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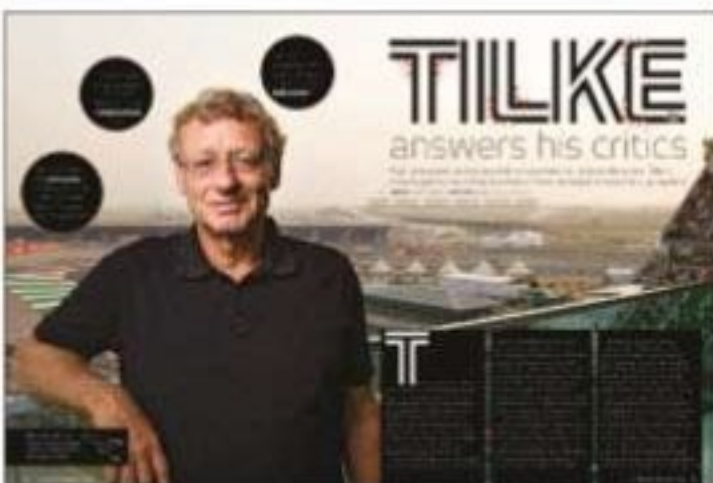
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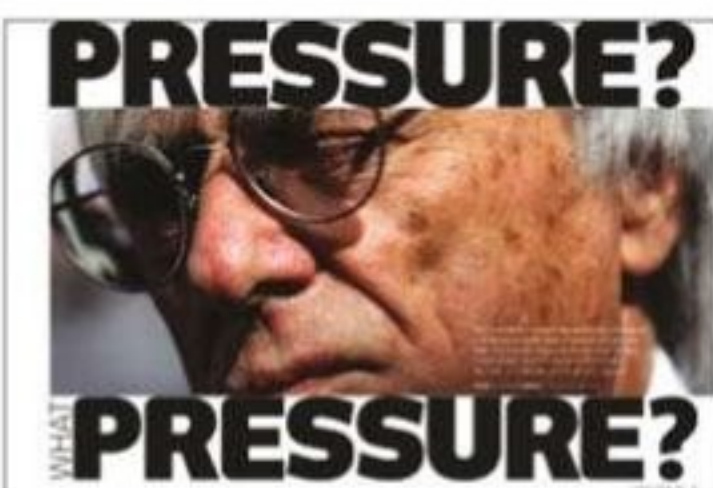
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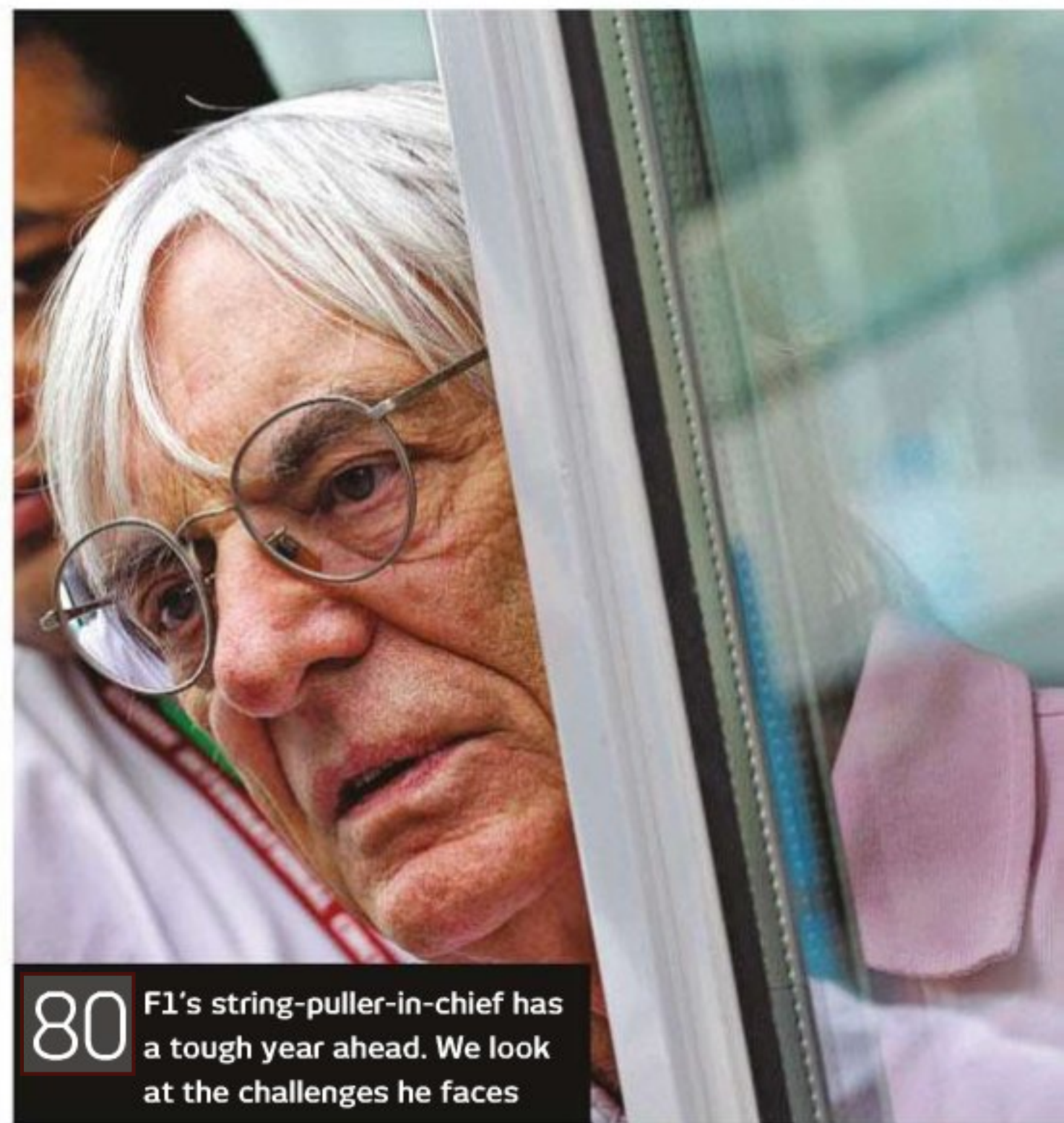
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Parade

Maximum attack Felipe Massa lost none of his enthusiasm during the 2011 F1 season, but was unable to conquer his illustrious team-mate Fernando Alonso. Having failed to score a single podium last year, the Brazilian must get back to winning ways as soon as possible in 2012

Where Montreal, Canada **When** 3.25pm, Friday 10 June

Photographer Charles Coates/LAT

Details Canon EOS-1D Mk IV, 600mm lens 1/2500th at F4







 Parade

Joy at last Lewis Hamilton endured a tough season last year as his races were rocked by dramas both off and on the track. Yet there were occasions when his brilliance shone through, including that win in China and, after a pass around the outside of Fernando Alonso, a superb victory in Germany
Where Nürburgring, Germany **When** 3.44pm, Sunday 24 July
Photographer Glenn Dunbar/LAT
Details Canon EOS-1D Mk IV, 200mm lens 1/250th at F6.3

Parade

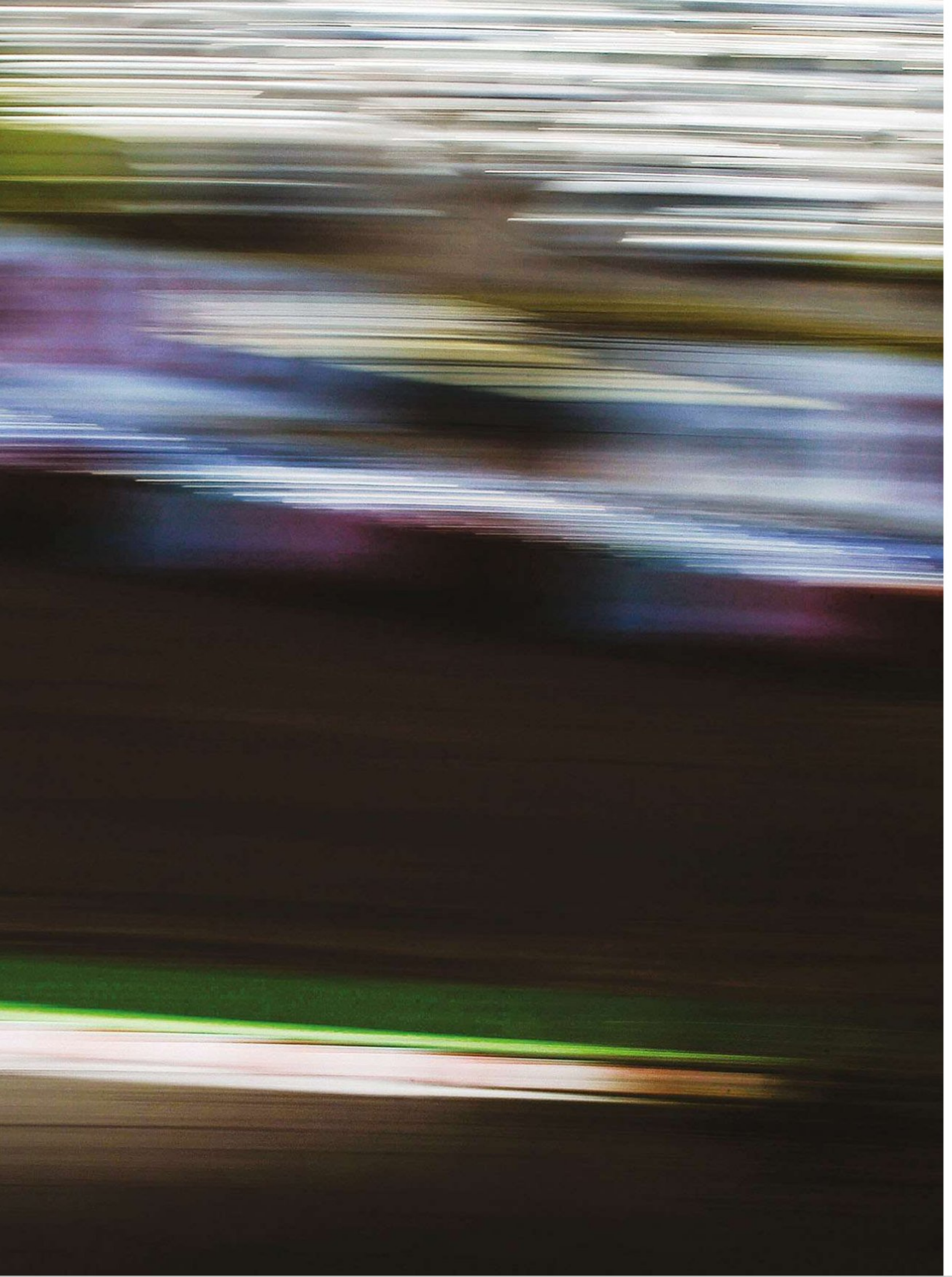
Back on track Michael Schumacher's Mercedes comeback hasn't quite gone according to plan, but that's not bothering the seven-time world champion. He still loves racing in Formula 1 and perhaps in 2012 we'll finally see him return to the top step of the podium to claim win number 92

Where Suzuka, Japan **When** 2.31pm, Friday 7 October

Photographer Steven Tee/LAT

Details Canon EOS-1D Mk IV, 70mm lens 1/13th at F32







HAYMARKET CONSUMER MEDIA, TEDDINGTON STUDIOS,
BROOM ROAD, TEDDINGTON, MIDDLESEX TW11 9BE, UK

The team

Editor Hans Seeberg

Managing Editor Stewart Williams

Features Editor James Roberts

News Editor Jonathan Reynolds

Chief Sub-Editor Vanessa Longworth

Art Editor Frank Foster

Senior Designer Lynsey Row

Principal Photographer Lorenzo Bellanca

Production Controller Helen Spinney

Editorial Tel +44 (0)20 8267 5806

Editorial Fax +44 (0)20 8267 5022

Out in the field

Editors At Large Alan Henry, Tom Clarkson

Agency Photographers LAT Photographic, Getty Images

Publishing

Publishing Director Peter Higham

Publisher Rob Aherne

Publishing Manager Samantha Jempson

Commercial Director Ian Burrows

Advertising Director Matthew Witham

F1 Racing Custom Emma Shortt

Sales Manager Luciano Candilio

Senior Sales Executive Ben Fullick

Senior Agency Sales Katie Gamble

Office Manager Laura Coppin

Subscriptions Marketing Executive Karen McCarthy

International Circulation Manager Roshini Sethi

Licensing Director David Ryan

Licensing Manager Alastair Lewis

Advertising Tel +44 (0)20 8267 5179/5916

Subscriptions enquiries

Email F1racing@servicehelpline.co.uk

Fax 01795 414 555

Customer Hotline 0844 848 8826

Missed an issue? Then call the back issues hotline 08456 777 818

Editorial director Mark Payton

Design director Paul Harpin

Strategy and planning director Bob McDowell

Managing director David Prasher

Chairman and managing director Kevin Costello

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F1 Racing Subscriptions

PO Box 326, Sittingbourne, Kent ME9 8FA, Tel: 0844 848 8826.

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STOP AND GO / Hans Seeberg / 02.2012

Out of the winter gloom comes something a little bit special...



Winter is generally rubbish for several reasons, notably the freezing weather, increased erraticness of the national rail network and the general emptiness of most wallets post-Christmas. But, even more depressingly, it is a time when Formula 1 goes into complete hibernation. Drivers seem to disappear off the face of the earth and, with the exception of the mutterings about who'll fill the last few race seats at the back of the grid, there's not exactly a torrent of gossip to keep us going until that moment at the end of January finally arrives... the moment when we discover what the new cars look like.

This year, for the first time ever in *F1 Racing*, we're proud to be able to show you *exactly* what the new cars will look like, with the world's first pictures of the brand new Caterham CT01. As with all the 2012 F1 cars, it's a project that began about nine months ago; Caterham had their first discussions about the CT01 around the time that Sebastian Vettel was winning last year's Turkish Grand Prix – his third win from the first four races of 2011. Such is the relentlessness of this sport, teams can never stand still – and that meant working on the new car in tandem with producing updates to maximise the 2011 car. As the team told us, by early December 2011 they'd already signed off the front wing updates they'll be taking to Melbourne this year – two months ahead of initial testing.

