

## Chapter 1

### The first steps in a quest to satisfy curiosity

This is an account of the history of meteorology as seen by a curious engineer. Before we start it might be worth talking about this particular type of curiosity and how it got there.

There is a sense in which I call myself a 'wonder scientist' in that I wander up to things that say 'do not touch' and wonder what might happen if I did. That I have survived this undesirable tendency is a credit to my father, an artist/engineer who tolerated my youthful attempts to reverse engineer my toys without displaying any signs of the complementary skill of reassembly. When it came to time to go to university I pursued a degree in physical chemistry and graduated on the same day that spacemen landed on the moon. Shortly after graduating I said to my father "you have done very well for yourself". He had joined the Irish army in 1940. In 1945 he became staff officer to the Director of Engineers as well as Corps Adjutant. He retired in 1962 (aged 49) and drew his pension for just over forty one years. On that fateful day in 1969 I posed him a question "do you think that I should follow in your footsteps?" He answered "No son. With a degree in chemistry they will put you into bomb disposal (this was early in the Northern Ireland Troubles) and with your fiddle fingers I know exactly how long you will survive." This seemed to be good advice and very soon afterwards my direction was determined by the fact that Trinity College Dublin and the Irish Government offered me financial assistance to pursue a PhD. The first option was to work with David Pepper on the polymerisation of cyanoacrylates (super-glue), but I decided not to stick to it. The truth was that I was fully aware that I was not a tidy chemist and had many chemically frayed clothes to prove it. This of course was in the days before the mandatory lab-coat and goggles\*. David was a bit put out when I confessed that the carcinogenic properties of dimethyl formamide and dimethyl sulfoxide\*\*, had been the determining factor. I did not trust myself not to end up in an early grave in return for a PhD. So, instead I took up the area of solid state where I was asked to investigate the photoelectric properties of ferric oxide (which still have not been fully elucidated). In panic I had to return to the 'wonder approach' and ask whether there was any electrical reason why I could not observe photoconductivity in this material. It soon became apparent that the electrical conductivity of this material was poorly understood, so I wondered whether I could find out more about that. I did and that became my PhD.

Career development then took me through silicon characterisation in Nijmegen, silicon microwave device fabrication in Birmingham and silicon power semiconductor development while employed by Philips at Mullard Hazel Grove near Manchester. Somewhere along the way I mutated into an engineer, but the curiosity remained and indeed at Mullards I learnt the skills of reverse engineering electronic components which is the semiconductor equivalent of forensic pathology - fantastic fun.

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\* In fact, Pepper (my role model for a true academic professor) was in the habit of smoking a pipe in the laboratory while talking with students. A well worn trick was to engage him in a deep, meaningful, eye-to-eye conversation just as he lit a match and to maintain the stare until the match burnt his fingers.

\*\* the only solvents available for dissolving Superglue at that time

### **The curiosity of history**

It was at a funeral in 1983 that my father-in-law was talking to his cousin, Robbie Graves. Robbie said to Arthur "So Anne is married to an electrical engineer. He might be interested in some documents I have" Was I interested? Was I what! He was sitting on a unique family archive, being the writings and collected papers of James Graves, the first superintendent of the first trans-Atlantic telegraph cable station at Valentia island in Ireland. The Northern Ireland problems were still raging and general lawlessness throughout the entire island was one of the spin-offs of this tragedy. My childhood home which had always had an open door had now become a fortress, where every door was locked at night for fear of burglary. In this atmosphere I was so worried that these priceless documents might get damaged/lost that I immediately expended over £200 in photocopy charges, so that there would be dispersed duplicates.

Having copies of these documents is not just fun. It is one hell of a responsibility, a duty to ensure that this man and his achievements get the recognition that is due. So, there was a need to pursue research in all aspects of the background, talk to lots of people and to visit collections of artefacts. Now there is a problem in Ireland because Marconi's mother was a member of the Jameson (whiskey) family and some of his important early work was done in Ireland. The Irish therefore feel a sense of 'owning' the man and the technology and there are no end of experts on the subject. At an early stage I decided that it was telegraphs for me and that wireless could remain the realm of others. Was this resolution carried through? Generally, yes, but curiosity has caused me to stray into other fields. If it had not, then I would not have anything to say about weather forecasting.

### **A curiosity in meteorology and its implications**

My interest in meteorology could more accurately be defined as an interest in meteorology from an Irish perspective. This was initiated by the late Cornelius (Con) Gilman, the father of a fellow student at Trinity College. Before his retirement Con had been the boss of the Met. College at Rosslare, but by then retired and with a general interest in Science, he had time to listen to me talk on about the telegraph cables from Ireland, their utilisation during the second world war and the relevance that this might have to the supposed neutrality of the Irish Free State in that period which they referred to euphemistically as 'The Emergency'\*. At that time (1985) I had a particular interest in the activities of a man named Quintrell who had been a telegraph operator with Imperial Communications and had been based at the cable station in Horta (Azores) in the 1930s. At or before the outbreak of the second world war he returned to Britain and at some point arrived in Ireland with the rank of 'Major'. According to my informants, who were also in the Azores at that time, Quintrell along with Colonel Knaggs spent the war in Ireland where they monitored the security of communications installations on behalf of the UK Government. Con. Gillman announced that he had encountered Knaggs when he was based at the flying boat base at Foynes during the war. He also remembered seeing Anthony Eden passing through Foynes accompanied by a British bodyguard and an Irish army sergeant. There were also many British top brass who wore loose fitting overcoats to cover their uniforms in a neutral country. He explained that Foynes transmitted meteorological information just before any scheduled takeoff from Lisbon. This was output as numbers and enciphered before transmission. Initially it was a fairly crude matter, but this

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\* The Irish Free State being neutral did not officially acknowledge that the second world war existed. It was only with the invasion of France in 1940 that there was a realisation that it might impinge on them and that they must instantly increase the size of their army ten-fold. For them, it was an emergency.

practice was significantly strengthened after the USA entered the war in 1941. From that point on a new cipher key was used every day. Although, according to Gillman, the cipher-room was under military guard by the Irish army, with a lieutenant in charge, it was subject to British inspection. These stories naturally led a curious mind to investigate further and that is how it all began