A carriage full of curates

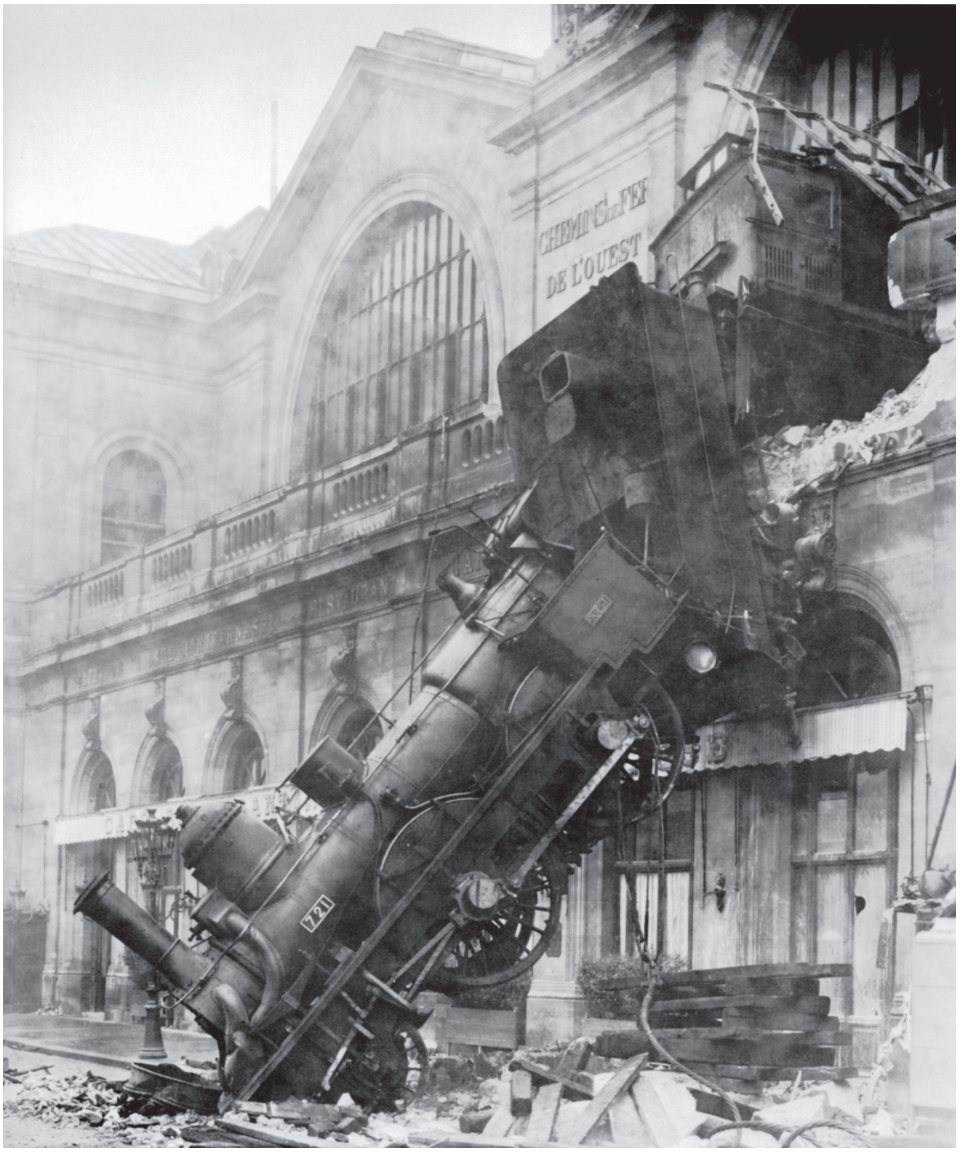
2013 has been a bad year on the railways. The derailment at Santiago in Spain and the Lac-Mégantic disaster in Canada have taken at least 120 lives and raised a media storm about rail safety. Not for the first time. A century and a half ago William Farr wrote about the same thing. Because 1868 was also a bad year on the railways. **Julian Champkin** delved into the archives.