So enjoy both the issue and the usual intrigue, sandbagging and mind games of the February testing schedule, as the first race of the 2012 season in Australia on 18 March draws ever closer. And don't forget to keep an eye out for our comprehensive season preview issue, on sale on 24 February.



Maurice meets Wattie on page 86 and settles down to a series of gruesome lunchtime anecdotes about broken limbs



Page 76: Features editor Jimmy recreates James Hunt's champagne-slurping win of 1976. McLaren promptly ban Jimmy from their trophy cupboard



Editor Hans is bemused by Sébastien Buemi's artistic skills. To win Buemi's er... minimalist self-portrait, turn to page 106



Jimmy meets circuit architects Hermann Tilke and Peter Wahl – and hears why building tracks like Spa just isn't possible these days (page 62)



Special thanks to Tom Webb, Christian Clogger, Anna Goodrum, Lesley Kellner, Steve Cooper for letting us near the McLaren trophies, Claire Williams, Alexandra Schieren, Matt Bishop, Silvia Hoffer Frangipane, Clare Robertson, Wolfgang Schattling, Nicola Armstrong, Sabine Kehm, Katie Tweedle, Britta Roeske, Luca Colajanni, Roberta Vallorosi, Stefania Bocchi, Bradley Lord, Clarisse Hoffmann, Will Hings, Eric Silberman, Fabiana Valenti, Hanspeter Brack, Heike Hientzsch, Maria Serrat, Tracy Novak, Chris Hughes, Isabelle Kaufmann, David Doolittle of the Austin American Statesman for helping us out and getting his behind royally kicked at shuffleboard, Ali Putnam, Ross Gregory and Dan Knight. SuperQuiz series administrator Matt James No thanks to Weasels



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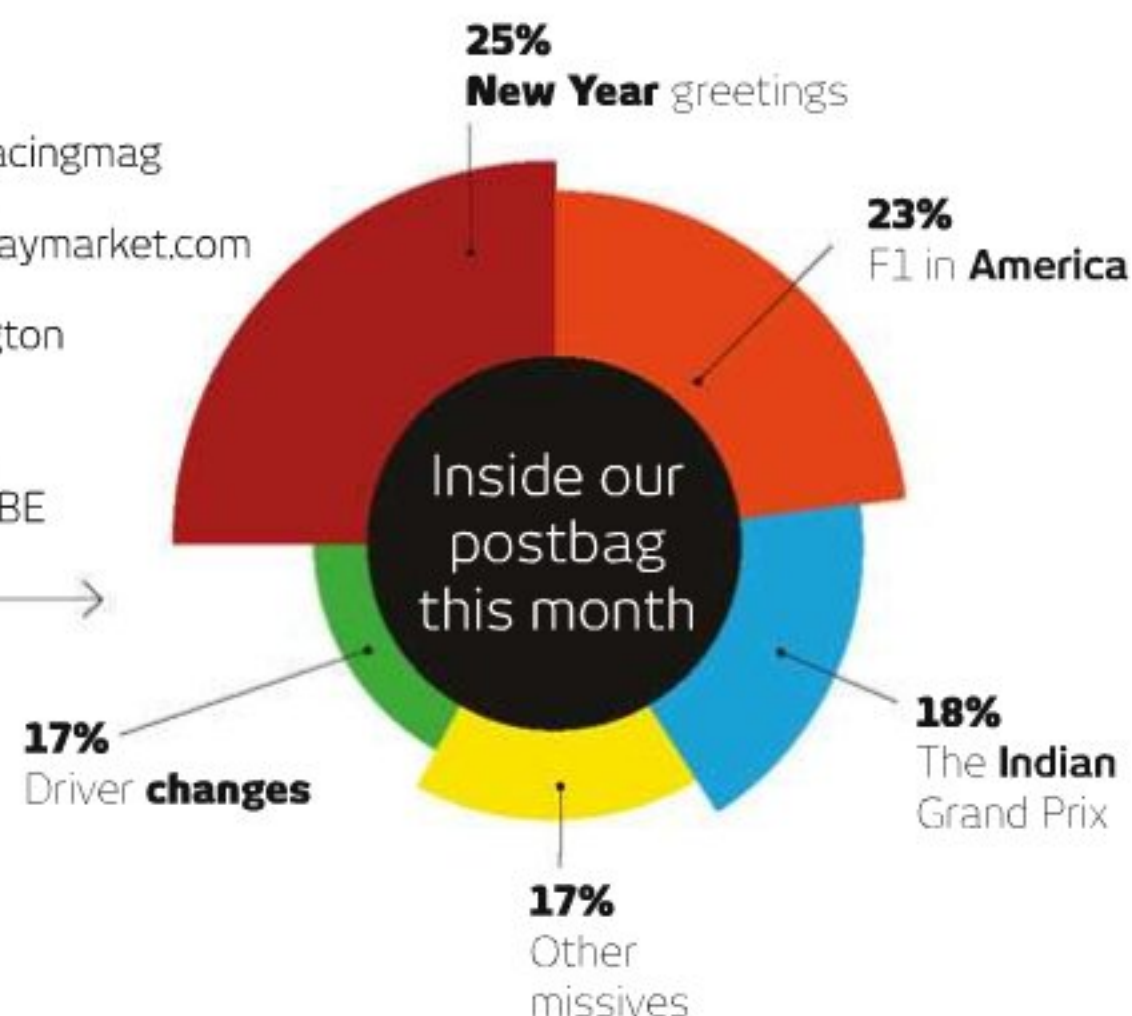
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STAR LETTER



Webber being told to stay behind Vettel at Silverstone: not popular with the fans

Keep the politics off the track

This new season is set to be an absolute cracker, but every year politics get in the way – whether they're team politics or FIA politics, but probably the worst thing of all is team orders. People will argue that team orders have always been part of Formula 1, but that doesn't mean they are acceptable. In 2011 the ban on team orders was lifted, and so teams were able to swap drivers around without letting them duke it out. The most obvious example was at the British GP when Mark Webber was told to "maintain the gap" to Vettel. Why did they do it? Mark was clearly faster and it wouldn't have dented Sebastian's title chances. Okay, I understand that the driver needs to put the team first, but that just turns the excitement of watching team-mates fight each other into an absolute borefest. In conclusion, I think that team orders should be banned again and that all politics should take place away from the track.

Lewis Duncan
Renfrewshire, UK



STAR PRIZE

Lewis Duncan wins a pair of three-day admission tickets to the 2012 British Grand Prix at Silverstone. For more details visit www.silverstone.co.uk Hotline number: 0844 3728 300

Teething troubles in Noida

As an avid F1 fan I feel compelled to write to you about my experience at the Indian GP. The media portrayed the event as a huge success, but there are a few areas that do need addressing

Transport from New Delhi to Noida was excellent: there was an air-conditioned coach and it was well organised. But the transport inside the circuit: oh dear. It was a free-for-all. It was so uncoordinated that my friend and I decided to walk most of the way around the circuit to get to our grandstand. The marshals had no control.

Once inside, we had to buy vouchers for food and water, but when we tried to return to our seats we were stopped by guards telling us that food and drink were not allowed inside the stadium! I think in 40°C heat, drinking water is completely reasonable. After the race there was a frightening stampede to spend the vouchers. I got bruised ribs just from trying to buy a drink.

Sorry if this sounds like a massive moan, but I feel that with some adjustment, India could be magnificent. Learn lessons from Brazil: that's amazing.

Alison Bailey
Via email

Give the States a chance

As an American fan of F1, I want to say there is a place for F1 here. SPEED has been broadcasting the sport here for a while, plus FOX showed at least four races last year. NASCAR has reigned supreme in the US, but if F1 invests time and

puts on promo shows here, it will draw more interest. Two years ago, right before NASCAR's play-off, they ran their cars through the streets of Times Square. If the rest of the world gave F1 a chance in the US, it would get enormous support.

Donnie Nesci
via email

Fancy a change, Adrian?

I've an idea for Adrian Newey's next challenge now Patrick Head has hung up his ear protectors. Doesn't 'Williams Newey Racing' sound good? It would be great to see Williams back on top and Adrian would be the man to put them there: what a team they'd make!

Martin Harris
Kent, UK

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F1 FOCUS

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TECH ANALYSIS

HOW F1 CARS WILL EVOLVE IN 2012

This year's cars might not look radically different from last year's, but by the time testing gets under way they will have developed substantially. Here are the key areas that the teams have been focusing on over the winter...

Tyres

At the last four races of 2011, the teams tested a variety of new compounds and constructions for Pirelli during Friday practice. The result is a new – slightly softer – hard-compound tyre for 2012 and a squarer front profile. The compound change will affect wear rates and the way tyres deform when loaded up, while the squarer shape will have aerodynamic consequences, especially at high speed.

Ferrari noted the importance of the changes and recruited former Bridgestone boss Hirohide Hamashima to head their department dealing with the interaction between car and tyres.

Noses

The front end will look quite different to last year, due to a new safety regulation limiting the height of the nose to 550mm (down from 650mm). This will help dissipate energy in the event of one car hitting another head-on, and it presents the teams with several new challenges.

"The height of the front wing and the nose sets up the airflow over the whole car," says Jonathan Neale, managing director of McLaren Racing. "It also affects how much weight you have in the nose because it has to pass quite stringent crash tests and the straighter the nose the easier it is to make an efficient structure."

Ride-height control

It emerged in January that Lotus had tried an intriguing new ride-height control system at last year's young driver test in Abu Dhabi. It was subsequently approved by the FIA and, as a result, is sure to be mimicked by other teams. The system Lotus have adopted is believed to use brake torque to control the suspension and keep ride height stable under braking. A constant ride height allows better optimisation of aerodynamics and thus more downforce and stability under braking.

If Lotus can optimise the system, it's sure to provide a performance benefit. The only question is whether Lotus's rivals have enough time to come up with a similar system before the first race.

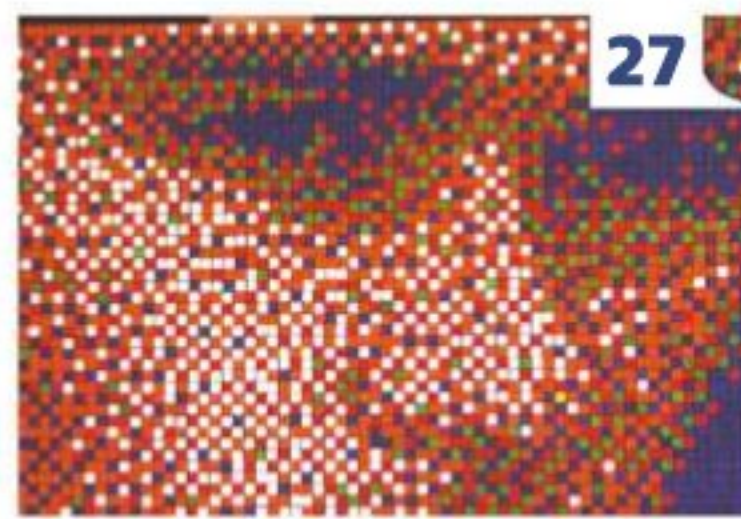




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VETTEL'S POST-SEASON WORLD TOUR

He may be world champion, but that doesn't mean he gets extra days off. We reveal Sebastian Vettel's whirlwind end-of-year schedule



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PUZZLING FORMULA 1 ARTWORK REVEALED

The rest of the world may consider Rubik's Cubes to be just toys – but one motorsport-mad artist has other ideas...

Fuel tank size

The switch to more conventional engine maps for 2012 will result in greater fuel-efficiency than was seen with last year's high-tech wizardry, so the teams can be more aggressive with fuel-tank sizes. Expect smaller fuel tanks in 2012, which will improve internal packaging and reduce weight and drag.

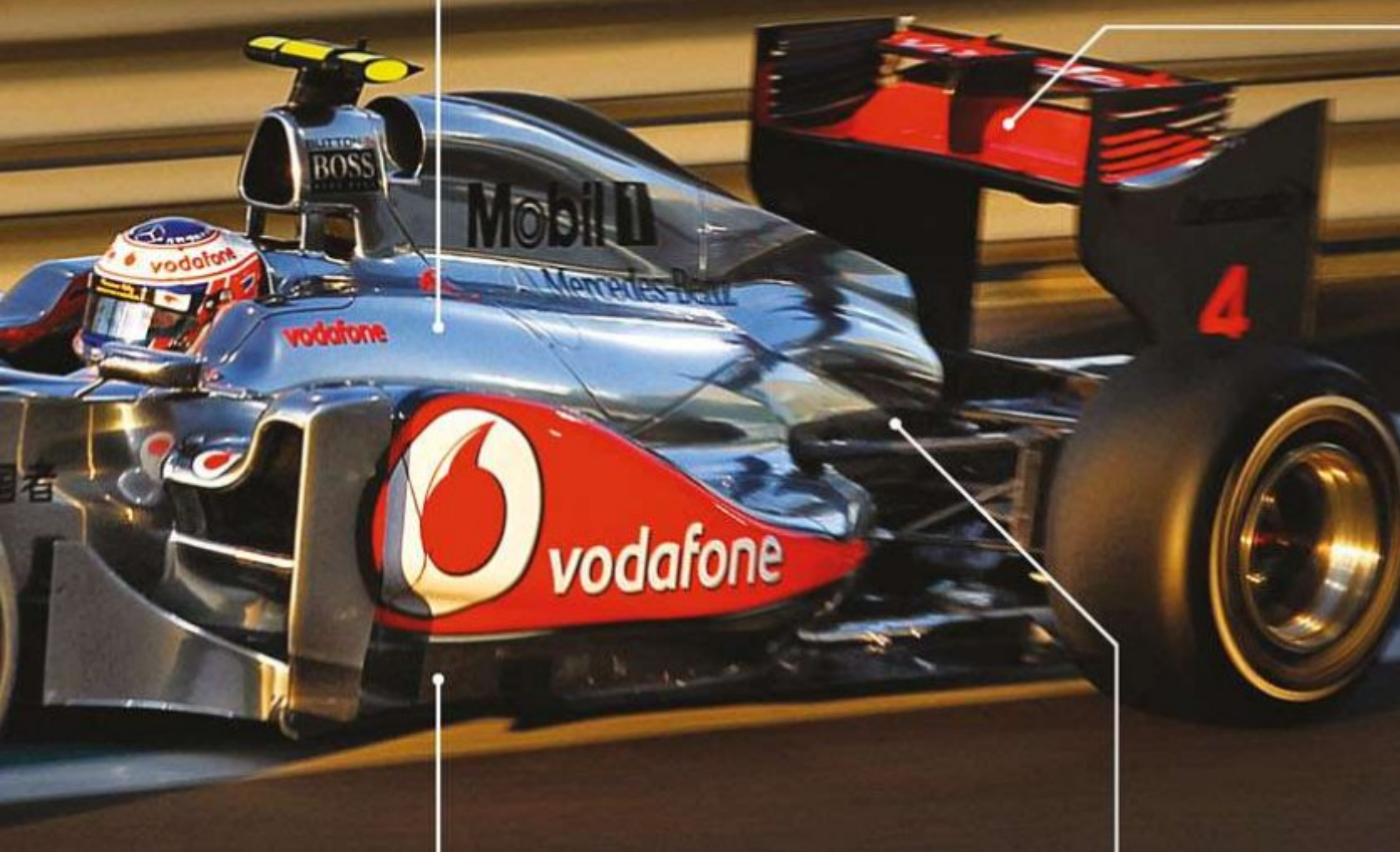
"The product performance of the top four or five cars is separated by just 0.15 per cent," says Jonathan Neale. "As a result, you really are looking to shave off 50g of weight here and a little bit of a margin there. Small savings will all add up to make a big difference."

