

# DRIVING FORCE

## LORD DRAYSON FREng

Lord Drayson has been a successful entrepreneur, three times a Minister of State and now has gone back to his original passion for motor racing. He talked to Michael Kenward on the importance of engineering in his business, political and racing life.



Paul Drayson (age eight) in the paddock at Brands Hatch © Michael Drayson

There aren't many people who would relish the sound of cars revving noisily at the bottom of the garden. For the young Paul Drayson however, the sounds from the nearby Brands Hatch motor racing circuit were an inspiration. He became hooked on cars and was determined to get a job as soon as possible in the motor industry.

Drayson's father encouraged his son's enthusiasm, taking him to Brands Hatch to watch the racing and view the cars being maintained in the pits. His grandfather, a welding foreman at Woolwich dockyards, shared his grandson's fascination about how things are made. This led him to study maths, physics and chemistry at A-level.

### WORKING DEGREE

He was sponsored to take his degree in production engineering at Aston University by British Leyland. When not at college, he worked for the motor company during an era of constant industrial disputes. Undergraduate apprentices were, says Drayson, regarded as: "non-combatants in the industrial disputes. We were expected to cross the picket lines and go into work. That was quite a shaping experience for me as an 18-year-old."

As an undergraduate apprentice engineer, Drayson worked in different parts of British Leyland (BL), including the Robotics Laboratory of BL Technology. "I did my final-year project on 'sniffing robots.'" Famous at the time, they made it onto BBC's *Tomorrow's World* programme, the robots 'sniffed out' leaks in vehicles. Helium was pumped into the car body after final assembly and then the robot was let loose. "The robots went round the outside of the car trying to detect traces of helium before going into a water-spray process for leak testing."

Drayson agrees that the whole idea now just seems ridiculous. "Build it right first time and then you don't have to test it for leaks!" But that wasn't how the car industry functioned at the time, which is one reason why UK car makers were in trouble, and partly why Drayson did not stay in the business. He did, however, benefit greatly from his work. "I learnt a lot about robotics. There was a lot of innovation going on in robotics and BL Technology was really very good."

That experience led Drayson to take a PhD that looked at the industrial use of robots. This was through a doctorate sponsored

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by a food company, Trebor, by way of a CASE award from the then Science and Engineering Research Council.

### CAREER CHOICE

Drayson worked on the application of robotics in the food industry. After three years, with the PhD completed, he was presented with two choices. He could join one of the country's leading consultancies as a consultant in robotics, with a company car and good salary. The other job involved starting a new business for Trebor, a much more precarious enterprise. He chose the more risky venture as Managing Director of Lambourn Food Company Ltd, a new Trebor-owned start-up.

One of the factors that nudged Drayson towards building a business was the control that the PhD gave him over his life. "As a PhD student, you are effectively self-employed, in the sense that you determine and manage your work. And in addition, at Aston University, I was able to take modules from the MBA course. I didn't do an MBA but I was able to go and sit in on MBA activities because I was interested in business."

When Trebor was taken over by Cadbury-Schweppes, Drayson led a management buyout of Lambourn Foods backed by 3i and became an entrepreneur in his own right. The move did not go down too well at home.

"My parents were worried. They had made a lot of sacrifices to support me in my education. They were very pleased that I had got the PhD, the first person in the family to go to university and all that. Although they were surprised when I chose this road they gave me their full support, both emotionally and financially."

After a promising start with the business, there came the recession of 1988 and 1989. The home market collapsed. Fortunately for Lambourn, exports kept the business alive, despite an unwelcome letter from the bank, withdrawing the company's overdraft facility.

Drayson draws on this experience for lessons about today's financial plight. "I graduated during a recession, I built my first company during a recession. I learned during that period that you have to believe that you are going to survive in order to succeed. In addition, you have to survive for a purpose. If you are an entrepreneur and you're building a company, it is not enough just to get through it. It has got to be because the business has something that you really believe is worth surviving for."

### ENTREPRENEURIAL INSTINCTS

The first business did just that, with Drayson acquiring a competitor and then selling the company in 1991. This was no

internet business of the sort that would have set its founders up for life when they sold it. "I did okay. Enough to know that I really had a strong sense of what I was; an entrepreneur. What I loved doing was building companies. So I was looking at the next opportunity. I wanted it to be a technology business."

Drayson was working with 3i at the time, looking for management buy-out opportunities; then he met an Oxford professor, Brian Bellhouse, and his daughter Elspeth, another scientist-turned-businessperson and together they started a new company, PowderJect, to exploit her father's discovery, a technology for painless vaccinations and drug delivery. In effect, the device 'air blasted' particles into skin. "I invested in that," says Drayson, "and worked with them to build that company." He also married Elspeth.

