

Out of Steam?

I suspect that one of the reasons for the appeal of steam locomotives to model engineers in Britain is that they were not permitted to die a natural death. Doctor Beeching took an accountant's view of the purpose of railways. No doubt the history of the railways set the scene for widespread closure on such a narrow minded evaluation. Nevertheless, the suddenness and brutality of the closures was probably unprecedented. E.F. Shumacher CBE, in his book "*Small is beautiful*" (1973), explains the National Folly of accounting practices which evaluate a company in isolation from the society in which it exists. *Every* private business depends on a healthy material and social infrastructure for its prosperity. In Ireland, many companies have closed down because they could not establish stable and reliable workforces. Reasons for that instability are arguably cultural. In other situations, the woeful absence of an effective rail and road network led to the same outcome.

Another factor which is known to be significant is the effect of National identity. It is easy for people to understand that local manufacture means local employment. "*Love Ireland Like Aldi*" is one well known advertising slogan. The supermarket is festooned with photographs of farmers and other small businesses whose goods find their way onto the supermarket shelves. I wonder how many people stop to consider that there will be equivalent slogans "*Loving*" every country in which the supermarket chain has an outlet. I have no doubt that Aldi is no different to any other supermarket chain. It's love for the countries in which its campaign is used is likely to reflect the profit the company takes out of those countries.

The essence of capitalism is that money has no national loyalty, and does not require a passport or visa to emigrate. In electronic form it is weightless, and is able to travel at a velocity close to that of the speed of light. Shareholders seldom have any national allegiance. Speculators cannot afford to have loyalty to any business, never mind a country. Demonstrably, Banks have loyalty to no-one but themselves.

Ostensibly, the role of any government is to represent its electorate. The *only* effective way in which the long term interests of an electorate can be represented is through the provision and maintenance of an infrastructure which nurtures the health of society in its widest context.

The overwhelming majority of people live in fixed locations. In the 1960s, extensive demolition of established housing in areas of Glasgow was recognised as being a significant factor causing a decline in the health of older people. The new housing was technically superior to many of the old tenements. Nevertheless, the strangeness of the new surroundings created a feeling of isolation in the minds of the elderly. Parents generally want their children to grow up in an environment in which friendships can become established. Margaret Thatcher's "*On your bike*" attitude dismissed the needs of society as irrelevant.

Under Communism, the individual was not permitted to own property. This approach suppressed the fundamental human desire to establish a space in which the individual's personality is expressed. The natural desire of parents to have something that they can pass on to their children was frustrated.

Within the Capitalist model, the individual is supposed to have the potential to achieve untold wealth and security. "*You can be whatever you want to be*" is a slogan which appears in numerous guises. Shakespeare paraphrased reality rather more accurately. "*There is a Divinity that shapes our ends, rough hew them as we may.*" Hamlet expressing the view that "*There is a diabolical influence that shapes...*" might not have had quite the same ring to it, but I would suggest that the word "*Divinity*" needs to be interpreted in its broadest terms. Potential is worthless without opportunity.

Capitalism has failed in exactly the same way as Communism. In each instance, control was progressively funnelled into the hands of a small, unaccountable, self interest group. The idea of "*Building for the future*" has no firm foundation in either context, because the parasitic nature of such groups of individuals knows no bounds.

The sick are treated as though they were the cause of their own frailty. People who worked, saved, and bought their own homes, have them stolen to line the pockets of "*Caring*" professionals. Unemployed people are blamed for the absence of employment. David Cameron's "*Strivers and Skivers*" slogan was scarcely out of his mouth before his government turned some 5000 "*Strivers*" serving in the British Armed Forces into "*Skivers*", overnight. Those who have had their life savings stolen by financial institutions have no effective redress. Instead, the Government insists that people must contribute to Private Pensions, handing their hard won earnings to financial services organisations. The current economic situation was caused by the financial services sector. There is no rational basis for trusting them to deliver a pension in two years time, never mind 30 years hence.