DRS

At the start of 2011, some teams didn't see the dramatic improvements in end-of-straight speed that they expected from DRS. Mercedes usually saw the biggest hike through the speed trap, while the likes of Red Bull and McLaren loitered near the bottom end of the pile.

The effectiveness of DRS depended on the overall efficiency of the rear wing and it required a concerted effort by the teams to maximise the system. You can expect the teams to have dedicated a lot of thinking to this area over the winter.

"Our DRS was less effective in early 2011 because we were chasing more downforce, not less," says Jonathan Neale. "Only once we'd got ourselves in the right area of downforce could we switch resources to DRS and we saw a step change in our learning. Knowing what we know now, we can do a better job in 2012 – but that's true all over the car."



KERS

Mercedes shaved three kilos off the weight of their KERS system between 2009 (when it was first used by McLaren) and 2011, and they also made it more reliable (each battery pack completed more than 6,200 miles during 2011). They plan to make it even lighter for 2012 and further reduce the size of the battery, so expect other teams to do the same.

"KERS is a very interesting technology," says Mercedes' engineering director Andy Cowell. "On average, it gave an advantage of 0.45secs per lap last season and we're working hard to refine the system."

Exhausts and engine mapping

After the mid-season kerfuffle surrounding blown exhausts in 2011, there are new regulations limiting the engine modes that the teams can use during 2012, while also restricting the exit geometry of car exhausts. These rules define the position and dimensions of the last 10cm of the exhaust pipe: it must have an internal diameter of 75mm and it must exit through a particular section of the engine cover. This means that rather than exiting low down and blowing the diffuser, the new exhausts must exit the bodywork upwards in a 'periscope' manner. This will reduce their operating temperatures by 200°C from last year.

"The teams have more ideas than their resources allow them to pursue," says Jonathan Neale. "You choose where to allocate your resources and in 2012 we'll have to focus on more conventional downforce areas."

STATS



Schumacher: 2011's overtaking king

The German maestro averaged six passes per race during his 18th season in Formula 1

He may be the oldest driver on the grid, but seven-time champion Michael Schumacher ended 2011 with more overtakes than any other driver. Figures compiled by Mercedes show that the German made 116 overtaking manoeuvres last season – two more than Toro Rosso's Sébastien Buemi and 17 more than Sauber's Kamui Kobayashi.

Critics may suggest this statistic owes as much to Schumacher's poor performances in qualifying as it does to his skills behind the wheel – and the fact that Michael also topped the first lap overtaking charts lends support to this argument. But it also shows that his race pace was considerably stronger than his Saturday pace and he showed little fear on cold tyres at the beginning of grands prix.

At the other end of the scale, world champion Sebastian Vettel – who led from

pole in many of the races – made just 27 passes all season, which is the fewest of any driver who started all 19 races.

The 2011 figures are up massively compared to the 2010 figure of 547 passes counted by the enthusiasts at cliptheapex.com. Much of this can be attributed to DRS, which has, for the most part, stopped drivers spending long periods of time stuck behind obviously slower cars. No doubt the FIA will have spent the off-season examining the length and number of DRS zones that will be used at each

track for 2012, after drivers and fans alike complained that passing was too easy at some circuits – most notably Istanbul where a season-high of 85 overtakes were recorded – and too hard at others, such as Melbourne, where there were only 17.



Schuey: Can still manage the odd overtake...

» For more mind-boggling overtaking stats turn to p68...

Overtakes per driver in 2011

	Michael Schumacher	116
	Sébastien Buemi	114
	Kamui Kobayashi	99
	Jaime Alguersuari	94
	Pastor Maldonado	91
	Paul Di Resta	90
	Sergio Pérez	87
	Rubens Barrichello	86
	Jenson Button	85
	Felipe Massa	82
	Adrian Sutil	82
	Mark Webber	79
	Lewis Hamilton	75
	Nico Rosberg	67
	Vitaly Petrov	65
	Nick Heidfeld	62
	Heikki Kovalainen	60
	Fernando Alonso	54
	Jarno Trulli	54
	Timo Glock	42
	Bruno Senna	38
	Vitantonio Liuzzi	34
	Jérôme D'Ambrosio	29
	Sebastian Vettel	27
	Daniel Ricciardo	23
	Narain Karthikeyan	11
	Pedro de la Rosa	06

/ Pitstops to proceed at a more leisurely pace / A chat with Ben Edwards



TECH

Why pitstops will be slower in 2012

Sub-three-second tyre stops were the norm in 2011, but that's set to change this year due to a ban on helium. Confused? Read on...

Pitstops are about to get slower in 2012 thanks to the banning of a product more commonly used to inflate party balloons – helium.

In recent years, teams have used the gas to power tyre guns because its low density spins the gun faster, which speeds up stops. But with world supplies of the non-renewable gas diminishing and no one team gaining a performance advantage over another, teams have elected to revert to compressed air rather than flying helium around the globe for the equivalent of a 30 per cent increase in speed.

Mercedes broke records with this pitstop in Korea



“The use of helium did have a dramatic effect on the speed of the guns due to the flow rate at which helium operates,” Graham Watson, Caterham team manager told *F1 Racing*. “But it came at a price, with the guns needing more robust internal parts because of the increased performance level at which their mechanical elements have to operate.”

So what does that equate to in pitstop terms? “I suspect you will see average times drop to around three seconds with everyone

using compressed air,” reckons Watson.

It seems as if Mercedes’ blink-and-you’d-miss-it 2011 record pitstop of 2.43 seconds in Korea could stand for some time yet...

FIVE MINUTES ON THE PHONE WITH... **BEN EDWARDS**

THE BBC'S NEW LEAD COMMENTATOR



Hi Ben, when was the last time you commented on F1?

The last Formula 1 commentary I did live was at the end of 2009 for a project called ‘Formula 1 in Cinemas’. I’ve also done the F1 season review DVD for a few years now, but to be involved more regularly will be great.

A lot of our readers will remember you from Eurosport’s F1 coverage and Bernie’s F1 digital channel...

Yes, F1 digital was in 2002. That was interesting because we commented from FOM HQ in Biggin Hill. At first they asked me to be on their pundits’ panel, but when I got there Bernie was orchestrating things and said: “I want you in the commentary box!”

Our readers might not know that you were once a racer yourself...

I was the inaugural Formula First champion back in 1987. After that, I raced in Formula Vauxhall Lotus in Britain and in Europe. It was a terrific experience for me to race at places like Spa and

Hockenheim. Then, in 1992, I won the Caterham championship – but I was already getting into commentary by then.

Are you looking forward to working with DC?

Yes – he’s got so much experience and current knowledge and a lot of enthusiasm, too. I really enjoyed his commentary last year.

For the GPs that the BBC are not showing live, will you still go to the track and commentate live?

Yeah, I’ll commentate all the races live so it won’t make any difference to me. The race will then be edited down so there’ll be about an hour’s worth of racing. So if I mess up, you’ll get to hear it!

What are you most looking forward to about this year?

The calendar is very different to when I last covered F1: Singapore is the big one I’m looking forward to – that will be a real treat.

What will you bring to the job?

Enthusiasm for motorsport – that’s what I’m all about.



Singapore is the GP Edwards is most excited about commentating on

PITPASS Test your knowledge / Rising stars / Pitstop frenzy

F1 Mastermind

Your chosen specialised subject: the world's greatest sport



- 1 Name the only Swede to win a world championship GP in the '50s
- 2 Who scored his only point of the year at the 2011 Belgian GP?
- 3 After Michael Schumacher, which German has raced the most miles in Formula 1?
- 4 Jean Alesi scored his first F1 podium at which race?
- 5 Which Portuguese F1 venue featured corners called Windmill Bend and Clover Leaf Hairpin?
- 6 Farina won the first F1 grand prix in 1950. Who won the second?
- 7 How many races did James Hunt win in 1977, the year after his title triumph? One, three or four?
- 8 Of all the Italians who have driven for Ferrari, who has raced in the most GPs for them?
- 9 Senna and Prost appeared on an F1 podium together for the last time at the 1993 Australian GP. Who completed the podium?
- 10 Who am I? I made my race debut at the 1974 South African GP. I scored one race win and I was known as the Monza Gorilla.



THIS BOY CAN DRIVE

Keeping an eye out for the Hamiltons of tomorrow



Max Verstappen Who is he?

If the name seems familiar it's because 14-year-old Max Verstappen is the son of former Benetton, Tyrrell and Arrows driver Jos Verstappen.

How good is he?

Max is very young but has shown a lot of promise in junior karting, winning back-to-back KF3 WSK Euro Series titles in 2010 and 2011 and narrowly missing out on the FIA world crown. Next year, he'll continue his racing education in karts.

Anything else we need to know about him?

Racing is in his blood. Not only was his father an F1 racer, but his mother, Sophie Kumpen, was a successful karter in her youth.

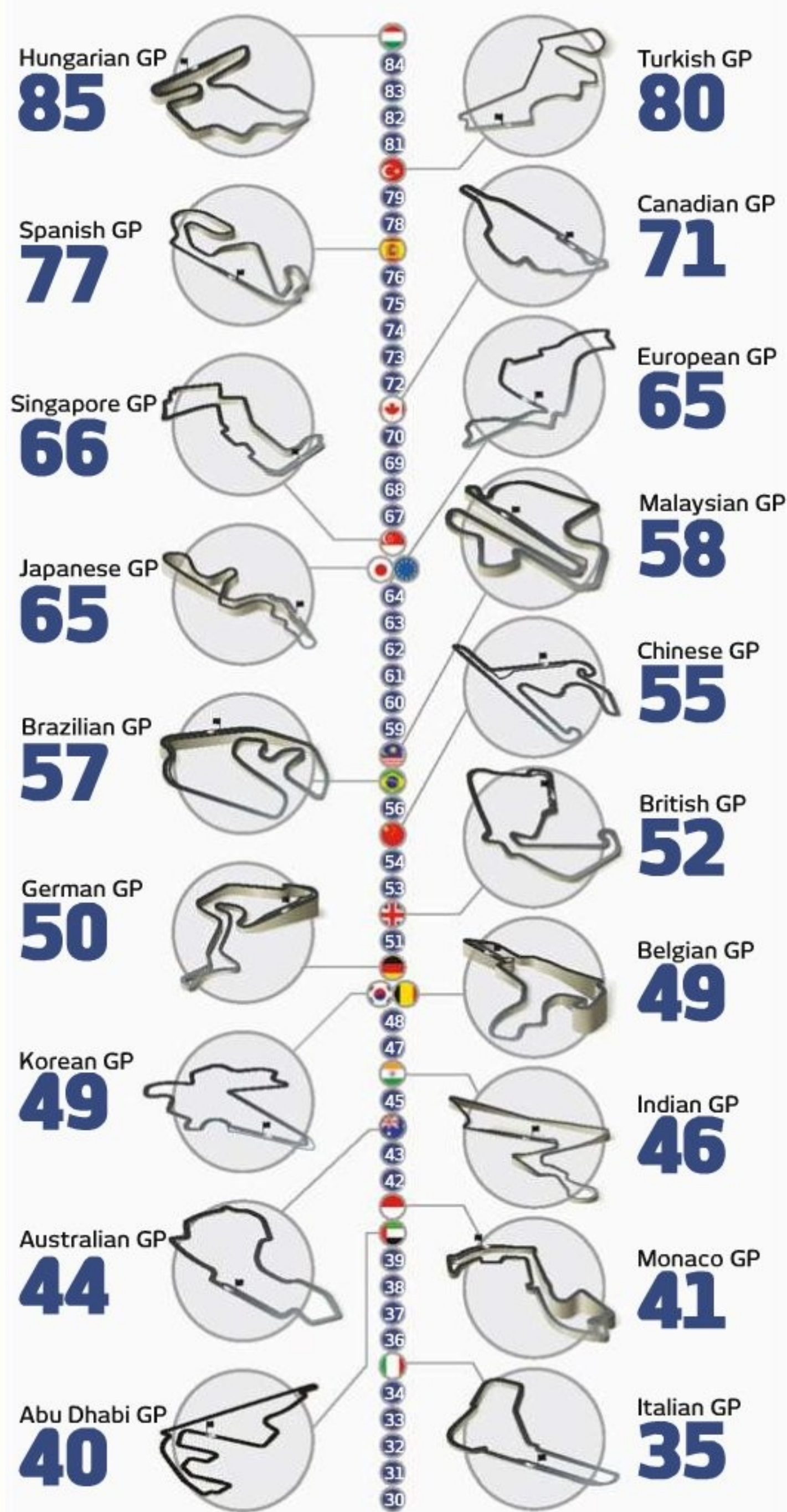
F1 chances

At the moment, he hasn't progressed beyond karting and obviously has a long way to go before he reaches Formula 1. But motorsport is famous for sons following in the footsteps of their fathers - as the likes of Damon Hill and Jacques Villeneuve have proved.

