

Diatribes 172

Murphy's Law of Technology and its basis.

Murphy's law states that anything that can go wrong will go wrong. This law is not God-given. It is man-made and man-enforced. This became doubly clear to me on a recent trip to the Melbourne science museum,

If you are not a resident of this city, and unfamiliar with its lay-out, Melbourne's Science Museum lies across the bay and is built into the old sewerage pumping station environment. You can get there either by some of the city's busiest commercial roads, or across the generally tranquil waters of Port Phillip. The latter is a lot quicker, so we chose that.

In traversing the bay, we came across several land-marks, all of which in their time have been subject to technological disasters. Over the years they have been mentioned in my diatribes, but I thought it might be salutary to remind my listeners and readers of some of the details because they embody many of the features of present-day technological catastrophes. I can even venture into predicting a future one connected with the same location, Port Phillip Bay. But, let's start at the beginning.

The first bridge we pass under after we leave the ferry wharf is Kings Bridge. Actually, I tell a lie. It is the old railway bridge to Port Melbourne, then called Sandridge. And no, I don't know of any disasters connected with the old Sandridge Bridge, but then it was built in the 19th century before the days of cutting corners and of outsourcing. It was opened around 1890 and served Melbourne for close on a hundred years. If there was a disaster connected with this bridge it is that they closed it down and transferred its traffic to the roads which now fill the streets of Melbourne with stench and pollution. The bridge now stands disused except for the usual spate of plans about turning it into a landmark (or should that be rivermark?).

As for Kings Bridge, it was the site of a massive failure in 1961, It was designed by engineers from the then Melbourne and Metropolitan Board of Works who had a lot of experience in reinforcing small bridges in Victoria using welded high tensile steel. Indeed, they had built up a world reputation in this sort of work. Shortly after its opening, on a cold night, the southern span broke and the roadway dropped about half a metre on one end. Because it was early morning and only one semi was on that span, no-one got hurt. The cause of this failure was very simple. The MMBW's engineers had succeeded in building their previous projects by using weldable high tensile steel; the same material was specified for King's Bridge, but the suppliers found it hard to produce, so they simply prevailed on the contractors (not the designers) to arbitrarily change the specifications to use steel which was not of weldable quality. When 3cm wide cracks appeared in the girders after welding, they were filled with putty. From memory, the debacle was corrected by riveting plates over the cracked steelwork. Despite the obvious responsibility of this failure lying with the criminal negligence of the steel suppliers and the contractors, half the cost of it was charged against the designers who were forced to accept this because they were a state instrumentality.

Next we pass under Spencer Street bridge (duck your heads at high tide!) Spencer Street also gave its name to what is now called Southern Cross Railway station. It is not yet complete but its flaws are apparent. Apart from a huge cost

overrun, its architectural feature is supposed to be a wavy roof which resembles a seascape on a windy day. Like railway hubs all over the world it has numerous platforms, one of which is used for country diesel trains. The fumes from these rise (as fumes will) and collect under the roof. As there is no ceiling over the platforms, no ventilation to speak of and there are walkways just below the roof, patrons choke in diesel fumes. A technological disaster if ever there was one.

Let us continue over the water. On our right we pass the massive storage tanks for flammable chemicals. This area, a man-made island called Coode island went up in flames in 1991. For two days the whole of Melbourne was covered in toxic fumes. Committees were convened, reports were prepared and thousands of words were spoken and written about the need to relocate this facility. The end result was a big fat nothing. After all, Coode Island is part of our Western suburbs, a working class area no decent politician cares about. Today there are just as many huge tanks on the site as there were before the conflagration

The irony is that even though nominally working class, if another fire breaks out at Coode Island, the probability is that the prevailing wind, which blows from the North, will again distribute the fumes over the salubrious – and expensive – southern suburbs.

And so our journey takes us to the Science Museum. It stands in the shadow of the worst disaster of all – the Westgate bridge. On October 15 1970 the final span of the Westgate Bridge, then under construction, collapsed, killing 35 men including three engineers. The assembly contractor, John Holland, had never worked on a box girder bridge before. Every safety issue raised by workers was treated as a dispute. Even the design, by Freeman Fox and Partners, had a cloud hanging over it, as a very similar bridge in Europe had collapsed with the loss of four lives.

The Sydney Harbour Bridge was assembled according to plans drawn up during design - indeed as a vital part of the design; it went together like a jigsaw puzzle. Westgate was handed to John Holland cold, so to speak. There was no safety committee. The main concern seems to have been that the project was running over budget and over time. The direct cause of the failure was the removal of bolts which turned two angle girders into a T-section. One shift of experienced riggers refused to do this and were sent home; it was the next shift, reinforced by three engineers, who finally got talked into performing this crazy act and went down with the structure under thousands of tons of steel and concrete.

All the failures I have described here were not accidents but were direct results of ignorance, stupidity and deliberate cost-cutting or time-saving measures.

Today, another disaster is in the making on our bay. Because the monster tankers and cruise ships which now infest our waters cannot enter the shallows, there are plans afoot to dredge the bay. This may not even work, because from experience we know that the river may well retaliate by filling the excavation with silt. Even if it does work, it will kill much of the Yarra's marine life and the fishing industry which it supports. If one of the super tankers which this work admits to the bay springs a major leak – as tankers do – our bay may well be destroyed for generations to come. Keep your fingers crossed that this doesn't happen.