'The persons killed on railways in 1868 amounted to 797, 714 being males and 83 females.' Not all these deaths were accidental: 'Of the deaths, 24 (21 of males and 3 of females) were suicides: the unhappy victims threw themselves on the railways, and converted the trains into steam Juggernauts.' Thus, in high Victorian prose, William Farr begins his analysis of early rail safety[1].

Farr (1807–1883) is regarded as a founder of medical statistics. He was the first statistician to be employed by the General Register Office. It was Farr who set up the system for routinely recording the causes of death, so that epidemics could be tracked and mortalities compared. And one cause of mortality was accidents on the new and burgeoning railways.

He approached his task with high-minded precision. He points out that the figures he quotes at the start are not universally accepted: 'This return differs largely from that made to the Board of Trade', which showed only 150 fatalities – a somewhat large difference from his own 797. But he establishes the cause of the uncertainty. His figure comes from the Registry Office – the 'cause of death' entry on death certificates; the Board of Trade figures are compiled from returns made by railway companies. Not only were some companies not required by law to report accidents but 'It is probable that none of the railways return deaths occurring some weeks after the injury … It is in this respect that the return to the Board of Trade is most defective.' The railway companies were fudging the figures.

But Farr takes the company-supplied figures as a working hypothesis: 'It is probable … that the return by the companies of 105 passengers killed in three years (1866–8) or 35 annually, though under-stated, may serve as a basis of computation;' and points out that the number of deaths from rail travel, even in Victorian England, is actually small – 'not considerable' in his phrase – at least, when you compare it to the number of journeys: 'Thus in the year 1867, besides 84 418 season ticket holders, 250 598 982 passengers travelled by rail; and as 35 were killed on average of the three years 1866–7–8 the chance of this disaster on the way to any one is represented by the fraction .000 000 12 after correcting for season ticket holders.' Season tickets were obviously counted separately and Farr does seem a little obsessed by them, now and later in the report: he reckons there were 84 418 of them, so commuting had evidently taken off, even in those early days, as a mass method of getting to work. Nor does Farr seem to have grasped the concept of rounding up or down. He records his



Train wreck at Montparnasse Station, Paris, France, 1895. (Studio Lévy & fils)

quarter-of-a-million-odd passengers down to the very last one.

His aim in all this was not entirely academic. He had in mind an insurance scheme, to be run by the rail companies themselves, to make rail travel safer.

Rail death risk, he notes, had decreased five-fold since the 1840s, (Stephenson's *Rocket* first ran in 1829) and this was due to the 'laudible vigilance' of the rail companies – which in turn he attributes to their fear of having to pay large sums in compensation for the deaths of wealthy passengers whose relatives take them to court. An insurance scheme run by the companies would make a profit if there were no accidents, and would lose money if there were many. It would therefore be in the companies' financial interest to make sure that their railways were safe.

But how great should premiums be for such a scheme? How much extra should be added to the price of a ticket to give adequate compensation in the case of death by rail? First of course Farr had to work out the risks involved in a journey by steam train.

Today, some airlines are safer than others; back then, some train lines had better safety records. 'The chances of being killed in any single journey vary with the line, and perhaps with the distance: but the general chance is more than 8 000 000 to *one* [Farr's emphasis] that a passenger will arrive at the end of the journey alive. It is probable that there is now no safer kind of locomotion than railway travelling. It is safer than riding on horseback, or in a carriage.'

Indeed, 'Seeing the small number of accidents to passengers, it has been too readily assumed that there is no danger to passengers in railway travelling; and this saying has been quoted: "A person who wishes to put himself in the safest place possible cannot do better than to enter a first-class railway carriage."'

