



THE INSTITUTION OF RAILWAY SIGNAL ENGINEERS
(COPYRIGHT RESERVED)

Presidential Address

of

FRANS HEIJNEN

Presented at 1 Birdcage Walk, London,
on 24th April 2009

A Sustainable Profession?

Where is it going?

LONDON 2009

A Sustainable Profession? Where is it going?

Frans Heijnen

This moment is a difficult one for me. I had looked forward to receiving the President's chain from Alan Fisher whom I considered a good friend and an excellent professional, a person this Institution can be proud of.

Events have changed the foreseen course of today; my friend is not here to listen to me although I am sure he will be aware of what I am going to say. I profoundly thank him for his support and friendship over the last couple of years; a time to remember.

I have followed in part the title of my two predecessors addresses. It is in line with what they said but different. That is on purpose and I will explain, but first let me introduce myself to those who do not know me, or those of you who may have met me but not in such a way as to understand how I tick. Therefore some history of how I became the person who stands before you.

I was born in 1947, on Christmas Eve. It was the year when Fred Castle addressed the Institution with an address of 5,500 words, or double the size of my address and that all before dinner (or was there such thing then?). His paper was as he said; stating that he proposed to divert from the usual style of the presidential address, as delivered before to this Institution, and that he would take the opportunity of placing before the members present some general observations, facts and suggestions relating to the activities of the railway signal engineer "beyond the seas." 1947 was also the year the Australian section was founded, just a month before I was born.

I had some troubles getting started; in my first year I broke my arm as my aunt dropped me off a table so I spent my first birthday with both arms in rigid plaster connected at my back. I have not been

a sportsman ever since. I was one of the first to get penicillin to overcome pneumonia. I was a dreaming child at primary school as it was boring. I spent 4 years trying to pass the first two years of secondary school: still dreaming. After that it improved; I had seen the light. A far away signal perhaps? I did spend time on railway stations since the age of ten to see trains, but seeing the signals?

University was a difficult choice to make: economics or electrical engineering. My father was an accountant and I had been preparing profit and loss accounts and balances since the age of 16. Electrical it was, specialising in Transmission of Information. Yes, I am a telecommunications engineer having specialised in microwave systems, for transmission of information, not for cooking food. Marriage brought me to Spain where I spent 12 years as head of signal engineering and projects for GRS Iberica, later Abengoa Señalización. From there I moved to Bosch, into the car manufacturing sector.

A short spell at Dutch Railways in the Signalling Research Group was followed by a stint as Managing Director of Transmition Spain. ENA Telecomunicaciones and RENFE – TIFSA were followed by an Executive MBA and my return to the Netherlands. NS Engineering Office, later Holland Railconsult, was where I spent 8 years, including two years in Brussels as Technical Director of the ERTMS Users Group. Another knock on the door brought me to the UK as Vice President Technology of Invensys Rail Group.

I retired at the beginning of last year although my wife is still looking for the seven differences between working and retirement; she cannot find more than one. Instead of living in the UK we now

live in Germany. The life of a consultant is not always pleasing to his wife. I have moved several times from one side of the table to another, between railway and supplier, and that has given me some experience which I will later come back to.

THEME OF MY YEAR

As I said before, the theme is somewhat different from Wim Coenraad's theme and Alan Fisher's sequel. I did not want it to become like Star Wars so I decided to focus on the people in the profession as they are the living things in this profession.

First I would like to say that people were not my passion in my youth, being rather introvert, but over the years I have recognised that working with people and interrelating with them is much more gratifying than any engineering wonder. The profession is an interaction of people; it is the people that make the stuff and not the other way around.

Secondly, I do like technology but I am not a "techie" in that sense. Technology is important but it must serve a purpose. The required functionality to support a process is what we are trying to implement; the technology brings that into reality as best as it can. Being an engineer myself I do understand the pitfalls of our profession: put two engineers in a room and you will get two new solutions, put three in a room and you will get six. I will leave it to the mathematicians amongst you to work out what will happen if you put four in a room.

The engineering profession is about analysing the problem, investigating the possible solutions and recommending the way to go. This process is what should be taught at engineering school, not just pure factual knowledge as I have seen on too many occasions. A reflection on the current status of our profession indicates to me that we have created a lot of silos. The break up of the railways due to the European Railway Directive has certainly played a role in this. The split between Infrastructure Managers and Railway Undertakings was intended but seeing the UK panorama, one sometimes wonders how on earth this complex "patchwork" still allows the trains to run. At the same time there has been created a drive for cost reduction as many of these entities were set profitability targets; targets that forced them to rethink every expense. Training was an obvious victim, maybe not intended but nevertheless we can now see the results. The people now working in the railway environment find themselves working for only a part of the system. They work for Roscos, civil contractors, regulators, to name a few; not anymore for a single entity where bosses and coaches could move them around within a single railway organisation. That gave them experience of all the different aspects of the railway process or organisation.

