthing problem.

Actually, there was a third problem. The inrush current when the immersion heater was plugged in resulted in localised dimming of the temporary lights, which could betray whereabouts of these illegal devices. There was no solution for that...

As word of the technology spread throughout the workforce, there were soon numerous very poorly-designed immersion heaters, some of which blew the fuses of the temporary light circuits. This resulted in a second game of cat and mouse, this time between the immersion heaters users and the temporary light electricians whose workload had suddenly increased enormously!

Now, all that might seem quite irrelevant to examinations, but not so. Not so at all.

As it was no longer necessary spend time dodging managers and foremen and boiling cans of water on riveters' fires, and there was only water collection to worry about, Frank Mac and I were able to spend most of each lunch break studying together.

(Statistically , we found it much more effective for three of us to study together. When two were studying together and calculation results differed, it was necessary to go over the work again, but when three studied together we often got two answers agreeing if not all three. It was only if we got three differing answers that it was necessary to redo the work. We also found that groups of three were ideal, much better than four or more, which came as a bit of a surprise. Perhaps because four or more became a committee.)

We prepared for the examinations endlessly, allowing ourselves only one evening a week free of study. We studied every Saturday and all day Sunday in one home or another, starting at 9 AM and working through with only meal breaks until, exhausted and irritable, we gave up at 9:30 PM sometimes later. (I always made time for the hospital Cub Pack, which annoyed the others.)

We spent Bank Holidays studying. In all this we were immensely grateful for the never-failing encouragement and active practical support of our parents and families.

We obtained as many past examination papers as possible from the college libraries, going back as much as twenty and more years, and we worked through these endlessly again and again until we could do calculations in 12 minutes or less. The allocated time for each question in the examination room was 30 minutes. Three hours, eleven questions, chose six.

Assisted by the college lecturers, we analysed the examination papers and we picked out the "bankers" - question types that we could (almost) rely upon appearing year after year. Some of the bankers were bound to turn up. It wasn't really education, just cramming, but it was effective.

One regular banker was a question about measuring bridges and the conditions for balance thereof. A typical bridge question would read "draw the circuit diagram and deduce the conditions for balance for a Wheatstone Bridge (or a Maxwell Bridge, or a Wien, or a Sheering Bridge.)" Occasionally, just to be awkward, the examiners would slip in an invented bridge of their own, but the principles are identical. The trick was to memorise the circuit diagram and the balance formula for each of the standard bridges and apply the basic theory if a non-standard bridge appeared. Just took a bit longer, that was all.

On the evening of the examination we filed into the room and chose our places to sit. I avoided sitting near Potter and went towards the back of the room. Frank Mac was across the aisle to my right. McIvor was across the aisle to my left.

As usual, blank answer books, each topped by a square of white blotting paper, had already been set out on the small single desks.

As usual, many students were frowning over their notebooks to the very last moment before the invigilators insisted that all books be placed on the floor.

The usual instruction from the senior invigilator, "No names on any paper. Write your entry number in the top right hand corner of each page. Hold your hand up if you want more paper. Remember to write your number on... ... No conferring. No referring to notes or text books. No smoking. NoThree hours, eleven questions, choose any six, any order."

You have all been there. You're familiar with the tension, the sweaty hands, the dry mouth.

"You will be given eleven minutes to read the questions." - the usual torture routine.

According to the established pattern, it was the turn of the Wheatstone Bridge to appear on the examination paper. McIvor was furtively writing something in pencil on one side of his square of blotting paper, copying from his notebook. I leaned closer. He was hastily copying out the conditions for balance of the Wheatstone Bridge. I was instantly and irrationally enraged!

"You bastard," I thought. "I'm going to fail, and you're going to pass - by cheating." I was so infuriated and worked up I was tempted to call an invigilator.

"Right, gentlemen, all books and notes face down on the floor under your desks."

The last minute crammers obeyed, sat back, closed eyes in wishful resignation, tried to remember. The examination papers were distributed, face down, as all the while I seethed with anger. The invigilators returned to the front. The senior invigilator coughed to clear his throat. "Eleven minutes. You may read" Sixty or so papers were snatched and turned over.

Questions one and two were lengthy and descriptive. Tackle those only if desperate. Look for the calculation ques ...

Question three read, "State the principal use of, draw the circuit diagram and deduce the conditions for balance for either the Maxwell, or the Sheering , or the Wien Bridge."

I glanced over at the perspiring twitching white face to my left and nearly choked suppressing my laughter. McIvor couldn't even cheat properly.

Potter passed, naturally.

Frank Mac passed.

I passed.

McIvor? He wasn't with us in the next year ... and he never caught up.

Eddie Hunter

This article has previously appeared in the Official Organ of the Seven Seas Club.