# RML Newsletter round-up

## October 2016

COMMUNICATION 2.

### 'The first draft of anything is crap'

Ernest Hemingway

Great care needs to be taken when writing anything because the whole point of the exercise is both to inform and please the reader. The improvements that can be introduced by re-reading over and over again drafts that you thought were ready for distribution are quite staggering. The other day I received an email from Alec in 'Fineline', here in Ruthin, in which he reminded me of what Ernest Hemingway said about writing. It is this quotation that got me started here

**Word of mouth** still seems to be an effective way of communicating with people. Standing up in front of an audience strikes terror into the hearts of a good many people and in the hearts of many good people too. A low level of skill as a public speaker has had seriously negative consequences for the professional advancement and satisfaction of many people. We have addressed this at RML by insisting that drafts of presentations are practised beforehand and viewed and listened to critically against the clock by colleagues. Once you are on your feet there is no going back.

**Are Emails the scourge of letter writing?** If not then texts almost certainly are. Between them these two manifestations of modern communication have all but destroyed the art of letter writing and conversation by telephone too. I have long-treasured letters written to me by Marjorie some 60 years ago. They are more than words, the paper, the envelope and the date stamp are valued too, to say nothing of the salutations. I have dozens of her letters that are highly valued, to say the least.

**Has PowerPoint had its day?** How often have you attended conferences where presenters have provided screens so full that people apologise saying "I'm sorry that you can't read this"? In one very well-attended conference that I attended a member of the audience complained that the presenters, there were several, were showing a complete lack of respect for their international audience by displaying power point slides that were unreadable. This complaint raised a huge cheer and reflected badly on people who were serious contributors in their topic areas but had failed in their main purpose which was to communicate with the audience.

Drawings are important in my world. Drawings can have a wide variety of purposes ranging from sketches of principles and ideas showing accurate engineering requirements. AutoCAD suits the last requirement ideally but can give misleading impressions if used to illustrate preliminary ideas or suggestions. A hand-drawn sketch will better communicate ideas that are topics for discussion.

With word processing so prevalent these days sloppy texts are unforgiveable. When I used to draft my presentations by hand I used lined paper, double line spacing and a soft pencil for easy rubbing-out. The third version of my drafts was then typed at double spacing so that I could carry on changing things. I now type my drafts and review, review and review yet again.

Kind regards

**Ivor**

Managing Director
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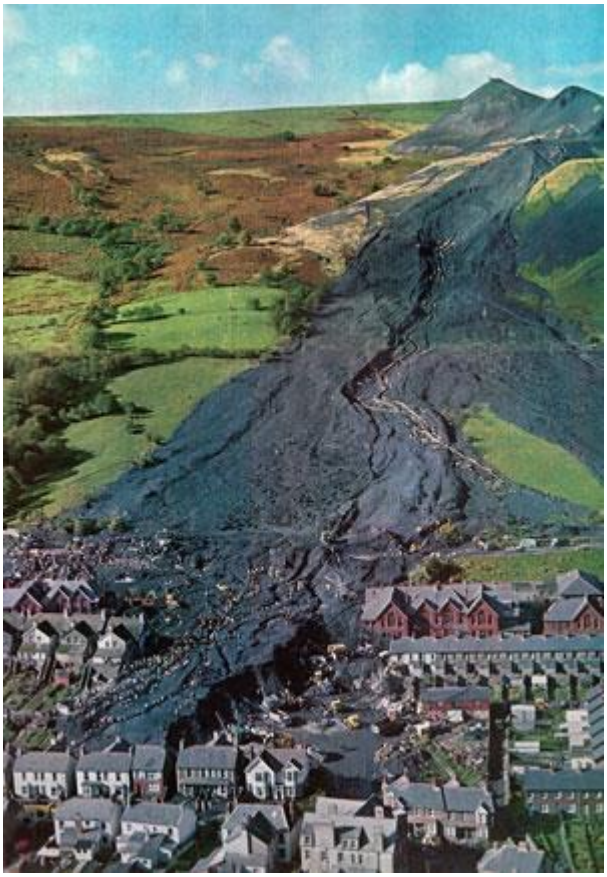
## 50 YEARS AGO TODAY.

On this morning 50 years ago my wife Marjorie (Marj) and I were travelling along the A470 through Merthyr Vale, the valley was filled with an autumn fog, nothing untoward about that. On the other side of the valley to our left we saw the tops of the coal tips produced by Merthyr Vale colliery protruding out of the fog. Within the fog and invisible to us the coal tip above Aberfan was becoming unstable and about to descend on the village.