PowderJect took Drayson away from food and cars. He had to learn the medical device and pharmaceutical industries from scratch. The seven years building Lambourn had taught Drayson about marketing, venture capital, how to develop a brand and to market products. PowderJect moved on from making and selling medical devices into developing and supplying vaccines.

The Draysons sold PowderJect in 2003. Their share

of more than £500 million from the sale could have funded a comfortable retirement, but on the way to making the money Drayson had become involved in political issues. In particular, two years as chairman of the UK's BioIndustry Association had brought him into contact with the animal rights activists who were making it hard for biotech and pharmaceutical companies to carry out their research.

At the time Drayson warned: "If the activists succeed, animal testing will move abroad where welfare standards are known to be lower." He urged the industry to make the case to the public but he also took the argument to government. "I found myself leading a campaign to try and get action on this," he explained. "That's what got me interested in politics. I was pleasantly surprised that you could make a difference."

### POLITICAL INITIATIVES

The government also took notice and enlisted Drayson, making him Baron Drayson of Kensington in the Royal Borough of Kensington and Chelsea in 2004. A year later, he became Parliamentary Under-Secretary of State, and Minister for Defence Procurement. In 2008, the government made Drayson Minister of State for Science and Innovation, with a

seat in the Cabinet, a first for a science minister. This meant that Drayson chaired a new Cabinet sub-committee on Science and Innovation with the remit: "To consider issues relating to science and innovation and to challenge departments on progress and outputs".

On arriving in Whitehall, Drayson found "a lack of a coherent policymaking body within government." The first challenge was to get departments working together and to think coherently about the broader impact of their policies on science and technology. "One innovation that I did manage to bring into government was sector leadership councils," Drayson explains. The idea is one that has survived the change of government and is, according to the current Innovation Minister, the Rt Hon David Willetts MP, "being applied right across the Department for Business Innovation and Skills".

The idea was to identify areas "that the UK is surprisingly good at", as he puts it, and then to ensure that every department knew what it would take to support that sector or, perhaps more important, how its decisions might make life harder for the sector. Bringing together politicians and civil servants, along with people from academia and business, sector councils draw up a roadmap of the technological changes that industry and researchers are expecting for their sector over the next five to ten years.

Drayson cites the space industry as an area where he managed to join up different bits of government, through the Space Leadership Council. The council brought together



Lord Drayson FREng pictured in racing overalls after his first Le Mans 24 Hours race in 2009

the Treasury, the Ministry of Defence, the Department for Business, Innovation and Skills, and any department whose policies affected the space industry. "You have got to have clarity between industry and governments as to what actions need to be taken. It is about making sure that education policies, Treasury policies and business policies, are realigned

to create an environment that gives a competitive advantage to the UK."

Drayson also set out to tackle another reason for the sometimes muddled treatment of science across Whitehall: the nature of the career ladder in the civil service. "One problem with the civil service career structure is that to get to the top you have to become effectively a generalist."

Private industry long ago recognised that "you need to provide dual career structures so that someone who wants to remain a top-flight scientist doesn't have to become a general manager to get promoted". Because this isn't the pattern in Whitehall, the system fails to acknowledge the status of scientists and engineers. "These people need to be recognised as

a professional group that gives value for their skills." Drayson was a strong backer of moves to set up Government Science & Engineering (GSE), a "club" for scientists and engineers in the civil service.

## CHANGE OF GEAR

One club that Drayson had to leave on entering Whitehall was that of the active business world: the rules don't allow it. One way in which he carved out time off from politics was to revive his earlier passion and to take motor racing seriously. He had "done the odd karting and track days" but nothing serious. "Like most men, I fancy myself as a reasonably quick driver. So I thought, well, let's find out." He also had the money that would allow him to indulge in his passion. Indeed, he was so keen to do some serious racing that in November 2007, he took a leave of absence from the government to compete in the American Le Mans Series.

Drayson says: "I had started off right at the bottom," racing historic single-seaters and sports cars before moving into modern single-seaters in 2005. "I found that I could do it and I really enjoyed it." However, despite coming second in the British championship in a racing sports car, Drayson was barred from international racing, the natural next step in his racing pursuits. "I found that the rules for motor racing imposed a glass ceiling to people like me who are blind in one eye." There were no such problems in the UK. "So I started the process of trying to get the rules changed. It took me a few years but I eventually succeeded."

Even when he started racing, Drayson admits to being "a bit old to be doing this, aged 43". His wife has said that she "thought this was obviously a midlife crisis of some description". However, Elspeth got involved so that she, and their five children, could see as much of him as they could.