How wonderfully reassuring! But, as Farr also points out, the reassurance is deceptive. Safety, like everything else, depends on what you compare it to:

'This is based on a fallacy. The railway mortality has been calculated hitherto on the journey, which is on average of 9.6 miles and may be of half-an-hour's duration, more or less. The rate which has been given above is, therefore, *per half hour*; and as there are 17 520 half hours in the common year, the rate *per annum* is 17 520 times the rate per half hour. When the multiplication is performed, it will be seen that the rate of mortality on a constant average railway-travelling population is 2 per 1000. This is an appreciable addition to the ordinary mortality of men, which ranges from 10 [per 1000] at the age of *thirty*, to 20 at the age of *fifty,* and so to 40 at the age of *sixty-three*…'

Should we then be frightened of rail travel? Are these significant extra risks of death? In practice, he says, increases in risk of less than one in ten thousand can be ignored: 'Men every day encounter dangers of that measured magnitude without hesitation. Unless they had this sufficient amount of courage human affairs could not go on; the lion in the path would bring everything to a standstill.' But a risk of 2 per 1000, he says, cannot be neglected. 'The railway carriage cannot be held up as a harbour of perfect safety.'

So he has found the risk of death by railway. He next had to find the cost of death. In other words he had to work out the value of a human life. What was fair compensation for a life lost in a railway accident? He bases it on the money the dead men – he does not mention women – would have earned during the rest of their lives, but which their families are now deprived of.

'Thus, taking his wages as the basis, the value of a Norfolk agricultural labourer, at the age of 25, was found to be £246; while the value of the income of a professional man earning £300 a year being £5000.' But he is scrupulously fair: the dead man, be he labourer or solicitor, will himself consume nothing, so his family can live that little bit more cheaply. The compensation should not include the cost of the food he will not eat, or the clothes he will not wear. Farr has deducted £242 from the labourer's lifetime earnings of £488 to reach his £246 figure, £242 being enough to support the poor man from the age of 25 for the rest of his natural life. (For the professional man, the subsistence figure is £2000).

All this leaves Farr with a moral dilemma: 'The lives of the Queen's subjects are all equal in the eyes of the law.' Why then should a railway company 'pay more for the life of an officer than for the life of a soldier, for the life of a judge than for the life of a solicitor, for the life of a bishop than for the life of a curate? Yet the loss or injury on a carriage full of curates might not exceed £30 000, while the loss on the life of two bishops might raise claims for a larger sum.' Bishops were clearly very well paid in 1868.

But rail travel was, in a sense, egalitarian: the bishop might travel first class, the labourer third, but they were, if not all in the same boat, at least all on the same train.

'As all classes are mixed up in a train, the effect of the larger fines [for the death of a bishop] on the railway companies is to awaken a vigilance calculated to prevent injury to the lives of all classes be they of small or be they of extortionate value.' In other words, the company could not afford to pay for the death of a bishop, so they will make sure his train is safe; in doing so they will also be protecting the less valuable life of the labourer (or the curate).

But litigation is unaffordable for the poor, and even for the rich it is risky: 'A trial, for a family left destitute, is a hazardous speculation. The families of poor men can derive little advantage from the law; and the result to the opulent is uncertain.' Even for the middle class 'the dread of expense necessarily deters many executors from moving' to chase a claim for compensation through the courts. To save endless court cases and wranglings Farr decides to average out the values of rail passengers lives: to £1361 for first class passengers, £1000 for second class, and £600 for those in the third class carriages.

William Farr, 1883. (*Popular Science Monthly* Vol 23)

The idea was for every passenger to take out insurance. But it is not possible to insure for single journeys:

'The risk of death on a single journey being so slight we have no coin small enough to pay a premium for it.' He works it out at one-eighth of a farthing, or just over one-hundredth of a new penny in modern parlance, not allowing for inflation. He proposes instead an annual premium, calculated on 600 journeys – call it a twice-daily commute – costing 1s 5d (one shilling and five pence old style, or about 7 new pence) to provide a thousand pounds of life cover, to be bought with the passenger's season ticket. (Again seasons raise their heads.) Non-season-ticket holders can pay the same sum once a year at their local station.

His scheme, for all its calculations, came to nothing, which was a pity. 'Under these arrangements, we might expect improved means for the prevention of deaths in travelling on the railways. At the present time a battalion is killed every year.'

The author thanks James Hanley for introducing him to Farr's work on the railways.

References

1. Farr, W. (1885) *Vital statistics: a memorial volume of selections from the reports and writings of William Farr*. London: The Sanitary Institute.