

LUNAR SOCIETY ANNUAL DINNER 2011

I am thrilled to be here at the Lunar Society dinner in Birmingham tonight.

That's because I have been captivated by the story of the Lunar Men ever since I read Jenny Uglow's really brilliant account eight years ago of what she subtitled "the friends who made the future" – those great men who met for dinner on the nights of the full moon here in the West Midlands during the second half of the eighteenth century to exchange gossip and ideas, and whose ideas and innovations did so much to shape our economy and society.\*

Two of the Lunar Men in particular, Josiah Wedgwood of Burslem and Matthew Boulton of Birmingham, have become my heroes. The one a great potter and maker of fine tableware, the other an engineering manufacturer, I would say they could lay claim to be among the greatest, if not *the* greatest, entrepreneurs our country has ever produced.

I'd like to talk tonight about what made them so special, and why I believe their story is still relevant to us today.

But first I would like to answer a question which may already be forming in your minds, which is this.

Why should we possibly care about anything that happened well over 200 years ago?

Can there possibly be any meaningful parallels between those remote times and the first decades of the 21<sup>st</sup> Century?

I believe there can, and are.

Of course, there are huge differences – in the workings of politics, society and the economy, and in Britain's relationships with the rest of the world.

But here are some of the things our society has in common with that of the Lunar Men.

First and most important, both periods were exposed to cascades of new knowledge, on a scale that would have been unimaginable only a generation or two earlier.

In the eighteenth century, this torrent of new ideas flowed from the enlightenment, which opened people's minds to wholly new thoughts about the origins of the world and of life itself, and which gradually replaced magic and alchemy with scientific knowledge and intellectual rigour.

If you've ever had the chance to visit the Enlightenment Gallery in the British Museum, you'll know what I mean. It displays mermaids and magic mirrors alongside early scientific instruments and fossils, and captures that precise moment in the latter part of the eighteenth century when the western world began to understand that it had not been made in exactly the way that had been spelt out in the Old Testament.

Today, of course, we are also gaining enormous new understandings about life sciences, about physics (did Einstein really get it wrong?) and pretty much everything else in the scientific and intellectual world.

The Lunar Men were as fascinated by gases, steam and electricity as we are today by carbon capture and storage, fusion and renewable energy. They and their friends were pioneers of the future chemical industry, just as they were of the great age of steam. Their modern day equivalents are transforming communications of all kinds, and building new industries in many different sectors.

The eighteenth century saw huge breakthroughs in transportation – the cost of sending goods by road from Leeds to London fell by more than 50 per cent between 1700 and 1790 – just as container shipping has transformed the economics of global shipping in the past 40 years.

We had our dotcom bubble and they had their canal mania – nearly all the Lunar Men had shares in canal companies. Just about everyone lost their shirts both then and now – but in the same way that the internet has subsequently revolutionised the distribution of goods and services today, so the canals did the same job 200 years ago.

There are parallels, too, in Britain's relationships with the rest of the world. Britain was then a more liberal and open economy with a greater trust in markets than our European neighbours, just as it is today. The more extreme forms of mercantilism that were common on the continent, such as state run factories and government monopolies, were absent in this country. The animal spirits of enterprise which fired Wedgwood and Boulton were much more constrained across the channel.

And of course we were all fascinated by – and a bit scared of – the Far East in general and China in particular. Two way trade with China developed rapidly during both periods, but China always seemed to call the shots.

You will remember the story of the McCartney Mission in 1793 to open up trade with China, when the Chinese showed absolutely no interest in the glittering array of manufactures brought around the world by the British, and when the Emperor's dismissive response to King George III commanded him to "tremblingly obey and show no negligence."

Not quite what the Brits had been hoping for.

Finally, it's worth making the point that although we are now facing troubling and uncertain economic times, so were the Lunar Men as they went about their business.

The 1750s saw poor harvests, an economic slump and war with France. Wedgwood ran into a personal business crisis when his first big export sale to North America, aboard the merchantman *Racehorse*, was captured by French privateers.

LUNAR SOCIETY ANNUAL DINNER 2011

At least that's not something we have to worry too much about just at the moment, at any rate.

Later years were just as rough. For example, the country was riven by riots in the 1760s.

And then there was climate change.

Day after day through the summer of 1783, the temperature in the West Midlands rose to unprecedented levels. The sky turned rusty red; leaves fell early from the trees; meat turned bad in a day.

The same effects were evident across Europe – and the reason?

A devastating volcanic eruption in Iceland, which continued through June and July sending thousands of tons of toxic ash high into the atmosphere.

Sounds familiar.

So what made the Lunar Men so special?

To start with there was their sense of optimism and the scale of their ambition – what Jennie Uglow describes as their deep-held vision of a better future.

Their ambitions were unbounded.

