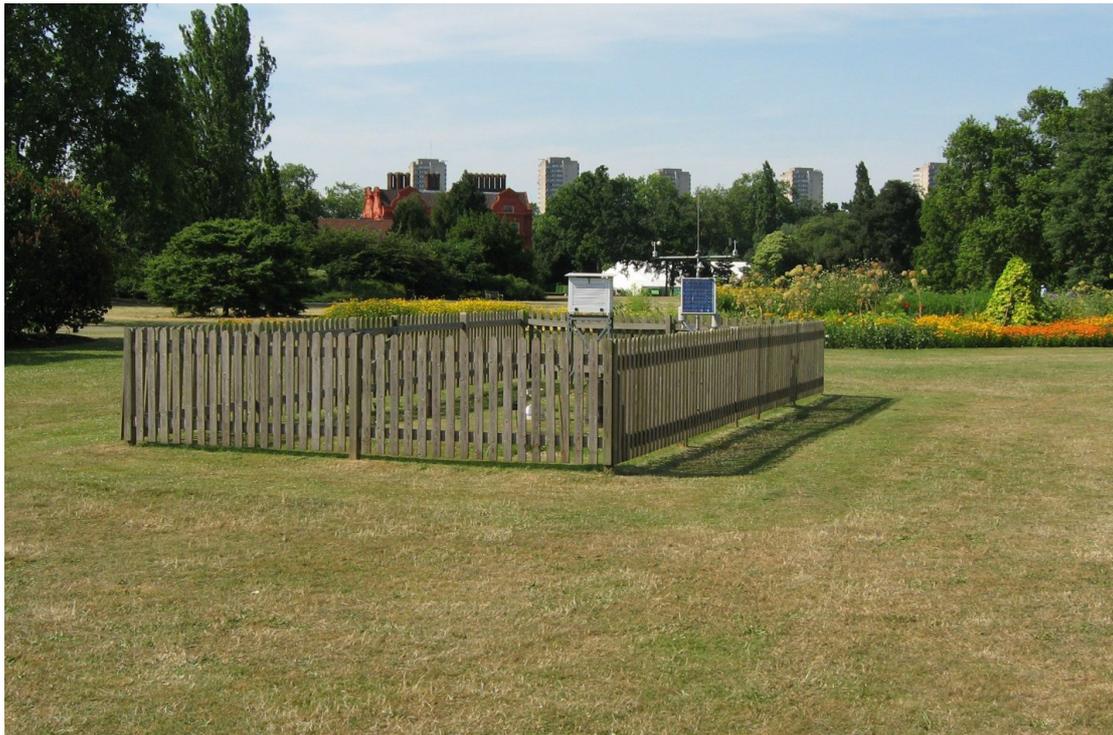


The Secret Life of Weather Stations **Richard Corfield**

You don't see them often now but in my youth they were very common, especially around airfields of which there was no shortage in Britain following the Second World War. A tidy sward of grass mowed to millimetric perfection and so flat it made the average bowling green look like the foothills of the Andes. In the middle a white box with slats, to one side a thick copper pipe sticking out of the ground, a small mesh work tower surmounted by rotating cups and crowned by a arrow with a vane at one end.



By and large this lawned area is quiet. The peace broken only by the drowsy drone of bees. The smell of clover hangs thick and sweet upon the air. But just occasionally the peace is shattered by the distant roar of an aircraft engine under full power and for a second the whiff of kerosene can be tasted on the air. Eventually the roar will be supplanted by the scream of jet turbines but even then the stations remained. Tended by quiet men in baggy slacks and sleeveless cardigans, always with a tie, a notebook and a preoccupied look. For these were the weather men and the sward of grass they tended was home to the local weather station.

Nearly all gone now, swept away by the satellite revolution and the rise of digital automation, but occasionally you still see them tucked away; perhaps in a corner of a private school's grounds where a previous generation of masters (not teachers, never teachers) had taught the young lads of the post-war generation the rudiments of meteorology – the science of the weather.

In these days of global warming and extreme weather scares it is easy to forget that only seventy years ago synoptic charts (weather maps) were drawn by hand on drawing boards while a teletype chattered softly in the corner of the hut.

I miss such simple science. When data was collected painstakingly by hand and analysed in real time and the day's crunch came when the map and observations had to be filed, again via teletype, with the nation's newspapers. And who can forget the shipping forecast with its list of names and numbers that would have you scurrying for your school atlas, Cromarty, Finisterre, Kew, Peas Pottage...

It was all so comforting. To think of the meteorologists who took the readings, quiet men (for they were almost always men) gazing at the sky for the first hint of cirrus while sucking thoughtfully on the burning ember in their Falcon pipe.

Peas Pottage was one of my favourites. It was the local weather station for Gatwick Airport. But as well as being a conventional station it was also an 'upper-air' station where twice a day radio-sonde carrying balloons were launched before ascending five or ten miles into the atmosphere. No pipe's here, for the balloon gas was hydrogen and the men had to don special protective cowls before they were allowed to fill the balloons¹.

My father and I visited Peas Pottage one day in the early 1970's and witnessed a launch. To see one of these great silver spheres swoop upwards was, to a ten year old science freak, the thrill of the year. Better (almost) than the Long Vac (summer holidays, they're called now, with a pitiful lack of romance) between July and September.

My poor father, waiting at the front door with the Saab's engine running² while I, late as is the ancient right of a teenage boy, took the observations from my recently purchased Stevenson Screen before leaping into the car and fighting the Highgate traffic to get to school. My father was not a patient man but somehow he kept his temper under wraps – despite my tardiness and poor organisation. I think he saw in his lazy younger son something that might one day turn out to be of use – science.