**The disaster at Aberfan was unfolding.**

In the course of the slide of coal waste two large diameter water mains owned by the City of Cardiff and the Taf Fechan Water Board were carried away and caused the release of millions of gallons of water into the waste material. Because of this disruption to water supplies Marj and I were closely involved in the disaster that day; we both worked for the water board.

The release of the water exacerbated what was already a desperate situation.

Marj and I had not long started work for the newly formed Taf Fechan Water Board and although we knew the road to Merthyr well travelling up the road to Merthyr every day was a new experience. Merthyr Vale is strung out along the side of the valley and there are gaps between the houses. On one morning I had a

glimpse, no more than that, of Aberfan and said to Marj "Gosh Marj look at that tip". It looked to me that the tip was overpowering the village. I thought no more of it at the time.

It is now a matter of record that there was a great deal of concern in Aberfan and in the Merthyr Tydfil Borough Council about the condition of the tip. Complaints and comments about the coal waste being washed down and blocking drains had been passed to the National Coal Board. Properties in Pantglas in Aberfan had suffered from flooding for years. The flood water carried coal slimes which were clearly emanating from the coal tips.

The report of the Tribunal which was appointed to inquire into the disaster made clear that 'the tragedy flowed from the fact that notwithstanding the lessons of the recent past, not for one fleeting moment did many otherwise conscientious and able men turn their minds to the problem of tip stability'. The tribunal rejected out of hand any callous indifference on the part of the senior Coal Board officials, the tribunal members considered that 'these decent men led astray by foolishness or by ignorance or both in combination are responsible for what happened at Aberfan. That, in all conscience, is a burden heavy enough for them to bear '

Individually, to varying degrees, senior managers of the National Coal Board in South Wales were found to be responsible for the disaster.

Mr Wynne was the manager of the colliery and he was found to be 'blameworthy' on account of his neglecting to take notice of what was a regular occurrence on the tip by way of settlement at the top and movement at its base. Mr Wynne lived in Abercynon and was my neighbour. I did not know Mr Wynne at all well and after the disaster I saw little of him. Mr Wynne died some 7 years after the disaster. My sister-in-law was with Mr Wynne on the morning that he died, and we are both convinced that it was the burden of his share of the responsibility for the disaster that killed him.

For my own part the disaster did open my eyes to the damaging and often dangerous impacts which civil engineering construction can have on society and the environment. I was particularly struck by the negative impact which an uncaring approach in respect of mineral exploitation could have in degrading the quality of life enjoyed in local communities. On these two counts, quality of life and the quality of the environment, I became involved in the rehabilitation of derelict land and saw that civil engineering needed to change its long-held view that there was nothing that other disciplines could contribute usefully to its activities. "What can we learn from them" was a frequent response to my suggestion that we talk to and work with other professionals. I have spent my career developing and demonstrating that these ideas from 'outside' the profession can be of value to the civil engineering profession and to individual civil engineers.

Charles Quant reviewed my work some years ago and he commented in an article in the Liverpool Daily Post that the impact of my work was such that 'perhaps the children at Aberfan did not die in vain after all'. This is not something that Marj or I would have ever thought about. The very thought makes my stomach churn. Charles was a journalist and as such an outsider 'looking in' on land reclamation and the creation of new lives and new landscapes. Knowing him as I did, I would say that Charles' varied views on all kinds of topics were never dispassionate and he told it as he saw it.

Kind regards

**Ivor**

Managing Director
Richards, Moorehead & Laing Ltd.

## BASIC SCIENCE MUST NOT BE OVERLOOKED.

Those involved in developing a mixed woodland can fall into the trap of overlooking basic science and experience. Indeed in a television broadcast a team were describing how they were developing a large area of mixed woodland. They reported that the oaks which they had planted had failed. It seems that they had ignored nature's approach which involves the initial introduction of pioneer species with oaks and the like being introduced much later. Research involving an assessment of pollen counts by Margaret Davis at the University of Minnesota showed that following the retreat of the ice at the end of the last glaciation invading trees did not move in as communities. Trees migrated at different rates.

I thought that the design team, or the programme editor anyway, had overlooked technical knowledge about woodland progression and wanted to demonstrate that a mixed woodland could be developed from 'day one' when any pragmatic design would have lead them to concentrate in the first place on pioneer species. Indeed it is likely that once a tree cover had been established that was reliant on pioneer species then the longer living members of a mixed woodland would have come in naturally at little or no cost along with the invertebrates and mammals. In my experience a newly planted woodland of pioneer species quickly becomes inhabited by invertebrates and small mammals and acquires a degree of interest in that respect and is of even more value as an area demanding close attention because the woodland will develop over time. It is likely that squirrels will introduce oaks for example by burying acorns. The resultant young oaks will get off to a flying start much more than oak trees drawn from a nursery would. Many plants will arrive as a result of seed dispersal. Dormice and wasps will occupy bat boxes! Moths will be attracted by willows. Fungi and lichens appear as if by magic. Perhaps it is magic. The reliance on succession within the woodland and letting nature work at her own pace will create a very real demonstration over

time of how to achieve what the design brief was asking for and provide a critical lesson about learning from nature.