Private enterprise is, at its very best, no more capable of generating wealth than National enterprise. Corporations are generally designed to serve as gambling tokens, with the most successful of them achieving the status of "*Blue chips*". A National enterprise is not a gambling "*Chip*", and in contrast to private business, the dividend from its "*Profits*" accrues to the Nation.

One example which illustrates the manner in which British infrastructure was eroded reveals itself in a comparison between the erstwhile UK Government Research Establishments and the modern focus on University Research.

Britain had an established network of government research laboratories. Some of them were engaged in the development of civil applications, whilst others pursued military developments. Key factors which made them effective were:

1. There was a low staffing turnover. This meant that staff worked on projects for many years. They developed in depth knowledge of systems and effective working relationships with colleagues.
2. The staff all shared a strong commitment to the National Interest. Consequently project security was as good as might be expected. It is interesting to note that although salaries were low in comparison to the private sector, staff loyalty and morale was good.
3. Staff focused on the core activities of research and development.

4. Projects were defined and funded centrally.
5. The scale of projects could be very large indeed.
6. Manufacturers were obliged to satisfy the research establishments that their products were fit for purpose. The establishments possessed the expertise and facilities to carry out thorough testing in that respect.
7. Support facilities such as engineering, administration, buildings management, and stores were independent of individual projects but organised to serve the project objectives. Project management skills reflected the scale of projects undertaken.
8. Intellectual property belonged to the Crown, though an individual inventor could receive a royalty.
9. Private sector corporate style “*Bottom line*” accounting was not employed.

The characteristics of modern Universities contrast starkly with those of the erstwhile Government research laboratories.

1. The primary role of a university is *ostensibly* that of teaching.
2. Universities are usually comprised of a wide range of diverse subject specialisations.
3. An Academic Senate, focussed on league table ranking, dictates university policy.
4. Ranking is influenced by financial resources, number of students, and certificate production rates. All of these are maximised most cost effectively by serving the interests of the legal and financial services sectors. Consequently, the more expensive (*also intellectually demanding, and Nationally important*) activities such as scientific and engineering training are penalised. The rubrik is: “*Bums on seats*” and graduates out through the door. Quality is “*Assured*”, meaning that it depends on the credibility of the Institute rather than any objective measure.
5. Research projects tend to be limited in size and reflect the interests of individuals and small groups.
6. Research funding has to be “*Won*” through ongoing submissions which detract from research time and quality.
7. Projects which receive funding tend to be restricted in scope and duration. They often reflect popular scientific “*Fashion*”. One typical example is the popularity of renewable energy projects.
8. Inexperienced postgraduates form a significant proportion of research staff.
9. The objective of postgraduates is the furtherance of their careers. Advancement of knowledge is incidental to their needs and tends to be haphazard. Postgraduates’ commitment to projects is short term. Their commitment to their subject specialisation can be questionable. The Institute of Physics has for some years run a monthly feature entitled “*Once a Physicist*”. A page is devoted to an individual who *hasn’t* pursued a career in Physics after having been given a full education in the subject. The articles are a celebration of squandered resources. The value of students to a project can be very limited. Some are a liability and are “*Nursed*” through their PhDs. Permitting a student to fail in their PhD reflects badly on the supervisor and University. It is likely to reduce success probability in future grant submissions. Failing any student is an unpalatable option.
10. Individual university departments lack the necessary infrastructure for the manufacture of equipment of any significant magnitude. Bought in equipment is frequently deficient, and purchasers may not possess the necessary skills to evaluate new apparatus. Furthermore, universities are not well placed to manage and resolve disputes arising from equipment which fails to meet its specification.

It cannot be denied that there have been spectacular failures in large government funded development projects. On the other hand, universities have not performed in any outstanding manner. The poor performance of university departments in terms of worthwhile research output led to the introduction of the Research Assessment Exercise (RAE) in the UK. Rather than being an effective means of project management and control, it is simply a layer of administrative whitewash detracting from effective research effort.

