

A Belfast Power Station

Somehow I got an interview at one of the two Belfast power stations run by the Belfast Corporation Electricity Dept. and accepted a job as an apprentice in the Instrument Section. Had I known then what that would mean, I would have been delighted to be given such an opportunity. It was years later before I realised what a favour that friend of my deceased father did, helping me to begin a career that was to last for over 45 years.

When my father died, I had left grammar school aged 15, taking up a job with the American Caterpillar Tractor repair company; I was too young to become an apprentice so I was asked to assist the foreman, who knew a lot about earth-moving machinery but little about office work. I hated the small room beside the workshop, shared with a chain-smoker; cigarettes had robbed me of my father at the age of 52. When I became 16, I grabbed the other job offer and left.

It was something of a culture shock when I started the daily grind travelling on a bicycle from Cherryvalley to Power Station East in the Musgrave Channel Road in the Belfast Harbour Estate. I cycled along Dee Street and through part of the Harland & Wolff shipyard. Starting time at the power station was 8am and it was winter. This was real men's territory; along the dockside there were gantries, packing cases big enough to house a car, cranes hovering over the dry docks where ships were being built, all completely new to a boy riding a bike on a cobbled dockland road.

Power Station East (PSE) was very old in 1955 and looked enormous as it suddenly reared up out of the early morning gloom. Too early yet to see the smoke issuing from several chimneys but then, after the clocking-in ritual, the instrument workshop was welcoming with facilities for a warm drink, made by the first one to arrive. I answered to Jimmy Bryans who hadn't quite finished his apprenticeship when I joined. There was one tradesman then, Jackie McCormick, who split his time between two sites; the other being Power Station West (PSW) on the Antrim side of the River Lagan. PSW was younger and could generate more electricity with higher efficiency so it got more of Jackie's time. Our overall boss Billy Taylor was the pleasant Instrument Maintenance Engineer with responsibility for instruments & controls in both power stations, a very big responsibility. Billy's workforce therefore consisted mostly of apprentices in my time. We wore brown boiler suits but Billy Taylor's badge of distinction was a brown shop-coat. Shift Engineers wore white boiler suits, which was for many of us, a target to aim for ...one day in the far distant future.

Power Station East would have been in its prime before and during World War 2, originally with nine steam-driven turbine-generator sets. In my time, the power station might have been able to generate a theoretical maximum of just 178 MW, including four 30 MW sets; others were tiny.

On my first day I commented on the absence of G1; the sets were numbered G2 to G9. I was told that G1 had been relocated during wartime, many miles away in East Bridge Street in case of a direct hit on the power station by a German bomb. (It would have been a German bomb because we didn't have friendly fire then in those days!)

Soon I learned how a coal-fired power station worked, lessons that took time to absorb so I could understand my job properly. It was most helpful to learn about electricity at the source where it all made sense. Science and electrical theory were main requirements so I had to attend classes, at least three evenings a week at suburban schools; later in the College of Technology in Belfast. It took five years for me to get a Higher National Certificate; not much time for girls during my teens!

Few people know much about industrial instrumentation & controls, a branch of engineering allied to electrical & mechanical engineering but with additional knowledge of physics and chemistry. The instruments continuously measure flows, pressures, temperatures and levels of liquids, vapours and gases in every part of the process. Chemical measurements are made e.g. to monitor acidity (pH), turbine blade expansion and smoke density from chimneys. The control side maintains processes within required tolerances. I hope that clears up any misunderstanding!

The three boiler houses holding a total of 18 boilers in PSE were huge, hot, noisy, dark, and smoky, places to work in. The turbine hall was most of those but not dark and smoky.

Power Stations were fairly inefficient in those times. Heat was wasted where it could have been reused with suitable heat exchangers; e.g. hot water from condensers poured out into the sea. Old boilers, pipes and valves sometimes leaked. When steam leaked from a joint it could take a major shutdown of plant to get it repaired. It took hours to cool down a turbine for any kind of shutdown: it had to be kept slowly rotating using a "barring gear" motor to prevent the shaft from

bending even the slightest bit. When running normally the rotating blades of a turbine are passing the fixed parts by thousandths of an inch so any eccentricity would be catastrophic.

There were other hidden dangers: One day Herbie, a man whose job it was to clean the metal handrails all around the turbine hall got an electric shock off one. There must have been a mile of handrails there but just one appeared to be “alive”. I was passing so he called me over. When I touched the handrail with my neon tester it glowed brightly as if it was a live electrical contact, I promptly located the Charge Engineer who was amazed to find electricity being generated on the surface of the handrail and in the air around it. He deduced that there was a pinhole leak in a large steam pipe running alongside the handrail. Invisible high-pressure superheated steam was blowing past the metal rail generating static electricity, probably at thousands of volts. It could also have caused serious injury to anyone getting in the path of the invisible jet of steam.

Health and Safety were two words never used in one sentence in those days. Unsafe practices as defined today, were used without mention. As spotty faced apprentices, we handled mercury as though it was a safe liquid like clean water. We had to clean mercury that was used in differential pressure flow-meters, used for measuring water flow, where the water rose in a tank, to short out spiral elements, as the differential pressure increased with flow. We had to remove and transport the mercury to the workshop for cleaning. Quite often we would find a drinking straw to blow little globules of mercury all around the well-worn wooden workbench in a game like blow football. It wasn't unusual to find mercury in the pockets of our boiler suits.

During maintenance of other analysers, we made up a solution of potassium hydroxide by pouring caustic soda into a bucket of cold water, which immediately got very hot. This was done in the workshop but the solution had to be carried a long way to a boiler house where it was poured into a tank that was well above waist level, without spilling any on our skin or clothes.

If you were to walk around the whole of power station, including the three boiler houses and the generator hall, you would see very few people. The control room was manned by a three people. The mechanical, electrical and instrument workshops would have a few people in them when not doing jobs around the site. There were various lightly staffed plant rooms and outside places like coal conveyors, cranes and switch rooms. As a visitor to the station, if somebody asked you how many people worked there you would probably think for a moment and estimate 20-30 people.

However at 4:30pm, the siren blew indicating the end of the working day for non-shift workers. Just as the horn began to build up to a wail, hundreds of people would appear and race to the time clocks because they all wanted to be first out through the gates. Where were they all day?

Two hundred people were employed there; those were the days of full employment with no computers, number-crunchers or bean counters. People were employed without regard to either need or efficiency. Hence, if there wasn't enough work for all the people employed, they simply stayed out of sight or looked busy when a boss was about.

In PSE there was sometimes an eerie feeling in the dark areas behind those old boilers as if someone was watching you. At times you would hear a sound like the rustle of newspapers, or the creak of a homemade bed.

Herbie, mentioned earlier, was employed to go around the turbine hall every day to put oil on all those handrails to stop them rusting. He had a health problem but when you think of it, this was better for his self-respect than sitting at home all day; well, apart from the electric shocks!

Footnotes:

1. I worked in PSE for about two years then moved to PSW to complete my apprenticeship. After that I continued working for B.C.E.D as an Engineer in the Testing Section until 1968.
2. PSE was shut down and demolished in the 1960's.
3. PSW was shut down and demolished in 2007.

Denis Gilpin
North Down & Ards U3A Creative Writing Group

Based on notes from a self-published book “Forty Years in Northern Ireland Ch.9” by Denis Gilpin.

The South Eastern Education and Library Board have two copies of my paperback book in their Reference Section. A member may arrange to draw one out by request at a local branch. They also hold six copies of "Weekends in Uniform" by the same author.