STATS

Hungary is top of the stops in 2011

The 70-lap Hungarian GP had 85 pitstops - that's an average of 1.2 stops per lap. Here's how the other tracks compare...



Answers: 1 Jo Bonnier 2 Pastor Maldonado 3 Nick Heidfeld 4 1990 US GP 5 Monsanto 6 Juan Manuel Fangio 7 Three 8 Michele Alboreto 9 Damon Hill 10 Vittorio Brambilla

ILLUSTRATIONS: ALAN ELDRIDGE PHOTOS: SUTTON IMAGES; LAT ARCHIVE

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STATS

14 days, 15,000 miles, 3 continents: Vettel's rather busy winter 'break'

Since coming second in Brazil, Seb's hardly stopped. Here's what he's been up to...



PHOTOS: ANDREW FERRARO/LAT; DREW GIBSON/LAT; MARK THOMPSON/GETTY IMAGES; DENNIS GROMBKOWSKI/BONGARTS/GETTY IMAGES; RAKASH SINGH/GETTY IMAGES; DPPI/RENAULT SPORT F1

NEWS



F1 Racing iPad app out now – and it's FREE!

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Search for *F1 Racing Parades* on iTunes and download it today!

NEWS

Luckless Kubica splits with doctor

The Pole's woes continue as he parts ways with Dr Ceccarelli – then re-breaks his leg

As **Kimi Räikkönen** builds up to his Formula 1 return, Robert Kubica, his predecessor at Lotus, is sinking increasingly into the background. Not only did he recently re-open the fracture in his right leg following a fall in icy conditions outside his home, but before that he split with his long-term doctor and physio. Dr Riccardo Ceccarelli had overseen the Pole's rehabilitation since his accident at the Ronde di Andorra rally last February, but now the pair have split due to "differences of opinion" over how best to continue his recuperation.

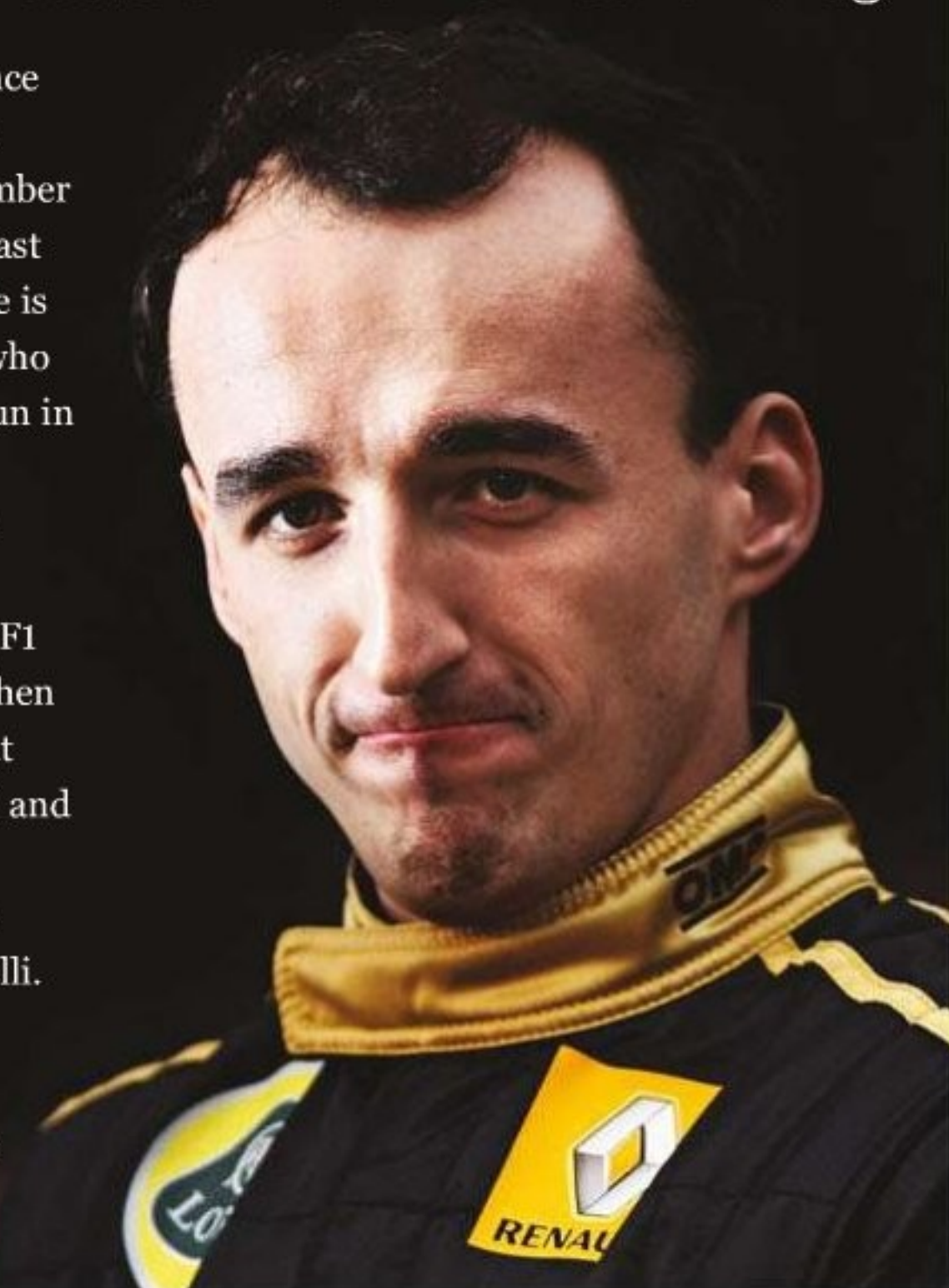
Kubica's leg is expected to make a full recovery, but his partially severed right hand continues to cause him problems – particularly the thumb. Updates on his condition are hard to come by (his manager was unavailable for comment as we went to press) and Robert has

been spotted in public only once since the crash. Lotus-Renault planned a press conference with him in November last year, but they cancelled at the last moment for unspecified reasons. He is now out of contract with the team who had previously offered him a trial run in an old car when he was ready.

As a second successive F1 season looks set to pass him by, have we seen the end of Kubica's promising F1 career or could he return in 2013 when seats potentially become available at Ferrari (Massa), Red Bull (Webber) and Mercedes (Schumacher)?

"I have no doubt that Kubica will be an F1 driver again," says Ceccarelli. "Nature must take its course, but Robert's time will come."

Kubica's legions of fans will hope that's the case, but at this point it seems that it's still a long way off.



TOYS

Kobayashi gets his own action figure!

Can you tell which one is the *real* Sauber driver?

If ever a Formula 1 driver deserved to have an action figure made in his image it's Sauber's all-action racer Kamui Kobayashi.

The Japanese driver has become a firm favourite with fans around the world due to his attacking driving style, but nowhere is he more revered than in his

hometown. Now, thanks to the Good Smile Company, one of Japan's leading producers of limited-edition animé figurines, fans can buy their very own detailed plastic Kobayashi model.

On their website, Good Smile boast that: "The figure features such realistic sculpting that even

Kamui himself said it looked so much like him that it was a little scary!"

The 1/8th scale limited-edition figure, which stands at 21cm tall, retails for 9,800 yen (about £80) but is unfortunately available only in Japan at the moment. So if you spot one on eBay, make sure you snap it up quickly...



ART

What do you get when you cross 2,000 Rubik's cubes and F1?

Incredible art that makes your eyes go funny if you stand too close



We hope CIX didn't cheat by raiding mum's cutlery drawer and prising the squares off with a butter knife

For most of us completing one Rubik's Cube is hard enough, so imagine tackling hundreds of them at a time and then painstakingly arranging them to create some of the most unique F1 art around. That's what artist CIX has been doing for the past five years as part of his RubikCubism project. His works include portraits of Lewis Hamilton, Jenson Button, Fernando Alonso and Michael Schumacher, but perhaps his most ambitious undertaking was an image of a Ferrari F1 car that was constructed using a staggering 2,100 cubes.

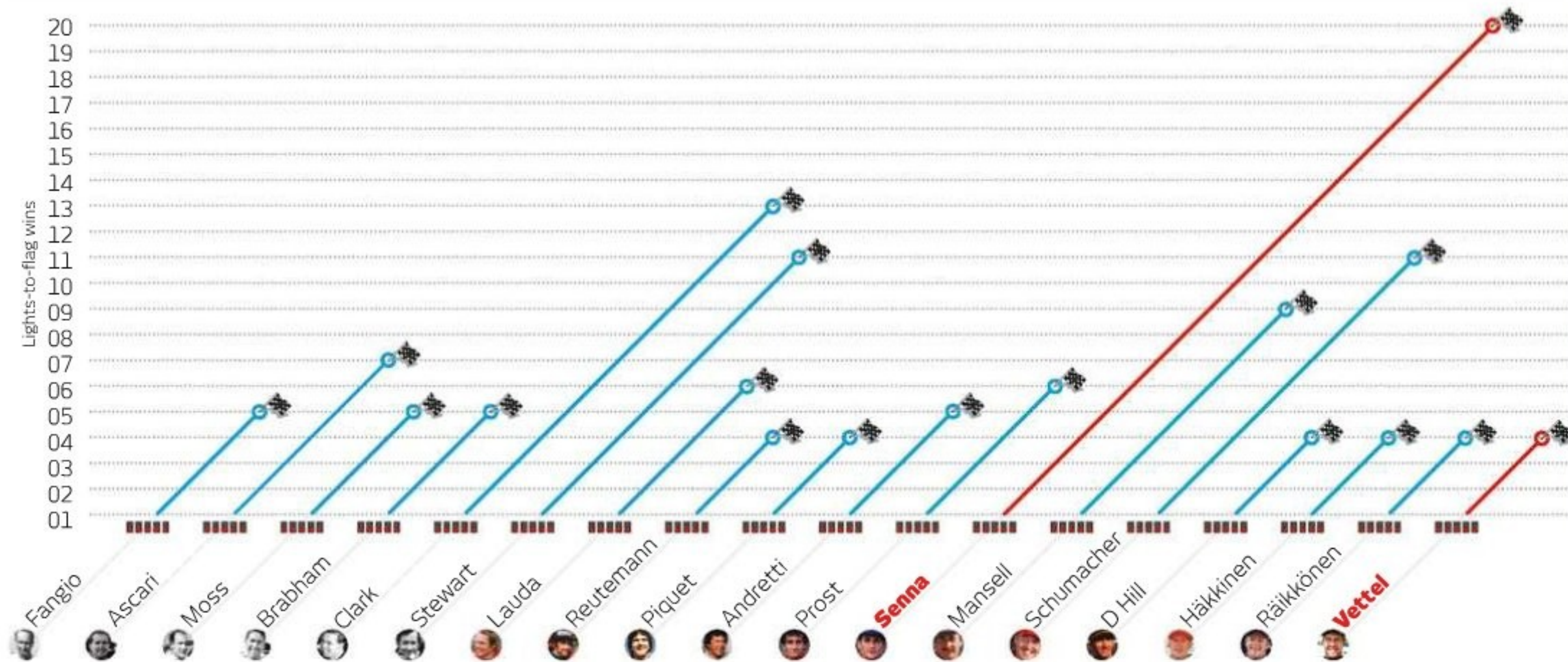
"Essentially, what I'm doing is taking the billions of colours of the real world and converting them into the six colours of a gaming cube," the intriguingly named artist told *F1 Racing*. "It takes weeks of planning to do each one; I've got to do the design, work out the size, and then get a Perspex frame made to measure. It takes about 14 hours to construct a standard 400-cube portrait."

Still, all that effort has been worth the artist's while – the Schumacher piece, which was signed by the German legend, sold for over £16,000...

STATS

Wins from lights to flag

Sebastian Vettel led every lap of two races in 2011 but he's got a way to go to match Ayrton Senna's record of dominant wins...