“I hate piddling, you know” wrote Wedgwood, and on another occasion he declared that he would “surprise the world with wonders.”

They were demanding business leaders. Boulton's associate, the great steam engine pioneer James Watt was a cautious Scot who liked to work one step at a time: but Boulton wanted working engines, and he wanted them now. He charged ahead with building engines that were far bigger than anything else and were designed for immediate use.

He urged Watt on with all guns blazing: “Let us make hay while the sun shines, and gather our barns full before the dark cloud of age lowers upon us and before any --- arise with serpents like Moses' that devour all the others.”

And on, and on.

They were fascinated by science, and endlessly curious – about everything.

We were, recalled another Lunar Man, “united by a common love of science, which we thought sufficient to bring together persons of all distinctions, Christians, Jews, Mohametans, and Heathens, Monarchists and Republicans.”

And this love of science was shared by the businessmen among them. Wedgwood gobbled up scientific books of all kinds and was interested in chemistry from boyhood. He was constantly experimenting with new glazes and designs. As a young man he began to keep

careful notes of his experiments, and over the next 35 years nearly five thousand trials were patiently recorded.

Boulton was a more impetuous character, but he too had a deeply inquiring mind and kept detailed notes of his observations. Uglow tells us that the headings in his notebooks range widely: “notes on precipitation; on the temperatures of different liquids; the freezing and boiling points of mercury; the expansion and contraction of different types of cords, flax and wire and their different behaviour when wet or dry; on people’s pulse rates at different ages; on sunbeams; on the movements of the planets; on how to make phosphorous and sealing wax and even ‘to write in a secret manner’ – a recipe for disappearing ink”.

All the Lunar Men were ready to challenge conventional wisdom and to think outside the box. And they believed that pretty much anything was possible.

Erasmus Darwin, a doctor of medicine and a Lunar Man, was fascinated by the way that words were formed and voiced. He built a head with leather lips and vibrating silk, powered by bellows which, he said, could pronounce the words mama, papa, map and pam. Boulton thought the whole thing was all a bit of a joke, but wasn’t prepared to let it pass by.

A contract was signed at one Lunar meeting in which he promised:

“to pay to Dr Darwin, of Lichfield, one thousand pounds upon his delivering to me (within two years from the date hereof) an Instrument called an organ that is capable of pronouncing the Lord’s Prayer, the Creed and Ten Commandments in the vulgar tongue, and his ceding to me, and me only, the property of the said invention with all the advantages thereto appertaining.”

Sadly the world had to wait for well over a hundred years for such a talking device to appear. But the anecdote tells you something about the Lunar Men’s frame of mind.

It’s no coincidence that a good number of them came from dissenting backgrounds; none of them, so far as I can recall, went to English universities which were then stultifying in pre-enlightenment thinking.

Joseph Priestley, another of their number, had no doubt about it. “I bless,” he once declared,” that I was born a dissenter, not manacled by the chains of so debasing a system as that of the Church of England, and that I was not educated at Oxford or Cambridge.”

And he stayed with that line even after the dreadful day in 1791 when an angry mob here in Birmingham burnt down his house, and destroyed his laboratory along with everything in it.

Living and working in Birmingham and the West Midlands, as opposed to London and the South East, also made a real and positive difference to their endeavours.

Then, as now, Brummies saw themselves as different, as special. They boasted of their independence and of their industry: it was a town of small independent enterprises,

working round the clock, making small items – buckles, buttons, cane heads, swords, so-called toys of every kind – and trading everything, everywhere, all the time.

Above all, the city was free from rules. It wasn't constrained by ancient craft guilds with strict apprenticeship regulations, and it had no royal charter to tie it down. It had supported Cromwell in the civil war, and had a strong non-conformist culture.

Contrast this with London. Young James Watt had all the makings of brilliant instrument maker when he arrived there from Scotland looking for work. But that trade was controlled by the Worshipful Company of Clock-makers, whose rules stated that they must not employ any none Londoners who were not already Freemen of the Company or apprenticed to one.

Such restrictive practices were everywhere, tying down innovation and progress.

Boulton and Wedgwood both had a strong sense of where they came from.

Boulton spent time trying to find trained workers in London, but decided after a while that it was a waste of effort.

From now on, he said, he would train up "plain Country Lads, all of which that betray any genius are taught to draw, from whom I derive many advantages that are not to be found in any manufacture that is or can be established in a Great and Debauched Capital."

Wedgwood was made of the same stuff.

By the 1770s, it was becoming clear that his products could match, and beat, anything in the world.

He wrote to a colleague: "And do you really think that we may make a complete conquest of France? Conquer France in Burslem? My blood moves quicker, I feel my strength increase for the contest. Assist me, my friends, and the victorie is our own. We will make them (now I must say Potts, and how vulgar it sounds), I won't though, I say we will fashion our Porcelain after their own hearts, and captivate them with the Elegance and simplicities of the Ancients."