For the signalling profession this also had an impact but there were other drivers for this. Research was in the past very much located within the railway. Not in all cases but BR Research had parallels in other countries. This has now mostly

disappeared and what is left does not have in many cases the critical mass to sustain itself. Signalling research has moved to the suppliers and consultants when it comes to equipment and products. Functionality research now sometimes takes place at EU level, if it takes place at all.

Within each entity, infrastructure manager, supplier or consultant, we have also seen a big squeeze. Shareholders are demanding returns within a very short period. Whatever we do to develop new products, systems or technologies is of a relatively low interest to them. We need money for research now and when asked, we tell them that the returns will come within 5 to 7 years. You can clearly understand that this will fall on deaf ears due to the enormous mismatch of timescales; years versus months. Another phenomenon to consider is the age profile of our professionals that many times matches that of the railway. Influx of new employees comes in waves and as such people retire in waves if not pushed out earlier due to cost reductions. The baby boomers, and I am one of them, are retiring right now and with them a lot of general and specific knowledge will leave the sector. This wave seems to be somewhat universal in Western society. It is positive for the people who retire but it creates a problem for the system. The people involved have been there in many cases for a long time and they may be the last generation of lifetime railway people when it comes to our part of the system.

We should also not forget the influence of rules and regulations on our sector. CENELEC and all other such standards have created a need for very specialised people, in many occasions hired from other sectors like the aviation or process industry. These people enter our sector to perform a certain task and then leave the sector again as their skills are also useful elsewhere. Combine this with the image of our sector and you can see a problem. Software is core to our products and systems nowadays but a software engineer is not necessarily interested in the functionality his work creates, so the bond with the sector is weak. We have compartmentalised signal engineering into clearly demarcated jobs. We have designers, developers, software writers, testers, maintainers etc. People who do a great job but who do not have the changes in their career path that previous generations had, at a time when the systems and processes were less complex and more accessible.

My theory is that we are losing the oversight of our trade. Too few people are rotated through different jobs and positions in the trade to allow them to form that overview. Even in my own career, although it was not planned, I had 12 jobs luckily not followed by 13 accidents as we say in the Netherlands, which did give me a platform of diversity from which to observe the different facets of the industry. To see different elements of the "cradle to grave" chain of our systems gives you an insight in the impact of actions and decisions that were taken in previous phases. Clear examples of isolated working are designs that are a technical miracle but later prove to be very difficult to

implement or to maintain. My predecessors' themes clearly identify some of these issues. We should do something about this. The Institution is a key player when it comes to proposing a new course of action in relation to professional development, as it is an Institution of people, not of systems. Therefore the Institution is well, if not best, placed to champion some activities.

One of them is within my year. A paper followed by a seminar on employment and education. But I think that is not enough. The first thing we need is a common understanding of the situation. I may be wrong and therefore the first step is to see if my view is shared by the members. I invite all of you to reflect on my words and to tell me what you think is the case. Without a shared view we cannot move internally on this, even less lead the outside world. For those of you who are holding positions in the sector where you have influence on the way we train and grow people for more responsible positions, I would like to invite you to put your view forward in the internal debate, in a seminar to be held in November. The younger members I would ask to reflect of what they expect in their professional life and how they would like to be trained and coached. I do not have the recipe for the solution needed; I would be happy if at the end of my year we have a common understanding. Maybe not according the way I see it, but at least a common understanding.

I would now like to turn to what is going to happen in meetings and other activities during the coming year since I assume that you will flock to this room and other venues. It is part of what you will get for your subscription.

ACTIVITIES DURING MY YEAR

I know that we like technical papers, at least that is what we call them, but you will only get some real technical papers in my year.

In the October meeting here in London Steve Featherstone of Network Rail will present a paper entitled "Maintenance, an update on the UK approach". This topic is more about delivering and maintaining functionality than it is about the technology. You will hear some examples of the problem I described earlier.

"Signalling, Have We Lost the Plot?" is the title of the November paper, presented by a Past President known to you all, Eddie Goddard of London Underground. He will expand on the theme of my year and will try to describe what we have to do to train the people we need in this sector in the future.

The November Seminar will deepen out this theme. The Professional Development committee of the Institution has volunteered to prepare this seminar under the working title "Education and career paths in the Industry".

Our autumn visit In November will take us to the north. Scotland has been an area of major signalling renewals lately. Glasgow, Edinburgh and Airdrie-Bathgate, just to name a few. The final programme is still being established but it is going to be interesting. In December you will get a more

technical paper from Ian Mitchell from Delta Rail. His paper, entitled "Sustainable Railway: use of advisory systems for energy savings", will describe how technology can add a functionality to our systems that helps to reduce the environmental impact of the railway. But even though it is a technical paper, it is about the future of the railway and how to address the challenges.