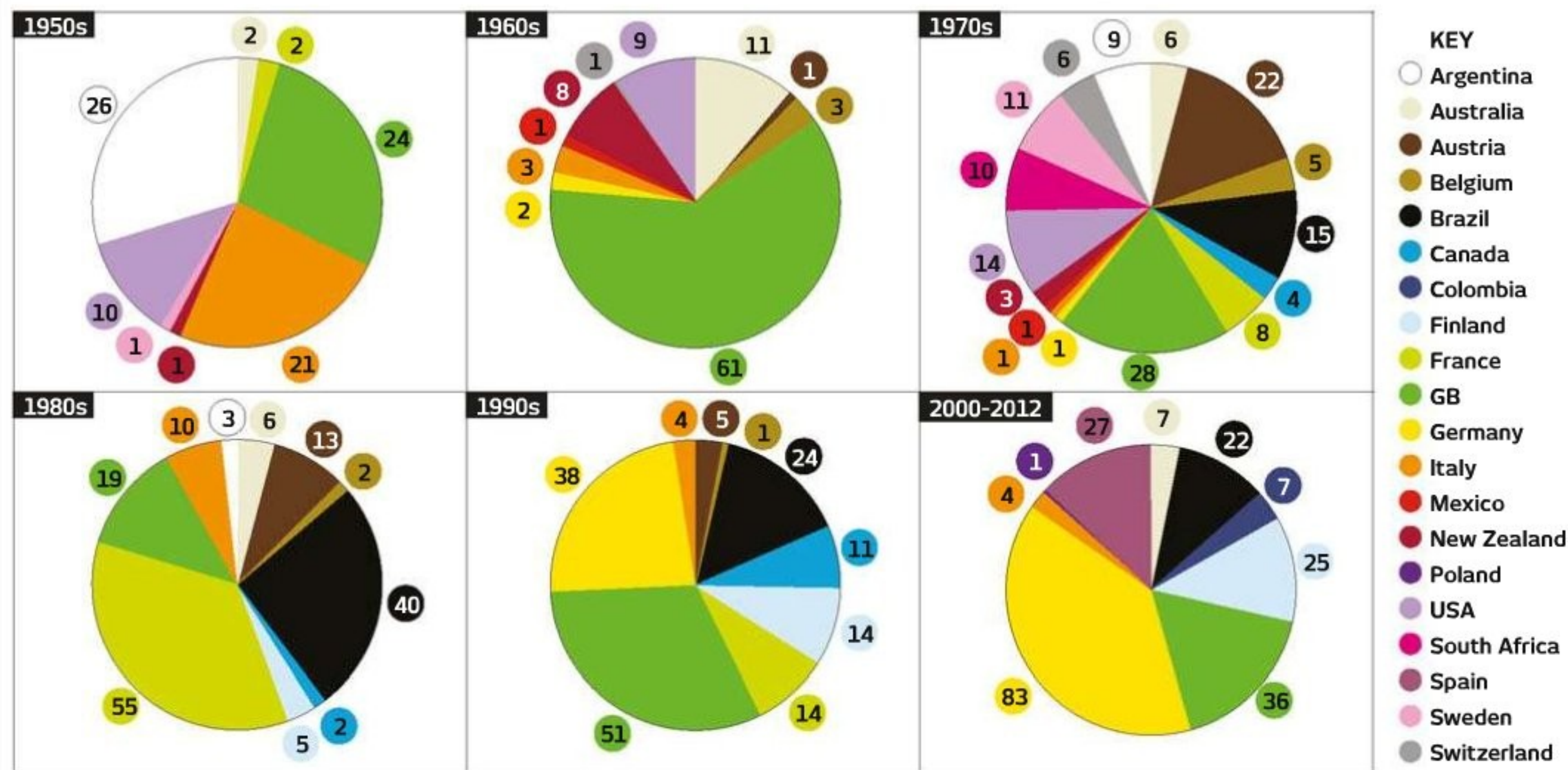


PHOTOS: PAUL GILHAM/GETTY IMAGES; KER ROBERTSON/GETTY IMAGES

STATS

Which country has had the most F1 winners per decade?

Believe it or not, German drivers had recorded just three wins before the 1990s; now they've had 124. Britain, meanwhile, has scored strongly in every decade...



DECOR

Wall art with a retro twist

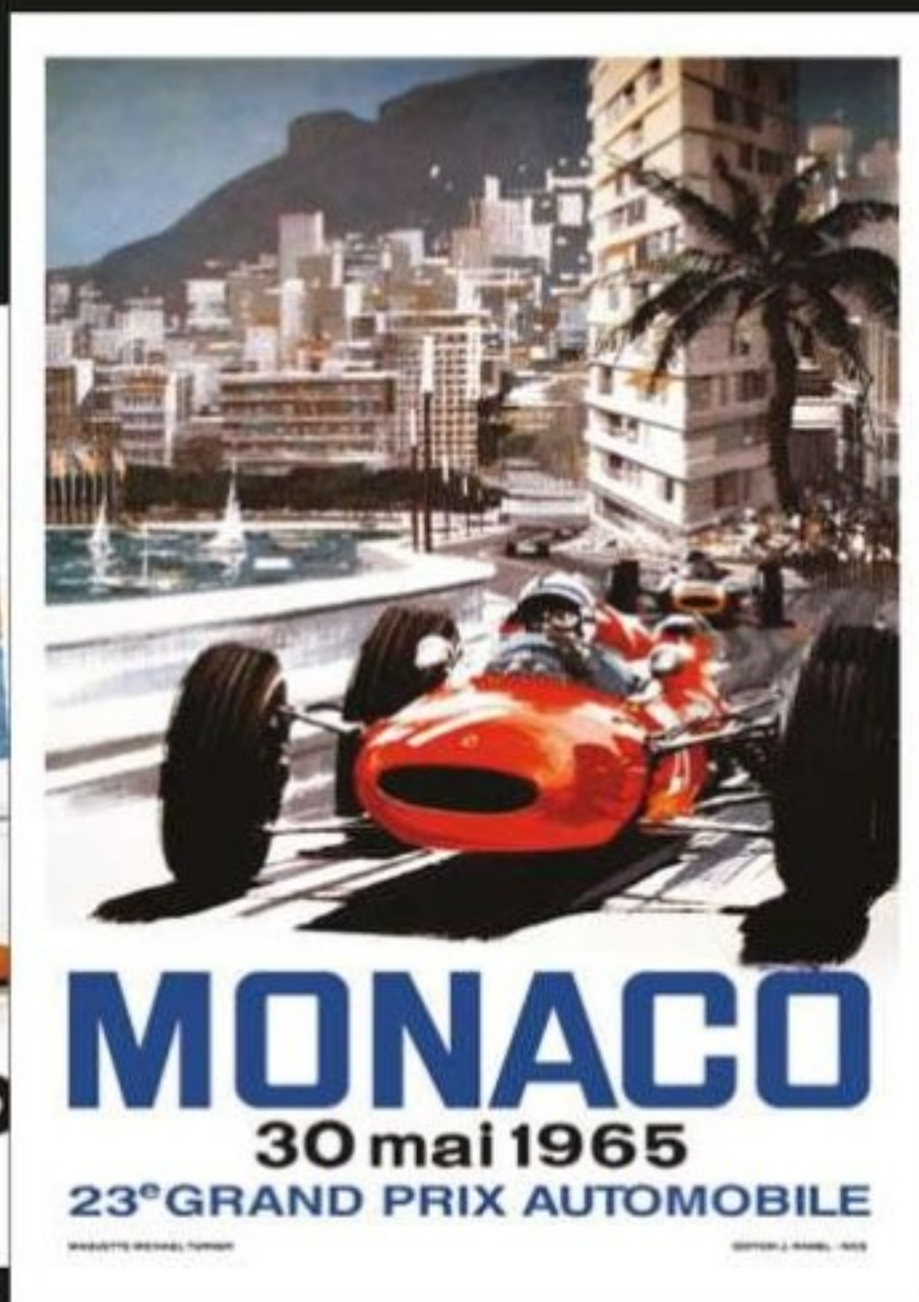
Put the Blu-Tack away: these replica posters are for framing

At this time of year the weather outside is drab and grey, so why not welcome the sunshine and glamour of Monaco into your home with one of these fabulous retro grand prix posters? The originals now fetch thousands of pounds at auction, but you can buy a digitally remastered reproduction from Retro Formula 1 for just £15.50.

As well as posters, Retro Formula 1 also produce a wide range of team clothing

featuring the logos and sponsors of defunct teams such as Hesketh, Shadow and Ligier. The idea to create such products came about when company founder Andrew Smith attended the 2009 British Grand Prix and noticed, to his disappointment, that none of the stands sold historic F1 products. Their loss is the internet's gain.

To view the full range of posters and clothing see www.retroformula1.com



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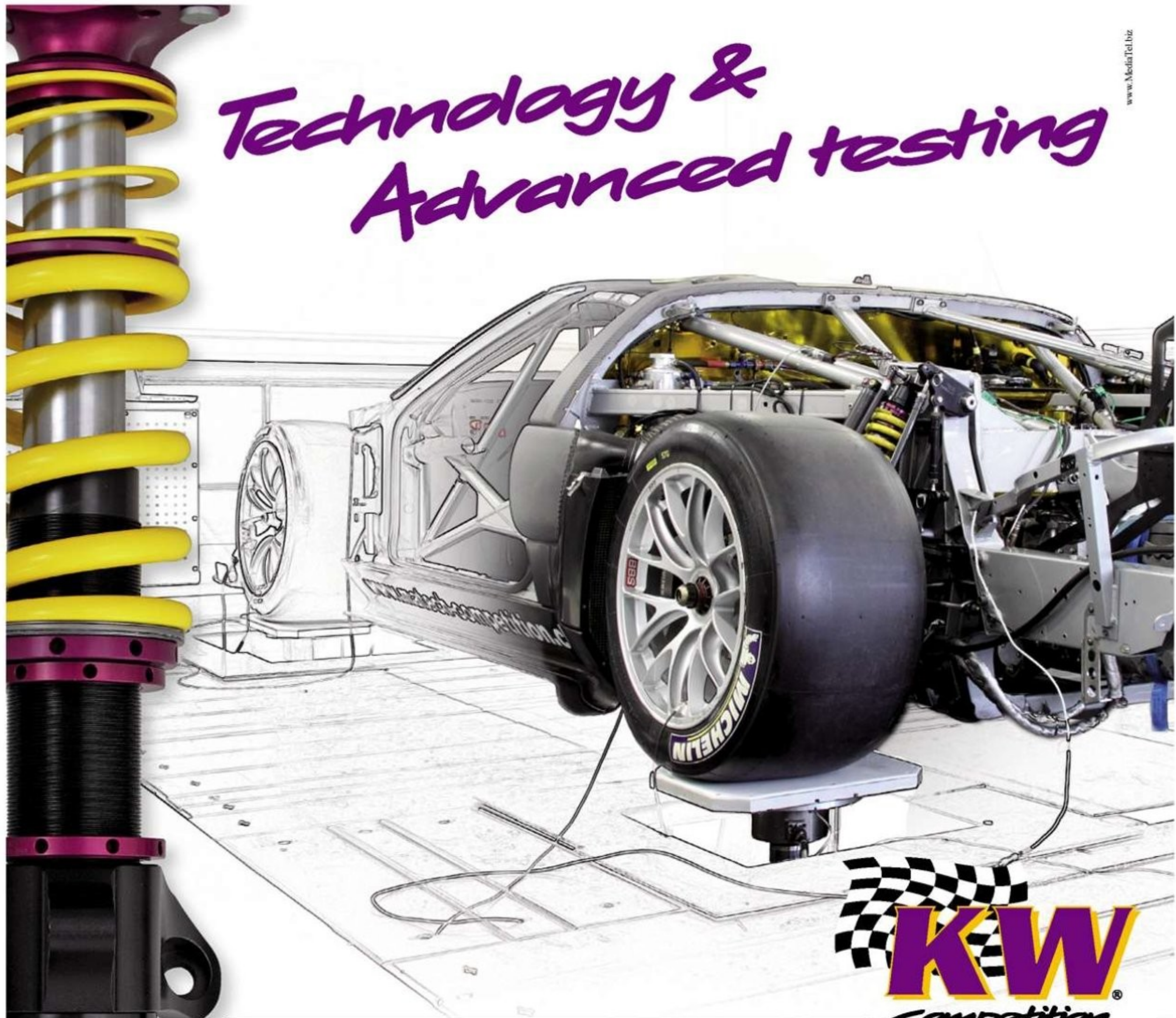
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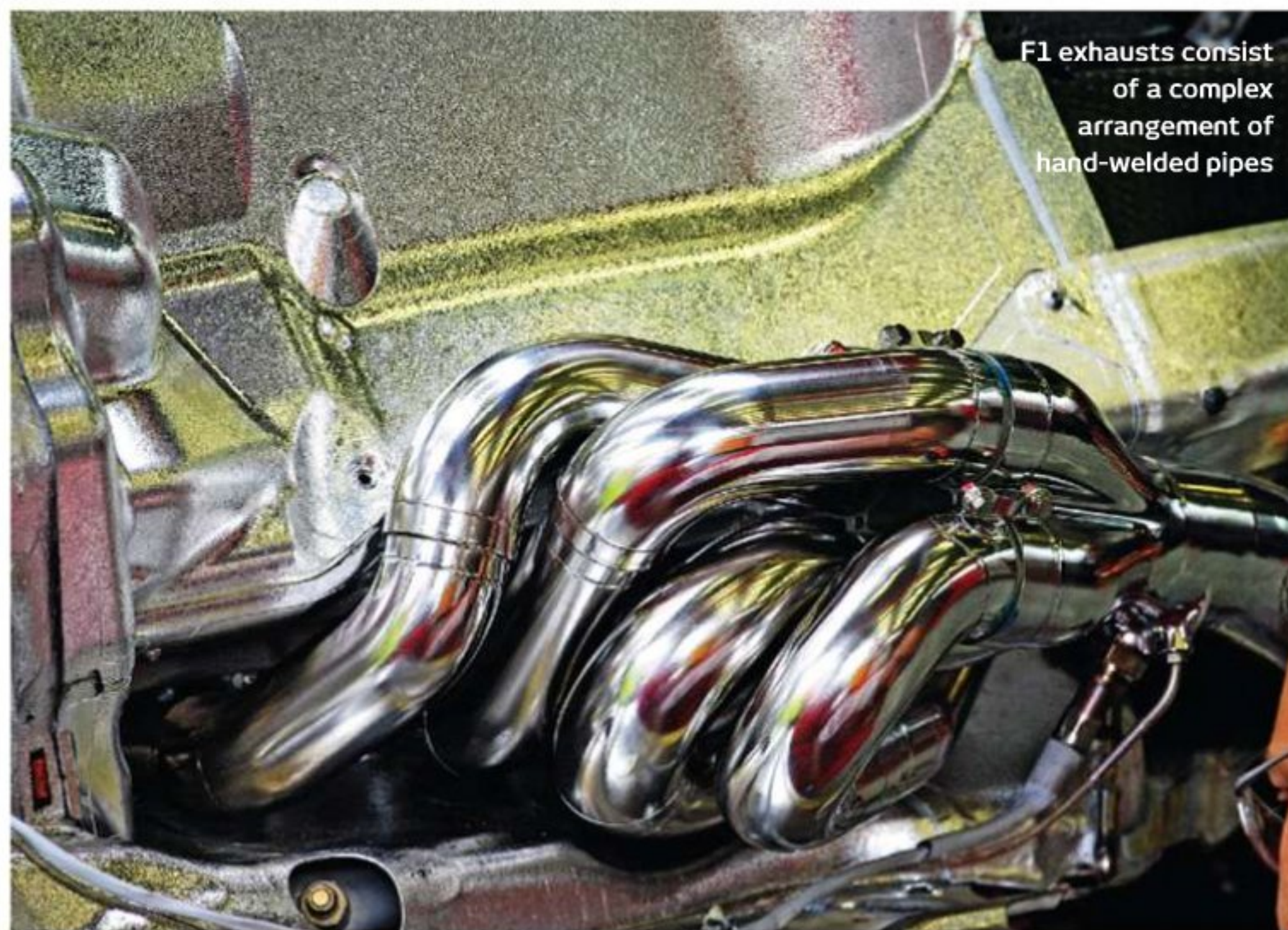
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Pat Symonds' TECHNOLOGY MASTERCLASS

Lifting the cloak of secrecy on F1's complicated parts

THIS MONTH: EXHAUSTS



F1 exhausts consist of a complex arrangement of hand-welded pipes



THE THEORY EXPLAINED



This F1 exhaust tailpipe is glowing because the exhaust gas it is dispersing will top 700°C. Bearing this in mind, it's little wonder that these bespoke components are constructed from the same tough superalloy used in jet engines

How does an F1 exhaust differ from the exhaust on a road car?