The enviable effectiveness of the UK government research laboratories, and their world renown was probably the very reason Margaret Thatcher set out to destroy them. The ground had been prepared for her by her political predecessors, but the policy itself was introduced by the Thatcher administration. It was carried on relentlessly by subsequent administrations. On one view, Mrs Thatcher was possibly an enemy agent. It is arguable that she created more long term economic and social dislocation to the UK than Adolf Hitler. The research laboratories represented a rich source of intellectual property and knowhow of which private enterprise was jealous. “*Privatisation*” was the means whereby national assets were sold off for a fraction of their true worth. Thereafter inferior products and services were hired back to the Nation at inflated prices. The damage done to the UK economy and society at large is incalculable and increasing.

Private enterprises following a “*Bottom line*” ethos, cannot begin to take a long term view. Furthermore, the interests of private enterprise are served by rapid obsolescence. Consider the computer industry. Companies benefit by withdrawing support for older operating systems even although their latest operating systems may not provide any noticeable improvement in capability or performance when compared to those from about 15 years ago.

The objective of a good operating system in a computer is to serve as an unobtrusive, efficient, and compact infrastructure, on which user programmes can run reliably.

Microsoft Corporation probably adopts industry norm policies. Its Windows™ operating systems are widely used and serve as a useful illustration. It is arguable that the characteristics of the Windows 8™ operating system are far removed from the ideal.

Many programs which ran well on earlier versions of Windows will not function at all. Others fail during operation. Important facilities such as offline “Help” files for the operating system have been all but withdrawn. Instead Internet bandwidth and electrical energy are being consumed constantly in providing online help and regular software updates. Anyone who still believes that the Internet and electronic publishing conserve natural resources would be well advised to review their opinion.

Much of the improved capability of hardware has been squandered by irrelevant operating system gimmicks. One simple example is the windows “Busy” mouse pointer. The “Aero” pointer (Circles chasing their tails) first came into use some years ago. It requires about 200 times the memory resources of the traditional “Hourglass” icon. Furthermore the “Aero” pointer relies heavily on processor resources. Every time the pointer appears, progress is hampered. Menus which slide or fade are also processor intensive. Some, but not all of the gimmicks, can be disabled. Nevertheless, only a minority of users will understand the impact of inefficient software on commerce, the environment, or the achievement of their own goals.

Gimmicks may have their place in the entertainment market, but one way or another they cost money. Leaving aside the high level of inappropriate use of the Internet by employees, the time expended by businesses to learn, maintain, and optimise ever changing operating systems is prodigious. The real cost to the economy in energy and lost production must be quite staggering. Much of it translates into profit for software support organisations which may well be based offshore.

Government departments, not least local authorities and the education sector, (Which are mostly essentially government funded), are heavily committed to the use of personal computers. Had the UK government retained the capability to develop a personal computer operating system, very large sums of taxpayers money could have been saved. Furthermore, the operating system could have been made generally available. It is worth bearing in mind that the “Linux” operating system originated as the work of Linus Torvalds. The UNIX operating system also owes its genesis to one software developer. Creating an operating system suitable for National application was scarcely an unachievable goal.

Destroying National capability in the interests of private enterprise has been the Gospel of successive governments for at least 50 years. Whether Labour, Conservative, or Coalition, policies have displayed an inherent common agenda undermining National Interest. At least the Soviet Union had the decency to admit that there was only one Party!

The comprehensive downward spiral of achievement has been exacerbated by an education system in which the majority of teaching staff have limited experience outside of the education system. Pupils go through school, become students at college or university, and are finally recycled as teachers and lecturers. They have scarcely been obliged to apply much of what they have supposedly learned to the solution of real world problems. Consequently, they have limited comprehension of how little they really know, and are not well placed to teach others.

Many primitive tribes preserved their traditions and looked to the tribe elders for knowledge and guidance based on experience. In contrast, the UK has consistently adopted policies which attack tradition and the wisdom of experience. It has implemented an education system which propagates ignorance.