¹ For those of you who think you have never seen a radio-sonde balloon in all probability you have, albeit without knowing it. You remember the original TV series of *The Prisoner* (starring Patrick McGoohan) and how he is chased along the beach in the opening credits by a white bouncy balloon that screams and roars and then induces incapacitation by suffocation. Yep, a radio sonde balloon. Readily available in the 1960's so no shortage of supplies, menacing and unusual with the right camerawork and above all, cheap.

² To own a Saab in those days was quite a coup. They had a very unusual body shape and a distinctive engine note. Somebody local to our house today owns one – now an antique of course – and every time, *every time*, I hear that engine note I am ten years old again and waiting for my father to come home from his 'visits' (he was the Minister of the United Reformed Church in Highgate and visiting the faithful was considered essential to the dwindling power of the 'kirk') and wish me goodnight.

During the Long Vac I used to take myself off down to the Science Museum on Cromwell Road. In those days it was not the high-tech temple to special effects that it is now, but rather a building full of linoleum tiles, fluorescent lighting and glass cabinets. The highlight of the day was when the technician's fired up the Van De Graff generator on the ground floor, ionized the air blue and let off a hell of a bang, but even this could not sway me from my mission, which was to spend the day among the cabinets full of meteorological instruments making notes and memorizing the names of their long dead makers.

And there is the nub of my tale. For it was, and still is, meteorological instruments that captivate my imagination when I think about all that is best in science. For these instruments were marvels of ingenuity, invented in the 18th and 19th centuries by scientists who had only the vaguest notion of how the atmosphere worked and who were desperate to try and reduce it to some kind of scientific order. Their instruments were made of polished brass, copper, japanned timber and hand-etched glass, not to mention strange chemicals with even stranger names, *ether*, *Sal Ammoniac*, *green ferric potassium chloride*. Not for them a quick dash of solder on a CMOS chip, a firmware reboot or the rapid fire clatter of a computer keyboard while a satellite is reoriented. Rather long hours in a workshop lit by candlelight while new inventions were tried and discarded.



The barometer, thermometer and rain gauge, all pretty obvious stuff. But a Campbell Stokes Sunshine recorder where the sun's rays are focused through a carefully machined sphere of glass to leave a burn mark on a piece of calibrated cardboard? The even more outré Jordon photographic sunshine recorder which uses unexposed blueprint paper to the same end? The barograph and thermograph (recording barometers and thermometers respectively), the hygrograph, to record daily, weekly or monthly

(depending on the spring size in the clockwork drum) variations in humidity. How about the Besson and Fineman nephoscopes, two wildly different instruments designed for the same purpose, measuring the speed and direction of cloud movement?

All these and more were my bailiwick. Nobody else except the security guards, black uniform, zoo-keeper's cap, and a long chain with keys, ever came to that floor. It was anorak central.

But the names of the inventors! They rolled sonorously down the decades and spoke to me of the meaning of science. To make your own instruments and then go out and use them to discover things. How cool was that? These instruments had soul and I read up on their makers assiduously.

The first thing that struck me was the importance of Italy in the world of instrument making. Now of course I know all about Galileo and the exquisite glass-blowing workshops of Venice. But I didn't know that then. But think about it – Ferrari, Alpha-Romeo, Maserati. The most stylish and innovative cars in the world have been made in Italy³

When it comes to meteorological instruments two manufacturers are paramount, Casella and the very wonderfully monikered Negretti and Zambra.

Casella came first. L P Casella & Co was established by Louis Casella in England in 1810. In 1897, Charles Fredrick Casella took over after his father's death, and the company was incorporated as C F Casella in 1910. In 2006, Casella was acquired by IDEAL Industries in the USA.

I still remember the sunset days of Casella. They had a manufacturing and sales complex just off Old Street Roundabout in London (nowadays this area of London is known as Silicon Roundabout, our capital's answer to the eponymous valley in California). Surely the fact that the technology of the future is being built in the same place as the technology of the past cannot be co-incidence?

My long-suffering father was pressed into service to ferry me there and buy the occasional instrument. This depended on funds and so it did not happen very often. The son of a vicar (by definition a poorly-paid profession) did not have much dosh and scientific instruments were aimed – and priced – at government markets. Saudi Arabia might be able to come in and buy four thousand wet and dry bulb thermometers on the back its burgeoning oil industry. I could only afford one.

And yet the men behind the counter, dressed without exception in grey lab coats, were very kind and infinitely patient. Perhaps they couldn't believe that a ten year old boy found their world exciting, or

³ I was to come across this phenomenon again in my working life when we needed a fluid with very unusual properties for an experiment we were doing. It had to be able to be cooled to -100oC without any loss of viscosity. It was a fluorocarbon made by the Italian company Ausimont. Because of its high affinity for oxygen it is the same stuff they use to inflate premature babies lungs. A very unusual fluid indeed – and made in Italy.

perhaps they were remembering the days when they tended weather stations in the Algerian Desert; reading thermometers and dreaming of their children and frothing pints of real ale back home, all the while with half an ear cocked for the distant roar of a Stuka engine.

The Casella showrooms off Old Street smelt of cutting oil, Swarfega and polished linoleum. It was a heady mix for a ten year old boy. I had one rule – to buy the best instruments that I could afford. But, even then, nothing matched the thrill of seeing an truly old instrument in the window of an antique shop. If I could barely afford a new instrument, I most certainly could not afford an antique instrument. But in those days it was enough to look.

So now, every time I pass a proper old weather station – there is one in the Old Observatory Quarter of Oxford – I travel seamlessly back to the days of my childhood when meteorological instruments were made of brass, glass and love, and digital streams had not yet taken over the world.

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Further Reading: Analog Weather's excellent site at <https://www.analogweather.com/>