The Draysons' next move on the business front was to form Drayson Racing Technology (DRT) in 2007. Elspeth ran the business while her husband concentrated on his job as Innovation Minister. On leaving government, he could devote all of his time to DRT, when he wasn't racing. "DRT is focused on exploiting new technologies that come out of motorsport engineering to improve the efficiency and reduce the carbon emissions of high-performance race cars.

"We initially pioneered the use of second-generation bio-ethanol fuels, then flex-fuel systems. Now we're working on electric drives, collaborating with racing car engineering company Lola and a number of other companies."

## FORMULA E

At the beginning of 2012, DRT unveiled their electric racing car, the Lola-Drayson B12/69EV, a vehicle that can maintain 200 miles an hour for 20 minutes. Next year there will be the first of a series of Formula E races, a brand-new championship for zero emission, high-performance electric vehicles. Unlike noisy and smelly Formula 1 cars, Formula E will be suitable for city centre racing, says Drayson. He sees this as a way of both raising the profile of electric cars and for pushing innovation.

Will the engineering really trickle down to the mainstream motor industry? It has already happened with the internal combustion engine, where technologies such as turbodiesels, developed by Audi for Le Mans, became standard equipment. "There are many examples of where technologies which have gone on to have big applications on

road cars were first pioneered in racing. I believe that is going to happen with the electric car and with alternative fuels."

Drayson also believes that the motor industry is ripe for change. "The car industry has become much less predictable as a business to be in." Until about five years ago executives could predict with some confidence their product strategies over the next five to ten years. "They knew what people would want and where things were going." Market shares are now changing more quickly. "They are being driven by the rate at which companies are making technology bets."

DRT, which describes itself as "the leading cleantech motorsport research and development business", is well placed, Drayson believes, to benefit from this gear-change in the industry. "No one knows what the future balance of the drivetrain is going to be, what proportion of cars in 2020 are going to be hybrid, electric, internal combustion engine, or hydrogen fuel cell."

## MARKET CHANGER

Drayson draws parallels with the pharmaceutical industry a couple of decades ago, when biotech came along to upset the



Lord Drayson at the launch of the Lola-Drayson B12/69EV held at the Motorsport Industry Association Low-Carbon Racing Conference in January 2012

apple cart. "I think of Drayson Racing Technologies as being like a biotech company to the pharmaceutical industry. Drayson Racing is an R&D company to the mainstream industry."

The business works with companies such as Multimatic, Cosworth and Lola to develop different technologies for electric racing cars. DRT also works with academic groups to tackle particular topics. For example, Aston University is researching biofuel technology with us, while at Warwick Manufacturing

Group "they are doing some really cool work on recyclable carbon composites for the car".

Talking about fast cars certainly inspires Lord Drayson, but so does the general subject of engineering. The profession needs to get its message across, he insists. "Engineering is not just a vital profession for the future of the country, but it is a wonderful thing to spend your life doing. The more the engineers talk about that, and get people to understand that, the more young people will want to do engineering."

Fast cars are, of course, still bait that can recruit future generations of engineers. This time though, in the electric era, it may not be the sound of fast cars that does the attracting.

## BIOGRAPHY

Michael Kenward OBE has been a freelance writer since 1990 and is a member of the Ingenia Editorial board. He is Editor-at-Large of *Science|Business*.



The Lola-Drayson B12/69EV pictured at the Drayson's Kidlington HQ. It is the fastest fully electric racing car. It has a 640kW electric drive, recyclable body panels and wireless charging. When it takes to the track, with a top speed of 200mph it will be one of the most advanced zero-emission competition cars on the circuit

## CAREER TIMELINE AND DISTINCTIONS

Born, **1960**. BSc in Production Engineering at Aston University sponsored by BL cars at Longbridge, **1982**. PhD in Robotics at Aston University, **1985**. Managing Director of Lambourn Food Company, **1986-91**. Co-founded PowderJect Pharmaceuticals plc. Chairman and Chief Executive until **2003, 1993**. Science Entrepreneur-in-Residence at the Said Business School, Oxford University, **2003-05**. Raised to the peerage as Baron Drayson of Kensington in the Royal Borough of Kensington and Chelsea, **2004**. Parliamentary Under-Secretary of State and Minister for Defence Procurement, **2005**. Minister of State for Defence Equipment and Support, **2007**. Won first GT race using second generation biofuel and came second in British GT Drivers Championship, **2007**. Minister of State for Science and Innovation, **2008**. Member of Her Majesty's Privy Council, **2008**. Won Road America Le Mans race, came 3rd in American and Intercontinental Le Mans Team Championships, **2010**. Elected Fellow of The Royal Academy of Engineering, **2011**. The Lola Drayson B12 all-electric car is launched, **2012**.