A well constructed education system would not permit anyone to teach until they had significant experience outwith the education sector, including some form of National service. (Which need not be of a military nature) Ideally a teacher should have brought up a family of their own before being permitted to influence the children of others.

Twenty years ago, “Student centred learning” was the fashionable theme. Teachers were to be “Facilitators”. Rather than disseminating knowledge, the onus was placed on pupils to acquire it. The intrinsic inefficiency is colossal. Education has now descended to the level of “Peer assisted learning” in which the blind truly lead the blind. No doubt they will all end up chasing their tails like human “Aero” pointers. The role of colleges and universities has evolved into that of lifelong warehousing, since only a small proportion of their graduate and postgraduate output can serve any practical purpose in society. Perhaps it is appropriate that there are fewer opportunities to serve any practical purpose in society.

No doubt some individuals became very comfortable on account of their loyalty to the causes of privatisation and National Interest erosion. They will be owners of significant digits in the computer of some bank.

Ireland is well ahead of the UK. A government inquiry into the qualification of Mathematics teachers in schools could not be completed. The schools refused to disclose the inadequacy of their staff. My favourite example is taken from a recent Leaving Certificate Mathematics paper. The Irish State Examinations Board do not know the distinction between a number and a ratio. To them, the square root of 81 is equal to 9%. Naturally, the certificates still go out through the door.

Meanwhile, the game of “Drain the coffers” continues unabated. Having successfully cleaned out most of their own Nationals, the banks, using the Irish Government as a front, apparently sought new hosts upon which to prey. The UK government was persuaded to subsidise the Dail to the tune of about £3.5Bn and the EU stumped up an additional €64Bn.

Many would consider it reasonable to ask what marvellous social benefits have accrued in this small country of about 3 million population. I am at something of a loss to enlighten the reader. This much I know. New taxes have been introduced along with Social Welfare cuts. Their effectiveness in targeting the most needy, would make any chancellor proud. As I understand the situation, Ireland is world class in its Hospital A&E Department closure programme. During a heat wave some years ago, the French government achieved excellent savings by allowing people in hospitals to die from dehydration. Politicians in this country are very astute. Why save lives when people can be left to die where they fall?

Savings will be unprecedented. In a drive to reduce the Country's dependence on fossil fuel, many ordinary folk have been prevented from cutting turf to heat their homes. They must now burn home heating oil instead. To use an Americanism... Go Figure!!

Sadly there have been redundancies too. About €3.5Bn was paid by way of compensation to an unfortunate group of about 800 Bankers who lost their jobs. About half of them were immediately re-employed. David Cameron must be very proud that British Taxpayers' money has assisted these determined "*Strivers*" in their quest to avoid penury.

The only other noticeable change in this country has been a nationwide programme of Gaelic Athletic Association (GAA) football pitch construction. Villages across the State have been equipped with new playgrounds. The equipment for the playgrounds might have been made locally, but it was instead purchased from the Far East. I suspect that Ireland is operating as a back door, through which the digits of European banks are being funnelled into other banks, perhaps located in exotic tax havens such as the Cayman Islands.

However, bank computer digits have no real substance. Some people may be interested to learn that the digits in the computers of banks could be rendered irrelevant by appropriate insight. I am not suggesting some form of cyber attack. Those who have seen the film "*A Beautiful Mind*" will already be familiar with the story of Mathematician and Nobel Prizewinner John Nash. His work leads part of the way to an equitable means of resource distribution...

EQUITABLE SOLUTION

Adam Smith he was smart and he knew in his heart
That ambitious young people went far
"*If we all did the same*" - Adam thought to himself
We might each fly as high as a star

Well the world read his work and it thought "*That looks good*"
We can grab just as much as we please
We'll give never a thought for those less than ourselves
If they starve, that's their fault - can't you see?