The January meeting will bring a speaker from my home country. One of my former colleagues of the Dutch Railways, Jeroen Nederlof of Prorail, will present a paper on Level Crossings in the Netherlands. Jeroen did a lot of analysis on the influence of layouts, visibility and other factors on the rate of accidents on level crossings. Not about technology but about the results of our work: did we provide the best solution?

The author of the February paper works for the Austrian Frequentis. We visited this company during the recent Technical Visit in Vienna. This paper will provide a comparison on control room management in different sectors, with the title: "Are Rail and Air so different" and it will be given by Gottfried Almer. Is this telecomms or is this signalling functionality? You can decide after listening to the paper.

In February we will organise a seminar on a current research project funded by the European Union together with 36 entities from the sector. INESS is about defining the functionality and the architecture of future signalling systems and by the time of the seminar the project will be almost halfway. History and impact of the planned outcome of the project are the key topics.

Our spring technical visit is to Wildenrath in Germany. It is near to where I live in the Aachen area. Established on a former British Airbase the Regional Government of Nord Rhein Westfalen, it has helped Siemens to establish one of the most sophisticated test tracks available in the world. Other parts of the visit are bring us to the Aachen Hauptbahnhof recent interlocking renewal. As Aachen is near by measured from London, as well as the Ardennes and the Eiffel mountains, it is a good occasion for a weekend away, only four hours away by train. The new High Speed line between Liege and Aachen will be operational under ETCS Level 2 by then.

The March session will see a paper on the 2010 Convention. I am not going to disclose where it will be held so you will get no title here.

THE 2009 CONVENTION

As you will have gathered by now, Spain played an important part in my professional career. It is therefore with pleasure that I invite you to join me on a convention in Spain, during the last week of May. It will be the fourth occasion that we have visited Spain. 1970 saw Mr Cardani, a well known President, lead a party of 70 UK Members and Guests, joined by a further 27 overseas members. They visited Madrid Chamartín, Burgos, Segovia and Metro Madrid. Some interesting names on the diners list: Luis Urquí whom I met while working at

Abengoa in 1975, and a certain Mr Martinez who must have been very young then. José retired some years ago as my colleague. He was the President of Dimetronic Signals then, having been President and CEO of BTR Rail, the predecessor of the Invensys Rail Group. Maybe organising a convention is the way to become a big shot in signalling world.

1984 was the year I attended my first convention as a brand new Institution member. Starting in Barcelona and ending in Madrid, this convention was led by David Norton of Westinghouse. There were visits to Segovia, Miranda and El Escorial for the guests and Sants in Barcelona, Chamartín and the Metro in Madrid for the members. The last two were a repeat of the 1970 convention and we will see them again this year. As was said in the proceedings of the 1995 Summer Convention, it was third time lucky. 1970 had seen snow, 1984 was cold and wet but Eddie Goddard and his 300 fellow delegates had a lot of sunshine. Some of you will still remember the burn out we had seeing the horses on the Sevilla Ranch after our run with the High Speed Train to Seville. We saw also Metro de Madrid, but not Chamartín that time; Toledo was part of the programme.

This year we will show you a full-grown High Speed Network. Madrid to Seville was 472 kilometres long and signalled with LZB but now RENFE has 2,000 kilometres in service or under construction with commercial speeds up to 320kph. The theme is ERTMS ETCS for most of the convention, as this is a topic I have been involved in for 12 years now. On the Tuesday we will give you an update on Chamartín where Alstom is installing a new interlocking and we will show you the new High Speed line to Segovia and Valladolid with its long

tunnel under the Guardarama mountain range. Your partners will be close by as they will be visiting Segovia. Wednesday will see all of us in Toledo, for a renewed visit to the city. Thursday will bring you to Zaragoza. Friday the update of Metro de Madrid, where the latest in Mass Transit land, CBTC, will be shown to you. The Dinner on Friday will finish in the early morning hours so bring your dancing shoes with you. This means that the convention will end on Saturday, at around 01:30.

CONCLUSION

I am afraid you will have to cope with another Dutchman for a year having had Wim Coenraad as the President in 2007-8. So close are our cultures but sometimes so different. Nevertheless, I hope not to disappoint you this year, by setting a programme that deals with the challenges on our way into the future. I have tried to accommodate in the programme for the London papers and for the Technical Visits and Seminars the preferences of many members, however different these are, but I hope that in the end you will recognise my biggest worry: are we prepared for the future?

I hope that after a year serving you we will have this on our radar and that initiatives to address this issue are on our roadmap. As I said in the beginning of my speech, this is not a direct sequel of my predecessors' work but it goes in the same direction: the world is changing and, whether we like it or not, it will do so without asking us for permission. Our sector is perceived as being slow in its responses; let us pre-empt the future this time.

Thank you

Frans Heijnen