Both men – and especially Boulton – were consummate risk takers. They both married well, and pumped their wives' dowries straight into their businesses. Boulton was time and again on the verge of ruin. He believed that the only point in making money was to invest in new products and enterprises and his steam engines, in particular, soaked up cash flow. Both men built state of the art factories that were the wonders of the industrialised world, and a magnet for tourists -- and for industrial espionage.

And from all this energy, dynamism and creative thinking came a stream of innovative products and processes that played a central role in the industrial revolution and in the development of a new British economy.

Burslem had been producing pots for centuries from the rich clay of Staffordshire, and shunting them round the potholed roads of the country with much breakage and chipping on the way. Wedgwood turned this cottage industry into a sophisticated manufacturing power house, designing products that were aimed at, and bought by, an increasingly wealthy middle class, as well as by aristocrats and crowned heads in Britain and abroad.

His own experiments made possible glazings and finishings of a quality that had never been imagined outside the porcelain industry of China. One example among many was the figures on his hugely successful Etruscan wares, which were painted with an antique-looking smooth finish rather than the familiar glossy enamel. The secret lay in his own formula for the pigment, which consisted in part of a chemical concoction including bronze powder, vitriol of iron, crude antimony and precise amounts of other chemicals.

He produced what were arguably the world's first branded consumer products. He named his factory Etruria, with the deliberate intention of giving a new identity to his wares and to his employees, whom he called his Etruscans, as they set about their learned quest to recapture ancient principles of grace and beauty.

And he was brilliant at marketing, with a London based showroom and sales arms reaching into continental Europe and North America.

The first thing was to get his cream ware on to the tables of the aristocracy. Then in 1765 came the big breakthrough: an order for a tea set for Queen Charlotte, liberally plastered with costly gold gilding.

His instructions to his brother were clear. "Pray put on the best suit of Clothes you ever had in your life," he wrote, "and take the first opportunity of going to court."

He was an innovator when it came to production – introducing prototype production lines 150 years before Henry Ford - and in distribution. The great thing about canals was that they offered a far smoother ride, and so much fewer breakages, than clumsy pack horses.

And by the standards of his time, he was an excellent employer. His factory was not without industrial tensions, and his approach was paternalistic. But employees who stayed with him could expect a home to live in, education for their children and – a new idea at the time - a rudimentary kind of health insurance plan for when troubled times came.

Boulton, too, had a passion for design and experimentation, and a keen interest in product development on the part of the competition, especially in continental Europe, where he had many contacts. Uglow reports a trip to France in 1765, made specifically to pinch ideas and to check out the popularity of Birmingham goods with which, he found to his pleasure, Paris was well stocked.

Like Wedgwood, he was born into his business – but he pushed his empire to grow far more widely from its original base of small engineered products. He secured a contract to mint

## LUNAR SOCIETY ANNUAL DINNER 2011

coins, first for the East India Company and then for the British Government; he installed hundreds of Boulton and Watt steam engines in factories, mills and mines, bringing with them enormous improvements in efficiency and productivity; he manufactured ormolu vases for Catherine the Great; the list goes on.

Not everything was successful. For example, his attempts to produce a mechanical process for manufacturing pictures for middle class homes got nowhere. But once his enthusiasm was aroused, he was very difficult to hold back.

Like Wedgwood, he was constantly on the look out for ways of improving productivity and output. Foreign visitors, on the occasions when they were actually allowed into his factories, were always amazed by the efficiencies that could be created by the division of labour, so that a single button might pass through at least ten different hands.

But again like Wedgwood, he was very wary of disclosing trade secrets to potential competitors from abroad.

That's just a brief and clumsy sketch of these two very great men. I hope that at least it helps to explain my enthusiasm for their life and work.

But what's their message for business people in the West Midlands today?

The first, it seems to me, is that whatever the circumstances, individuals *can* make a real difference provided they have enough drive and ambition.

We've been reminded of this once again in the obituaries of Apples' Steve Jobs over the past few weeks. What do you want, Jobs famously once asked the boss of PepsiCo whom he was seeking to recruit: what do you want - to "sell sugar water for the rest of your life or come with me and change the world?"

That's just the kind of thing Matthew Boulton might have said. The diarist James Boswell recalled a visit to his factory when the great engineer was at the peak of his powers. "I shall never forget Mr Bolton's expression to me," Boswell wrote. " 'I sell here, sir, what all the world desires to have – POWER!'"

I don't want to take the parallels between Jobs and my heroes too far – enough just to say that they were all perfectionists, with an intimate eye for, and knowledge of how, their businesses worked. But the point of mentioning him is simply as a reminder that entrepreneurial giants can still make a big mark in the very different world of today.

The West Midlands has assets today that the Lunar Men could never have dreamt of.