The main difference is that Formula 1 car-exhaust systems don't have to comply with legal requirements regarding silencing and nor do they have to have catalytic convertors. The F1 system is designed purely for performance and nothing else. Although the conditions of use are severe, an F1 exhaust is expected to have a short life – typically less than 600 miles.

What are F1 exhausts made from?

They are made from Inconel, a nickel-chromium superalloy that was developed for use in the internals of jet engines. This material remains very strong at high temperatures, allowing the exhaust to be very thin and hence very light. The tube thickness will vary between 27 and 35 thousandths of an inch, and the complete system will weigh only around 6kg.

Is it very complicated to design a Formula 1 exhaust system?

The exhaust is a real exercise in packaging. All cars use a 'four-into-one' arrangement,

which means that on each side of the engine four primary pipes enter a collector pipe and emerge as one tailpipe. All the primaries must have exactly the same volume while also having varying diameters along their length in order to attain the correct tuning. This leaves the designer with the headache of arranging the pipes, as all four start at different places on the cylinder head yet must all terminate together at the collector.

So it must take a very complex machine to make the exhaust then?

Not at all. The systems are still fabricated by hand. Inconel is very difficult to bend and so the pipes are made of many parts, each welded and dressed so that the joints are almost invisible to the naked eye. It is an area of the car where craftsmanship is shown at its best.

How hot does the exhaust get?

When the driver is at full throttle and the engine at high revs, the exhaust gas exits the head at nearly 900°C but it cools quite rapidly as it travels down the exhaust pipe. At the tailpipe, the temperature will be closer to 700°C. As soon

as the driver lifts off the throttle the system will rapidly cool at a rate of around 140°C per second.

What sort of quantity of gases does a Formula 1 exhaust have to deal with?

The exhaust flow at 18,000rpm and full throttle is over 0.3kg per second from each bank of cylinders. On a typical 3.25-inch tailpipe, this gives an exit speed of over 450mph.

What are the implications of the 2012 rules, which now require the exhaust exit to be positioned in periscope fashion as we were used to seeing some years ago?

The main change will be a drop in aerodynamic performance as the exhaust will no longer enhance the diffuser flow. This could reduce lap times by as much as 0.75 seconds. The engine, however, will produce a bit more power as the shorter tailpipe is more suited to the engine at high revs. But this increased power effect is quite small and nowhere near makes up for the aerodynamic loss.



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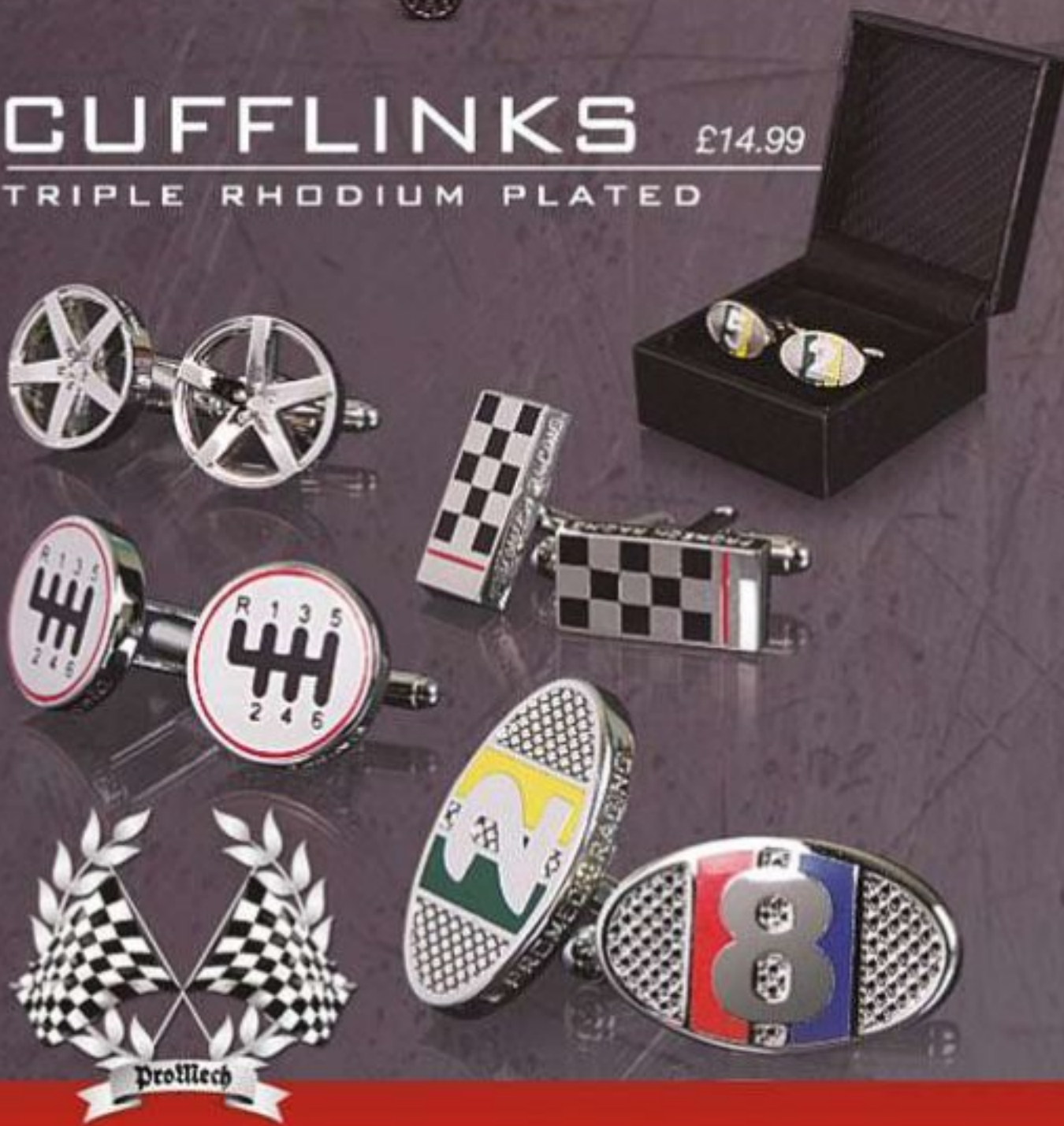


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RAW NEUVE

Jacques Villeneuve: older, wiser... but no less opinionated

Williams lose a very vocal presence

I was a bit surprised and sad to hear that Patrick Head had left the Williams F1 team. You could tell that the team had changed over time, but Patrick and Frank are Williams. I think a bit of the team's soul has left along with Patrick.

The thing about Patrick is that he's a racer, so maybe the politics got to him a little bit in the end. But he was always a hard character and a straight-shooter – you always knew where you were with him. It wasn't always nice to hear, but at least you knew what he really thought. It's always better to know what someone's thinking rather than be left to work in the dark.

Patrick is a moving force, and it was always impossible for weak characters to work with him. You needed to be strong so you could stand up to him – but that's what he respected in people. He was a very hard worker too and he



"Patrick is a moving force. You need to be strong to stand up to him – but that's what he respects"

would always make things move forward, so I found it great working with him. People might say that he was a difficult person, but F1 is meant to be difficult. It's better to work with tough characters and know where you stand than it is to get embroiled in the political aspects of the sport.

I found Patrick quite jovial when I first met him. He was a fun character. But of course he had his own ideas, and if yours were different to his, you had to fight for them. That was good as it

made me really think about what I was doing. There was respect between us because we wanted the same thing: to race and to win.

I know he's famous for shouting at drivers, so I'm pleased I never got into a shouting match with him! Patrick has a lot of presence: some people are just part of the furniture and you don't really notice whether they're there or not, but he's the other extreme. That's not a bad thing though: Formula 1 will miss him.

The one-move rule is just common sense



Schuey fights hard to keep Hamilton behind him lap after lap at Monza

I see the one-move rule clarification has been put in the F1 rulebook. The rule was invented so that if you went inside to block, you couldn't return to the racing line. It wasn't intended as a means of blocking other people whenever you wanted.

I'm not sure having this clarification will stop that. But at least it stops people coming

back on the racing line without leaving sufficient room. We all know where the edge of the track is and what a car width is, so this makes things clearer.

What strikes me is that this shouldn't even have been a rule – it's common sense. You shouldn't put anyone in danger or impede or force them into evasive action. Coming back on the racing line can do that.

'Okay' doesn't cut it in Formula 1

Alguersuari and Buemi have been given the push from Toro Rosso. Some felt it was harsh that Alguersuari got removed. He performed okay, but is okay good enough?

Jaime has been here since 2009, and the nature of F1 is that if you don't set the world on fire, you get replaced – you have to bring something to the sport and your team.



PHOTOS: ANDREW FERRARO/LAT; STEVE ETHERINGTON/LAT; CHARLES COATES/LAT

THE JV KEY



Silly shunt



Driver error



Controversy



What a car



Fantastic drive



Good call



Bad call

MURRAY WALKER



We now have the choice of not one, but two British TV organisations. May the best team win!

So it's all change on the box for F1 this season and I must say that the BBC have every reason to feel absolutely devastated. In my opinion they have given us the best F1 broadcasting in the world, with superb coverage of just about everything that happens before and after a race thanks to the unrivalled efforts of a dedicated team of outstanding people in front of and behind the cameras. But despite all this, they've got the dirty end of the stick in the new deal.

Let's be totally clear about the fact that of course the BBC didn't give up their exclusive rights happily. They had to make massive savings across their organisation due to the loss of government funding and something had to go.

We F1 fanatics may feel that economies could have been made elsewhere, but there were others to be considered and the decision was not ours about where to make them. Some may not be enthralled by *Strictly Come Dancing* (I am!), the *Antiques Roadshow*, David Attenborough's superb nature programmes and other top BBC offerings, but millions of others are.

So now, with the BBC's reluctant reduction of their coverage, we're going to have the choice, if we're prepared to pay more, of not one but two very competent British TV organisations – the BBC and Sky – with Sky covering all

the races live (and much more) on a dedicated F1 channel, and with the BBC covering half of them, plus extended highlights of the rest and the gigantically entertaining post-race red-button programming. How to choose which to watch?

To put it bluntly, if you haven't got – or won't spend – the money on Sky, there's only one answer: the BBC. It will be very good, but it is going to be a different BBC this year. There'll be no Martin Brundle, whose place in the commentary box is being taken by the experienced Ben Edwards, who commentated authoritatively and entertainingly on Formula 1 with John Watson in the Eurosport days, and no Ted Kravitz in the pitlane. Martin and Ted will be a great loss to the BBC – especially since they are joining the opposition. Many have condemned them for defecting, but I certainly don't blame them. Money talks and they are both going to have an even greater involvement in Sky's exciting-sounding output.

The BBC's ten live races will include China, Korea and Valencia, which, in my opinion, are by no means three of the best and you'll have to wait a few hours to see the highlights of the other ten. Many will be happy to do so, although delayed

highlights are not the same as seeing the whole race live. But I've no doubt the BBC will make the best of what they've got. They're ready for a fight and with Jake Humphrey, DC, the irrepressible Eddie Jordan and the excellent Ben Edwards, Sky will have to go some way to beat them.

Now let's see what Sky have to offer. Total coverage of the whole season on their all-F1 HD channel with exciting extras, like a magazine programme; an impressive commentary team with ex-Radio Five Live's breezy David Croft and Martin Brundle at the microphone; the excellent Ted Kravitz in the pitlane; new-to-F1 people doing the presentation – and no advertising breaks during the races.

There are those who say that Sky's output will be rubbish, but I'm most certainly not one of them. Anyway, how can they know that before it has even happened? Sky are determined to succeed against formidable and experienced opposition, they do a great job on the other sports they cover, their budget seems to be



"There'll be no Martin Brundle on the BBC, whose place is being taken by the experienced and entertaining Ben Edwards (inset)"



Forthright chatter from the legend of F1

"The BBC's ten live races will include China, Korea and Valencia, which, in my opinion, are by no means three of the best and you'll have to wait a few hours to see the highlights of the other ten"



'whatever it takes' and they are very serious about doing a crackerjack job. They've put excellent people on their F1 team and I know they're really doing their homework, making their plans and polishing their execution. I shall be intrigued to see how David Croft and Martin Brundle got on with each other in the stressful commentary box because they are both used to being the lead commentator and, if the chemistry isn't right, the viewers can suffer. Not necessarily though. James Hunt and I, who


were very different people with very different backgrounds, attitudes and lifestyles, worked together for 13 years and managed to stay the course successfully until his tragic death in 1993.