Another important aspect is that the soil that supports such a woodland might take several generations of woodland to become an integral and vital part of the ecosystem. Nature works slowly so a long-term view is always necessary, but isn't this an important lesson in itself?

Planting a mixed woodland is a chance to exploit knowledge and promote best practice. Teaching through and learning from nature is such a valuable tool.

Kind regards

**Ivor**

Managing Director
Richards, Moorehead & Laing Ltd.

## ‘CHOOSING QUALITY STREET’ - REVISITED.

As one does, Ivor was rummaging through the bottom drawer of a filing cabinet and came across his article entitled ‘Choosing quality street’ that appeared in New Civil Engineer (NCE) in January 1990!! He had kept it along with several other articles for all those years. Everything that we keep today is stored digitally but perhaps some of the fun has gone out of finding things. I commend rummaging as an important and pleasurable activity.

SPEAKERS COLUMN

# CHOOSING QUALITY STREET

The British public is increasingly worried about quality of life and damage to the environment, and they are looking for the culprits. In the 1980s, planners and architects were hauled into the dock to answer charges of destroying the quality of our towns and cities, and were found guilty by majority verdicts in most cases. Were the juries rigged? Or was the defence poorly presented?

Their reputation for insensitivity and vandalism may be unjust in many instances, but the fact is that once-respected professions are now regarded with suspicion and distrust.

For many people the concept of development has become inescapably linked with a price – ugliness, change of environment, reduced quality of life, destruction of flora and fauna etc.

Many people are now instinctively against *any* development and will oppose any project that might affect their area. Nor are such people a small minority of cranks: they are an increasingly well-organised, outspoken and powerful lobby who can stop major projects in their tracks.

The public needs to be convinced that there is such a thing as 'positive development in the environment', and that it is possible to undertake developments where the benefits far outweigh any loss to the environment.

Society frequently takes too narrow a view of the development which accompanies a project. But unless we help to create such a balance and demonstrate our green abilities in practical terms, engineers may come in for some painful scrutiny. Engineers must take up this challenge at all levels.

It is time to counter-attack, since I believe it is only a question of time before our profession is hauled into the dock and forced to answer some stiff questions about our conduct towards the environment.

The case against engineers could rest on several arguments:

Engineers design schemes which damage the environment because provisions for environmental protection cost money, and such provisions are not considered important enough to be included. Even if environmental provisions are included in the original scheme, they are the first to get the chop if the budget gets tight. Engineers often consider these provisions as an optional bolt-on extra, a trivial bit of dressing up, or an after thought. And finally it is argued that engineers damage the environment because they are ignorant of the techniques which exist to enhance and protect it.

We must face the fact that if engineers were tried on these charges, few would escape the chop themselves.

The engineers of the 1960s and 1970s could rightly plead mitigation to some extent. They worked in a society that wanted fast, cheap development and was not too worried how it looked or what effect it had on the quality of the environment. Engineering techniques for environmental protection were also less well understood and proven.

Engineers of the 1980s and 1990s have no such defence. So how will they answer the charges laid against them? The argument that the client has not allowed enough money to make provisions for the environment gets the engineer off the hook in some cases. There are certainly instances where an environmentally sympathetic solution will be inescapably more costly than the most basic functional solution.

This is the argument which questions how far you divert the new road to steer it round an ancient woodland or home for the Great Crested newt – and understandably says there must be a limit to how far one goes.

But the cash argument is not a total defence in all cases. It can be an excuse for bad or mediocre design, or the short term view. Environmental quality is certainly a long term option and both promoters and the public should be made aware of this.

With sufficient specialist knowledge applied early enough, beneficial environmental features can be incorporated as an integral part of the engineering. Grading and planting techniques can stabilise slopes and help to control drainage. Choice of grasses, trees and shrubs can not only enhance visual appeal, but lessen the long term cost of site maintenance. Positive environmental input can not only enhance the visual value of sites, but also their financial value.

**‘Engineers who can demonstrate their environmental sympathy will prosper and grow.’ Ivor Richards**

Environmental friendliness must never be regarded as an extra, either in terms of engineering function or financial cost. Indeed, apparent short term cost savings can lead to extra expenditure needed to repair the damage caused to the environment, and the promoter's image, by the original project.