Great universities, all of them keen to work with business and share their ideas with the world.

I don't think most business people of today have fully woken up what this can mean in terms of innovation and new ideas. I'm certain that the Lunar Men, by contrast, would have been constantly crawling over the campuses.

## LUNAR SOCIETY ANNUAL DINNER 2011

The scope for developing innovative new products and services is even greater today than was the case in the second half of the eighteenth century. What's different about today is that great new ideas often come when very different disciplines work together – anthropologists sitting alongside mathematicians to build new types of software; biologists and computer scientists working on new medical solutions. That's what you find in universities, and the endlessly curious and deep scientific interests of the Lunar Men are precisely the attributes needed to create innovative new businesses today.

Then there's the region's vastly improved connectivity with the rest of Britain and the world. Poor Boulton was violently ill as he lurched across a storm tossed channel to Hoover up ideas from France. Today he – and his products – could venture anywhere in the world that they wished in order to open new markets, with no hassle or risk of upset stomachs.

Birmingham remains a place with its own sense of identity and exceptionalism. You can tell me whether it is as ruggedly independent and (relative to others) rule free as it was in the old days. Perhaps not. But at least the UK is still more open to the world than its European neighbours, and its independent currency must be seen as a blessing at this difficult time.

Although most business people don't see things this way, this is also a relatively good place to set up a company, at least in comparison with others. A ranking published by an arm of the World Bank last month ranked the UK at number seven in the world measured by the ease of doing business. Germany came in at 19, France at 29, and Italy at 87 – just behind Mongolia.

But in some respects, the region is poorer today than it was 250 years ago.

Business confidence is low, and the credit shock of the past few years has greatly reduced the appetite of entrepreneurs for risk.

Financial markets have evolved in a way that makes it harder for companies to build for the long term, as opposed to maximising profits for today. It must be doubtful whether Boulton and Watt would have produced a single steam engine if they had been subject to quarterly reporting and investors with ten-minute time horizons.

Large swathes of the manufacturing economy have died, and have not been replaced.

I spent a day in Burslem just last month.

The initial appearance was bleak.

Very few people out and about, although it was half term holiday, and even fewer shops of the kind that might invite you to come in.

The old covered market shuttered and closed. The millennium project, telling the story of the ceramics industry, had gone bust. The Royal Doulton factory in the middle of town with the roof fallen in, and a sign for the closing down sale still stuck on the front years after the event.

Most upsetting of all, the Wedgwood Institute, which must surely be one of the outstanding buildings in the region and one that so very much represents the identity of the place, is in a poor and declining state: you have to wear a hard hat to go up the stairs.

## LUNAR SOCIETY ANNUAL DINNER 2011

But the spirit of the place is far from dead. I met small scale entrepreneurs who were full of vim and hope and apparently making a go of their business against the odds. All they wanted, you felt, was a bit of help and encouraging advice to get things humming.

And what the town needs above all is good quality jobs, to create the wealth that will bring the high street back to life and pull in visitors and their money from elsewhere.

So what would Wedgwood and Boulton do if they were magically to reappear in Burslem today?

I think they'd have a real crack at reviving the Wedgwood Institute, not just because Josiah's name and statue stands above the front door, but also because of what it says about the place. You can't help feeling that a building of that quality in France or even the rich South East of England would never be allowed to go to waste. It doesn't have to be done all in one go, and it could have multiple uses. But surely it can't be allowed to fall down.

They'd also do something cheap and cheerful to show citizens and everyone else that a corner was being turned. A lick of paint here and there would do no harm, and it wouldn't cost much to bring youth activities to parts of the centre of town. Then they'd be harassing everyone in sight to do something to make the Royal Doulton factory less of an eye sore.

Above all, they would be looking for ways to introduce new skills into the town, and to raise its aspirations. Despite gloomy first impressions and very difficult economic circumstances, I came away feeling hopeful that a corner could and must be turned.

These Lunar Men were, as I've said, tough and practical visionaries, who believed that anything was possible given enough imagination and drive.

That's what we need a good dose of today.

I'll finish with a final quote from Josiah Wedgwood, which I very much like and which I think fits what may be needed now.

He said:

"Happy would it be for this island, were (the) three virtues (at) the foundation of British liberty – independent life – integrity in office and a passion for the common weal more strictly adhered to among us."

*This talk draws heavily on The Lunar Men, by Jenny Uglow, Faber and Faber 2002. Other sources: The Enlightened Economy, by Joel Mokyr, Yale 2009; Josiah Wedgwood, by Brian Dolan, Harper Collins, 2004; Matthew Boulton, by H.W. Dickinson, Cambridge 1937; Enlightenment, edited by Kim Sloan, The British Museum Press, 2003*

Sir Richard Lambert

9<sup>th</sup> November 2011