A potential problem for both broadcasters is that whereas up until now the BBC have had sole British access to the teams, their management, drivers and facilities, and have used it with enormous success, that will no longer be the case, with an equally demanding team from Sky, who will be offering more airtime and

jostling for the same or better rights. Like so many things, it all comes down to money. If you've got Sky already or are prepared to spend a not inconsiderable amount of money to watch all the races live (in addition to all the other programming offered), you'll be able to pick and choose and go for the one you like the best. If you haven't, it's the BBC for you.

Some viewers say they'll overcome the 'pay Sky' problem by watching a foreign broadcaster's live output and listening to the BBC's Radio Five Live commentary (by a new team devoid of the excellent David Croft and Anthony Davidson, who are both moving to Sky), but in my opinion they'll find visual content leaves much to be desired if they do. No one does it like the BBC have done or, I presume, Sky will. I had to watch the RTL output on the 2011 Italian GP and, in a race that lasted a mere 80 minutes, there were well over 20 minutes of commercial breaks.

The BBC will get the lion's share of the viewers of course because their output will be first class, the highlights will be at viewer-friendly times and you won't have to pay extra for it. Many people have said that since they can't afford Sky to watch all the races live they'll abandon F1 altogether, in which case I'd say they can't have been all that enthusiastic about it and that they're cutting off their noses to spite their faces.

Whatever and whichever, its going to be an intriguing situation. May the best team win! 



"Sky are determined to succeed, they do a great job with their other sports, and their budget seems to be 'whatever it takes'"

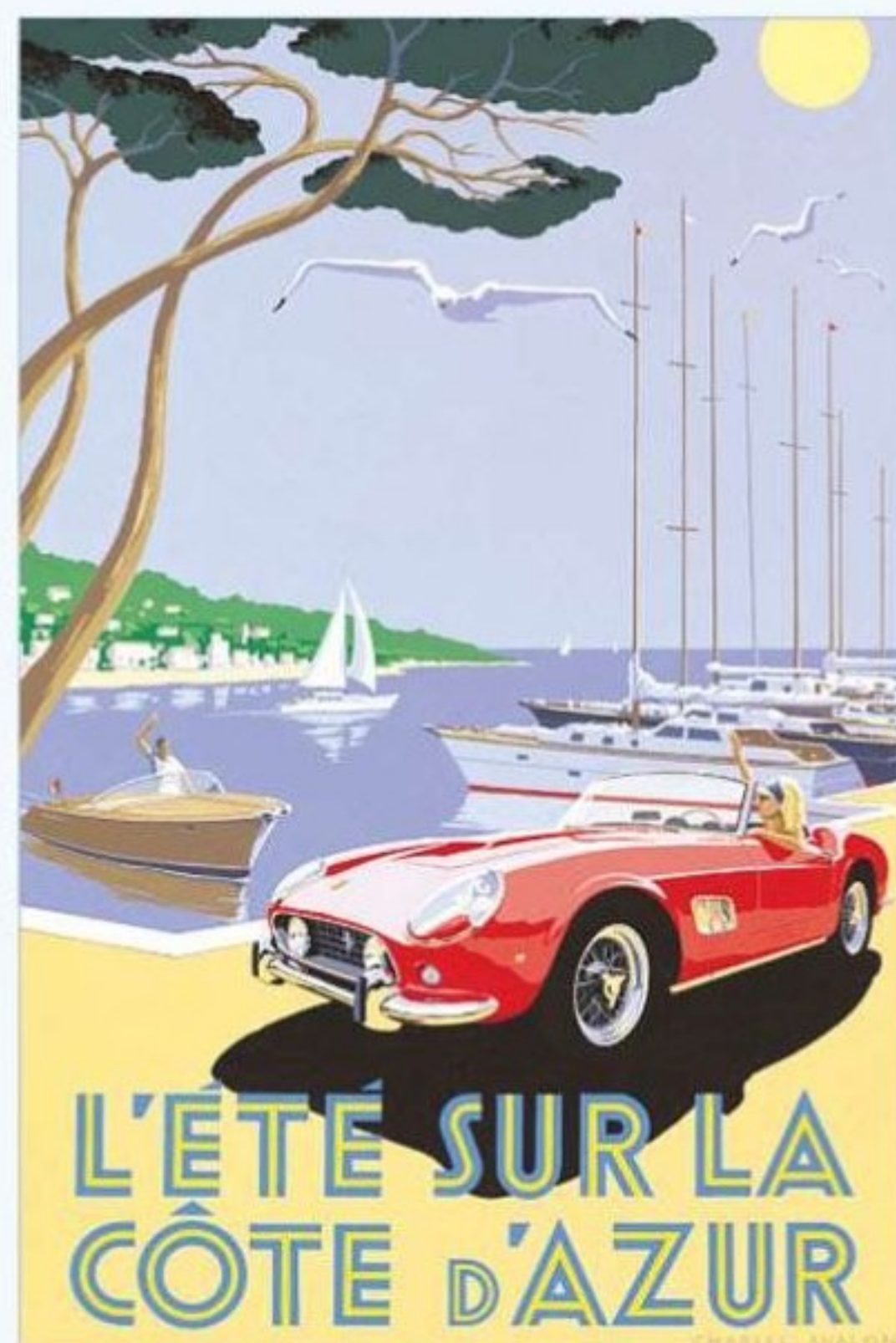
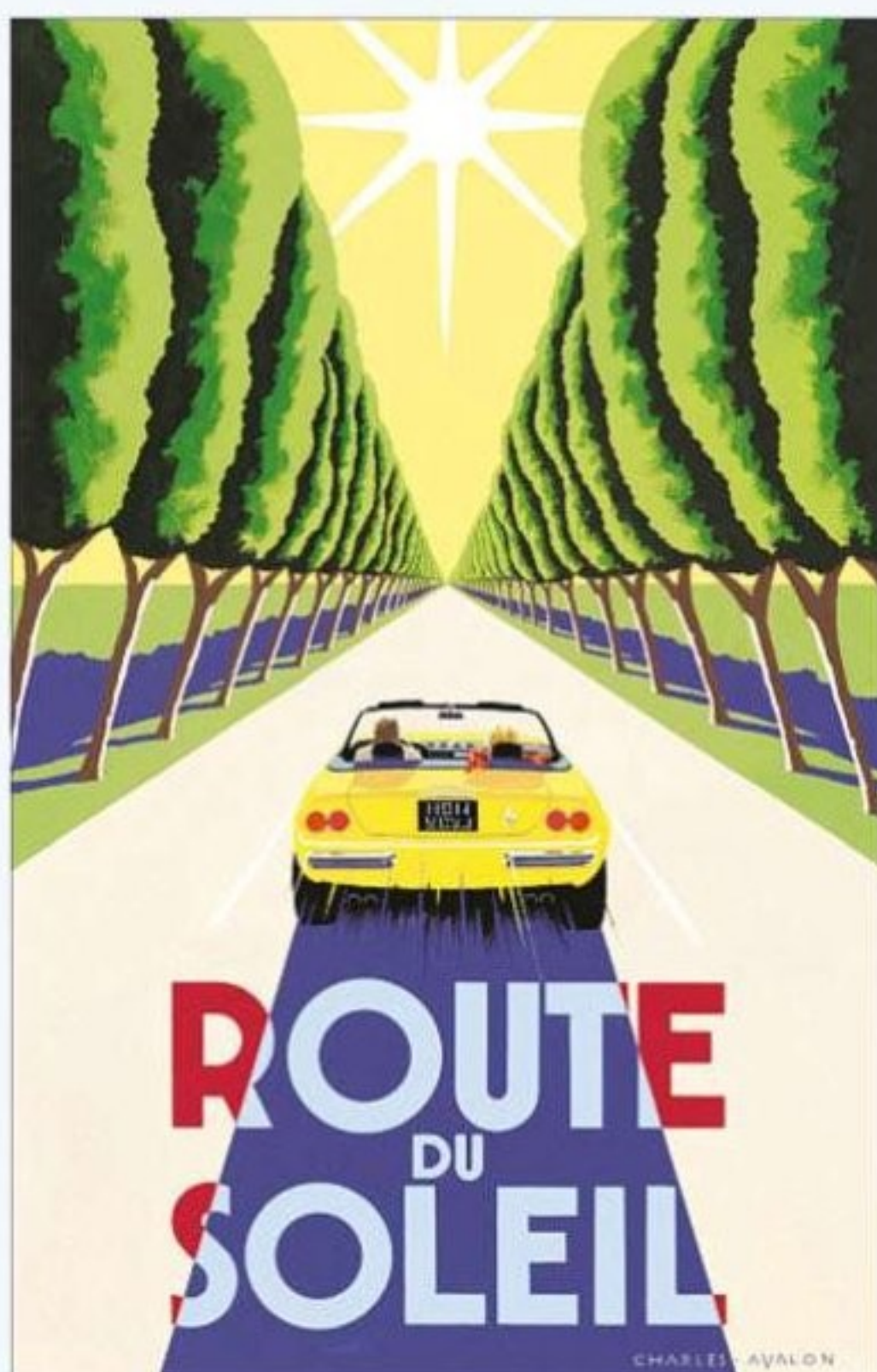
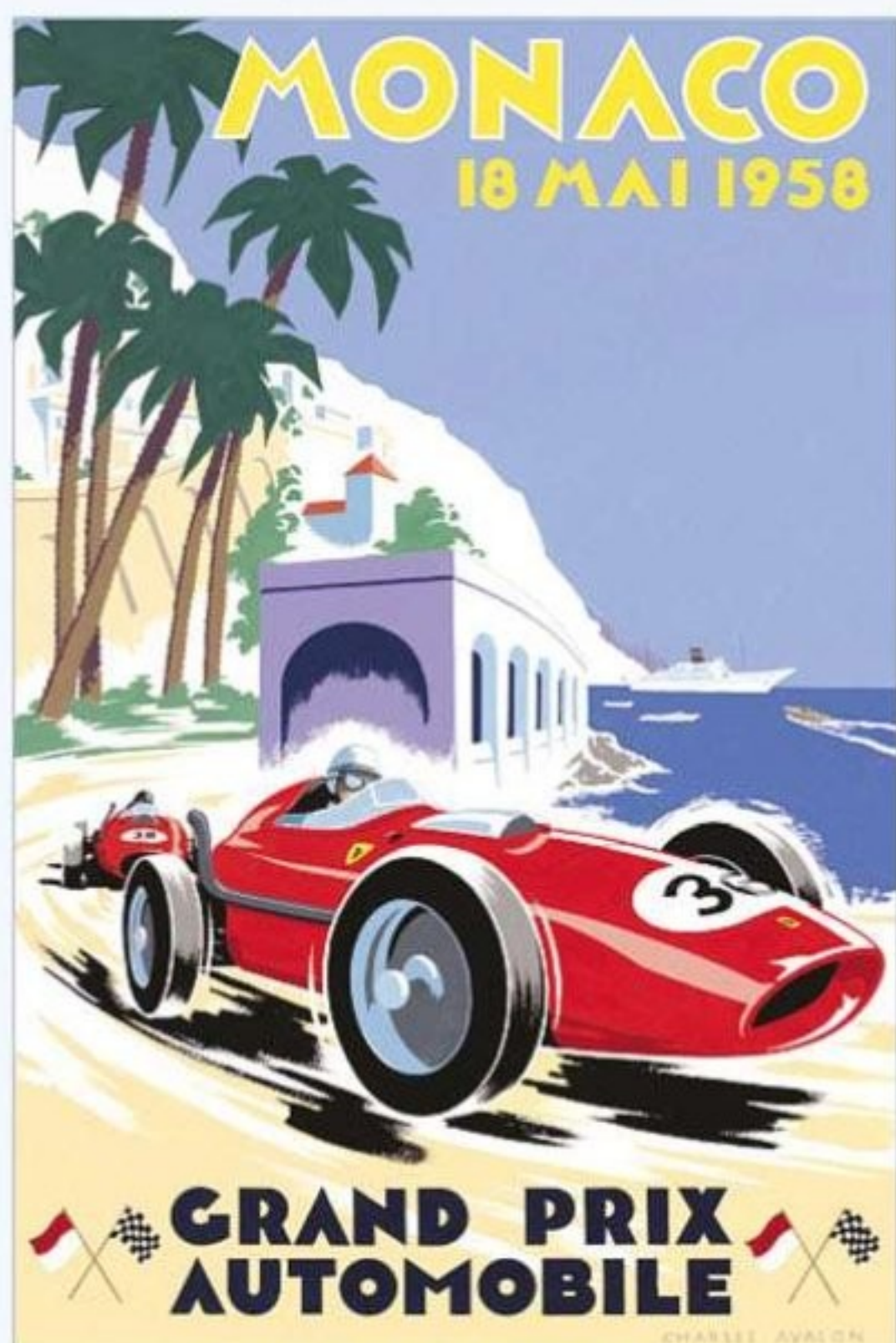




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WHATEVER HAPPENED TO...

BRIAN REDMAN

Didn't have a great time racing in F1; now enjoys racing vintage cars



Then

Finishing fifth for McLaren at the Nürburgring at the 1972 German GP

You may not be familiar with the name Brian Redman but many believe the son of a Burnley grocer had the driving talent to become a GP winner. His first taste of F1 came in 1968 when, after winning high-profile races in sportscars, he was given a six-race deal with Cooper. After scoring a podium at the Spanish GP on only his second outing, Redman's third race at Spa was considerably less lucky when a suspension failure pitched him off the track into parked cars. His Cooper caught fire and he was fortunate to escape with only a broken arm.

He returned from his injury to sportscar racing and was back in F1 for 1970 when he drove in one race for Rob Walker and two for Frank Williams. After briefly retiring, Redman drove a one-off race for Surtees in 1971, then three races for Yardley McLaren in 1972, scoring points twice. The next two seasons brought four F1 outings with Shadow but, with a chance to run at the sharp end in Formula 5000 in the States, the talented Brit left F1. It was a shame because his three subsequent Formula



Now

Still racing historic cars, as well as running clubs for other vintage fans

5000 titles, in which he beat the likes of Mario Andretti, proved he had the speed to succeed.