Take the case of two pipelines crossing sensitive areas in North Wales. Shell's Holyhead pipeline was designed and installed underground with meticulous consideration for the environment. Not only does it cause Shell no problems, but brings it in a regular fund of goodwill as an oft-cited and televised example of positive development – goodwill which means any future Shell developments are likely to have a sympathetic hearing.

By contrast, a recently completed CEGB pipeline in the heart of Snowdonia was placed on the surface, ignoring the fierce criticism on environmental grounds. Despite the breathtaking work carried out by the board at nearby Dinorwic, the CEGB's cause in North Wales has probably received a severe setback because of the Cwm Dyli affair. It will require extraordinary efforts to repair the damage in people's minds.

The most notorious manifestation of the tendency to regard environmental friendliness as icing on the cake appears when budgets and programmes get tight.

Some engineers think nothing of deleting a planting scheme or landscaping feature part way through a project, and transferring the budget to a serious part of the operation. Apart from anything else, this is often in breach of contract, and could lead to claims.

Alternatively, one frequently gets phone calls on the lines of 'the planners want landscape proposals – can you do something by Thursday night at the latest?'

Both phenomena are part of a sloppy approach to environmental matters which unhappily characterises these islands.

Many engineers approach projects without sufficient knowledge of the techniques available to protect, and even enhance, the environments in which developments will take place. A few do not even know that such techniques exist.

Companies have sprung up to provide the profession with a range of specialist environmental skills: ecology, landscape design and management, forestry, environmental impact assessments, rehabilitation etc. However, the real answer lies in educating mainstream engineers to understand both the problems and the solutions which may be applied.

Ignorance is no defence in law, and neither should it be in engineering. We can no longer afford to view developments in isolation from their surroundings. Civil engineers should see their work in terms of conscious creation of our environment because of its scale.

The ultimate reason why engineering in Britain must become more environmentally friendly is very simple: if the environmental cost of development is perceived as too great, development will be curtailed and the engineering profession will be cut down to size.

The engineers who can demonstrate their environmental sympathy through a positive approach to developments will prosper and grow in reputation. In other words, they will achieve the social acceptability and status which British engineers have sought for so long.

Ivor Richards is managing director of *Richards Moorehead & Laing.*

New Civil Engineer - January 1990

In the paper Ivor had commented about how the British public were becoming increasingly worried about their quality of life and were looking for culprits amongst those who were accused of fostering uncaring developers and developments. ‘Plus ça change – plus c’est la même chose’. He was afraid that they might focus on engineers. In all honesty at that time engineers were involved in developments that clearly damaged the environment. There are several examples that spring to mind, one was a notorious pipeline laid through the Weald in the south east of England that looked like the Somme battlefield.

The punch line selected by the magazine’s editor was that ‘Engineers who can demonstrate their environmental sympathy will prosper and grow’. 26 years later I think I can state that for the most part engineers have taken-on the environmental message. Long before 1990 Ivor had made a plea for engineering training to include environmental elements and that engineers should see their work as ‘conscious creation of the environment’.

But have engineers prospered? I’m not so sure.

Ivor’s paper started me thinking about the kind of choices that we make today. My mind focussed on the battle that goes on between quality and price. This is not a new but a continuing battle, and only recently I have read somewhere that no one should be tempted to reduce prices to win work. I can hear you all laughing. Engineers are seen as ‘suckers’ for a low-level punch delivered by procurers who see little harm in insisting that good firms deliver their ‘lowest price’. Not much room for conscious creation there. Do you remember the cartoon that appeared on the front of NCE where

one chap was telling his colleague that they were the second lowest tenderer and had lost a bid? His colleague was saying "But we bid zero for the job".

Far too often one hears stories that bear out the message in the cartoon. Evidence of sloppy work and corners that have been cut still do the rounds in gossiping circuits, but one does not need gossips to confirm you in the view that the link between lowest price and unsatisfactory results is reasonably obvious.

Ivor's dear friend Karen Gadd, founder of Oxford Creativity, (www.triz.co.uk) has reminded me about the TRIZ concept of 'Ideality'. Karen tells me that 'Ideality is defined by the equation Benefits / costs + harms and is a much more powerful concept than VALUE.... and that by adding HARMS to the equation it covers environmental damage – and throws a light on shoddy cheap jobs. In addition TRIZ's '9 Boxes' show that accepting the lowest bid costs more in the long run.' I refer you to 'TRIZ for Engineers: Enabling Inventive Problem Solving' by Karen Gadd, ISBN 978-0-470-74188-7 published by John Wiley & Sons Ltd.

The industry is short of skilled people and overall UK productivity is appalling. Sensible procurement based on reputation would reduce tendering costs and provide resources for training which would then feed into an improvement in the skill base, productivity and quality.

Kind regards

**Idris**

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