Now John Nash he was brighter than Adam by far
He declared "*All this grasping's not right*"
If we just work together and play our cards straight
We can each have ourselves a good night

But John needed equations - and needed them soon
For the deadlines they loomed ever near
"*I know I can crack it - I'm right on the brink
of a breakthrough that's massive and clear.*"

He struggled so hard from dusk until dawn
That he near drove himself round the twist
But soon his analysis proved beyond doubt
There were aspects that Adam had missed

So while some read his work they discarded the man
Till the Nobel Committee did see
That it's smarter to share what this Earth has to give
Than engage in a worldwide melee

It's a common occurrence that folk do not get
Their reward or the credit that's due
So it's nice when it turns out just once in a while
A determined old couple pull through

Though John's model is sound, there are folk still left out
We still plunder, still squander, still fight
And you can't claim "*it's their fault*" - no not anymore
You've been shown the maths to do right

There is some other factor that hasn't been grasped
Stopping nations behave as they should
Towards the others with whom they must share this small globe
Can they not see the trees for the wood?

It's a Natural Law - at least so it would seem
Should be taught in the primary schools
The rule it is Golden - it's inviolate
"The man with the Gold makes the rules!"

So the Nations that have are the ones who receive
And those Nations with naught - they must give
It has ever been so - and so ever shall be
For so long as ye nations shall live

It's the system of money that is flawed at its root
And it's never a zero sum game
With secular bias, it's powered on "e"
And the winners are always the same

'Til that flaw is addressed the world can't progress
Down a road to sustainable peace
We'll be mired in corruption and writeoffs and debt
Paying masters determined to fleece

So there's work still to do in transforming mankind
From the beast that lays waste all before
To the kind who creates, and includes, and can share
With the ones who can't give anymore

For it might still be done if the will it be found
And their egos and greed set aside
There will always be conflict - that's certain to say
It's a functional - to be minimised

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There is no great achievement in this world which does not owe its existence to engineers. Scientists may point the way, but they frequently do so after engineers have already arrived at the destination. Engineers achieved the construction of Nuclear Reactors which have proven to be far safer than anyone has any right to expect given the Physics, the human factor, and worst of all, greed. The Fukushima nuclear installation might have withstood the earthquake and tsunami had the geological risk assessment been heeded, and construction carried out accordingly. Too many engineers are not prepared to take and maintain control of businesses. A common characteristic of engineers is that they prefer to delegate the - admittedly mundane - aspects of sales, accountancy, and legal matters, to others. However, in doing so, control is almost invariably delegated by default.

- Accountancy is really quite easy. It is comparable in some ways to being a storeman. The principal distinction is that the inventory for an accountant is limited to one item - money.
- Selling is much easier than accountancy, since products ultimately sell themselves.
- Law is the easiest activity of all. Legal professionals generally proceed from the premise that they are right. On that basis, reality is clay for them to mould. The most talented sculptors may become Judges.

The specialisms of Law, Accountancy, and Sales, are not appropriate for filling the key positions in any engineering related endeavour, whether Private, Institutional, or National. The current economic climate has the same origins as the destruction of British Industry and the decimation of the British Railway Network all those years ago.

Making models of historic locomotives is one means of keeping the spirit of engineering alive, but there might be more to it than that. Model engineering is a metaphor for the certainty that engineers will never run out of steam. Just as engineers have enabled the worlds greatest technical achievements, they could, by taking control of the situation, solve the world's economic and social challenges. The present financial system is based on a fundamentally flawed principle which can be explained readily and understood by anyone of average ability. If the will of a sufficient number of people could be mobilised, it would be possible highlight the fundamental flaw in the monetary system, demonstrate the simple corrective action required, and in due course restore balance in the accounting. Proper balance has the capacity to promote wealth and comfort for the electorate of all nations without reliance on perpetuating war and National Paranoia. It could take some time, but there would be nothing to lose.

The Western democratic model was evidently compromised at least 50 years ago. The arguments necessary to implement corrective action in the monetary system might be suppressed. It may fall to some other entity to demonstrate the true meaning of democracy and Social Justice. The value in a nation exists in its natural resources, its climate, and its people. These elements ought to be permitted to blossom and bear fruit.

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