"F1 was a disaster," Redman told *F1 Racing*. "I don't talk about it much. Of all the races I did in F1, there wasn't one where I felt I'd driven at my best. Mistakes on my part were the reason. Take my race for McLaren at the Nürburgring in 1972. I loved the track and had won there several times, but I crashed the car in practice on cold tyres. The mechanics spent all night repairing it and I entered the race with no spirit and finished fifth – it should have been higher."

"After F1 I raced in F5000 in the States and also in sportscars. I had a big crash in Can-Am in 1977 in which I broke my neck and sternum and bruised my brain. I was later offered a job as a Lola salesman, and I helped Lola create the T600, which I raced in the 1981 IMSA championship. I then got into the motor trade and ended up with my own showroom, Brian Redman Motors in Jacksonville, Florida. I didn't enjoy it – there were impossible sales targets to hit – although through this business I started vintage racing.

"I retired from professional racing in 1989 but still raced vintage cars. Then in the early 1990s I became a race promoter and created the Jefferson 500, a historic sportscar race at Summit Point raceway. Around the same time I also created Targa Sixty Six, a club for owners of vintage and modern high-performance cars who like to drive at speed under controlled conditions. Today, I run the club, I'm often a guest speaker at car clubs and I also act as a tour guide at events such as the Historic Grand Prix of Monaco."



1968: makes his F1 debut

Qualifies his Cooper 21st at the South African Grand Prix, but retires from the race with an oil leak



1968: F1 career high

Climbs impressively from 13th on the grid to finish in third place in the Spanish GP at Jarama




Now...

The 74-year-old runs a car club, promotes races and acts as a tour guide at historic motoring events

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 SILVERSTONE 2011 / Brett Dykes / UK

"Meeting the Ferrari boys was such a buzz"



"I watched my first F1 race back in 1997 and became hooked after witnessing the epic racing and tough rivalry between Jacques Villeneuve and Michael Schumacher.

Fourteen years on and I've hardly missed a race live on TV, while my girlfriend and I attended our third British GP in a row this year. From the moment we arrived at our campsite at Silverstone on Wednesday, the atmosphere was electric – it should be experienced first-hand by all F1 fans.

"I was determined to meet Fernando Alonso after unfortunately just missing out on meeting him in 2010.



Much to my surprise, on the Friday evening I was lucky enough to get the chance to meet the eventual 2011 British Grand Prix winner

himself – along with Felipe Massa and Stefano Domenicali – and I got my Ferrari cap signed by all three.



"It was such a buzz: I was amazed and I didn't think the weekend could get any better. Yet the next day, still ecstatic from meeting the Ferrari boys, I met the seven-time world champion and the man I had watched dominate F1 for years while growing up... Michael Schumacher. He was more than happy to sign a Mercedes cap for me, which I will treasure for many years to come – along with my signed Ferrari cap."

2011 BRITISH GP

- This was Ferrari's first and only win of 2011
- Alonso won with a lead of over 16 seconds
- Vettel and Webber took second and third places

 MELBOURNE 2011 / Geoff Schneider / AUSTRALIA

"It was a weekend I will never forget"

"I went to the 2011 Australian GP with my mate, Steve, from Thursday to Sunday. The real action got under way on the Friday, and almost instantly there was drama, with Karun Chandhok lifting the wall just moments into the session.



"On Saturday we sat at the back of the high-speed Waite Chicane"



"We had great seats, on the inside of Turn 1. On Saturday we sat over the back of the circuit, at the high-speed Waite chicane, and witnessed a thrilling qualifying session, with

Sebastian Vettel putting in a blinding lap to take pole. On Sunday we were back at Turn 1, but opposite where we were before, and closer to the braking zone.

"Vettel dominated, leading from start to finish, and Mark couldn't do the job in front of his home crowd. It was a weekend I will never forget."

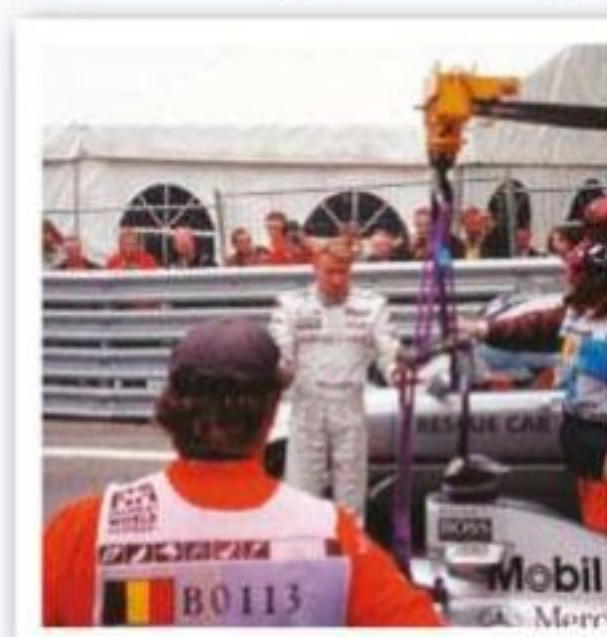
 SPA 1998 / Mervyn Patterson / UK

"We saw one of the most eventful races in years"



"In 1998 my friend and I decided to make our way from Belfast to Spa to support Eddie Irvine. Towards the end of the last free practice before qualifying, we noticed

that a driver had stopped: Mika Häkkinen was directly in front of us, urging the marshals to be careful with his stricken MP4/13 – what a great photo opportunity for us!



"Irvine ended up in the gravel trap in the race, while Damon Hill notched up the last win of his career. Despite not seeing Eddie win, we saw one of the most eventful races in years at a legendary circuit."

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Christian Horner

He never approached Kimi, Adrian Newey is terrible at karaoke, and phone calls from Bernie make him nervous: just some of the things you will learn about the shaky-footed team boss with a disdain for tartan carpets

WORDS JAMES ROBERTS PORTRAITS ANDREW FERRARO/LAT

On a dark December afternoon over at the Milton Keynes headquarters of the double-title-winning Red Bull Racing team, a youthful-looking Christian Horner stands next to the all-conquering RB7, the car that dominated Formula 1 in 2011.

From the moment it first made an appearance in pre-season testing, the life of the RB7 was a constant blur of noise and action, as it was driven to the limit by its number-one occupant. All season long, the opposition have been itching to get close to this machine. Its dynamic front wing outfoxed rivals and outwitted the FIA, while the packaging around the innovative off-throttle blown diffuser remained a closely-guarded secret.

Now, just a month after the final race of the season, the RB7 sits stationary and abandoned in the race bays of the factory. Its secrets are

exposed; there are no Red Bull mechanics huddling around the back of the car to ward off prying eyes: all the attention in the factory is focused on the building of the RB8. The 2011 machine has been left to gather dust and find a new, less glamorous life as a demonstration car. "It's obsolete," says a mournful Horner, glancing over his shoulder. "Not a single piece of it will be carried over into the RB8."

All that fame and worldwide recognition and now the RB7 has been relegated to obscurity. It's just a snapshot of the pace of development in F1: there's no time to wallow in the moment – the focus now is on the next race.

That's Horner's focus as well, yet in the middle of the hectic preparations for the new season, he's taken time out to answer a selection of your questions and to reflect on his number-one driver's great achievements so far.

Given your own racing past, is there a tinge of envy and a sense that it could have been you in the Red Bull RB7?

David Herron, UK

The short answer is 'no'. I was fortunate enough to drive in different categories all the way from karting to Formula 3000. I recognise I never had enough talent to make the cut in Formula 1 and I'm much better suited to what I do now rather than being behind the wheel, so there's absolutely no envy. When I was in Formula Renault, I was winning races against the likes of Pedro de la Rosa, but I was able to say to myself at the age of 24 that I wasn't as good as some of the other guys I was up against – drivers like Montoya, Tom Kristensen and Nick Heidfeld. I'd learnt an awful lot from the sport. It was all I knew and I wanted to apply what I'd learnt into another discipline in terms of running a team. →





How close do you think you could get to doing a competitive laptime in the RB7? And when was the last time you drove a single-seater in anger?

David Ross, UK

I reckon I could get within ten seconds, but I'd have to do it very quickly because physically I'd probably only last about ten laps. The last time I drove a single-seater in anger? Blimey, I think it was at the Nürburgring in 1998. That was my last F3000 race and it was questionable even then whether I drove it in anger...

In light of Lotus signing Kimi Räikkönen, did you ever consider taking him on, given that he fits the brand image?

Euan Gorrie, UK

Kimi has never been on our radar and certainly not for 2012 – I'm very happy with the two drivers we have. It's great that he's coming back to Formula 1 – we'll have six world champions on the grid now – but he was never under consideration with us for a seat in 2012 and I never spoke to either his management or him.

Why has Adrian Newey been so emotional on the pitwall a couple of times this season? I'm thinking of Spa and India...

Tiernan O'Rourke, Ireland

Spa was very much the emotion of achieving a one-two with all the issues in the build-up to the race with the tyres. While we didn't want to compromise our drivers' safety, it was a little bit of a voyage into the unknown and Adrian takes driver safety immensely seriously. I think it was the sense of relief and he was overcome by the moment of winning that race, which is why I sent him up onto the podium.

In India, actually, he wasn't too emotional. It was probably more of a hangover – thanks to a big night out with Martin Brundle – plus it was the last race he attended in 2011 knowing that he would be focusing on the RB8 after that, which was why I thought it was appropriate for him to collect the trophy again on behalf of the team.

Do you think it's unacceptable that we will be racing in Bahrain in 2012?

Kate Nicholls, UK

We trust in the governing body and the promoter to make the right decisions. They lay out the calendar and they decide where we are going to race. Bahrain is on the calendar for 2012. We'll be there. Insurance? There are some complications, but there are other countries that we go to that also have complications.

Mr Ecclestone feels generous and grants you two wishes. What would they be?

Heath Richards, New Zealand

Crikey. What would they be? Two wishes. To have his bank balance would be one. And two...

um, I would quite like to beat him at backgammon. He's bloody good at it.

How do you manage to keep the peace between Vettel and Webber when they're both so competitive?

Larry Hall, Canada

Very good question. We try our very best to treat them equally and give them equal equipment in which to achieve their goals. They are both very competitive animals and obviously both have a strong desire to win, so there can be a bit of turbulence – but it is a very strong driver pairing.

How long will Red Bull owner Dietrich Mateschitz continue in Formula 1 – what more does he want to achieve?

Roger Smith, UK

Dietrich has been in the sport for 15 years now, first as a sponsor, then as a shareholder with the Sauber team and latterly as the owner of Red Bull Racing. His passion for the sport has only increased over that time. It was his dream for Red Bull to compete in their own right and then for the team to realise the goals that he had set to win races, to win world titles and now to establish Red Bull among the iconic names in F1. While the sport offers the kind of return in terms of the viewing figures it receives and the fan base and spectacle, then Dietrich and Red Bull will be committed to the future of F1.

Does JYS always remind you that he set this team up originally?

Colin Dane, Hong Kong

Well of course he does! Jackie is always very welcome and he visited us at the end of 2010 and it was a privilege to invite him to the factory. I think he was astonished by some of the changes that have taken place here. There is still a small group of employees who date back to the Stewart and even the Paul Stewart Racing days and when he walked around the factory there were several employees who reminded him of their employee number name. Thankfully the tartan carpet is no longer in any of the buildings.

I hear the Red Bull team did karaoke at Suzuka last year. What did you all sing?

Kaori Sasaki, Japan

I sang *My Way* by Frank Sinatra. Adrian Newey sang *Yellow Submarine* which I would describe as a 'different' rendition of the song we all know. Seb sang *Hey Jude*: it's one of his favourites.

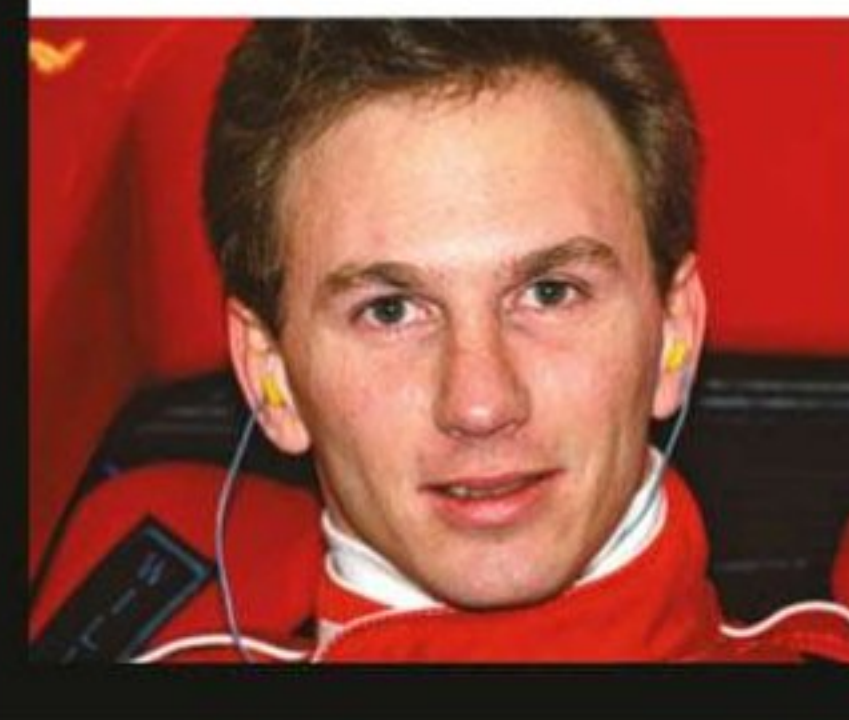
How do you get away with your front-wing flexing so much: did you manage to bypass the FIA's load test?

Katie Cooke, UK

We don't *bypass* the test, we *comply* with the test. There are stringent measurements that are taken and tested and the car has to pass. Our car



"Sixth in Jerez, '97 – F3000 was hugely competitive in those days. It was the most competitive I was in that category, so to come out with a top-six finish was good"



PHOTOS: LAT ARCHIVE

has always complied with those rules. Maybe that's a better question for Stefano Domenicali...

Do you see Lewis Hamilton as a potential replacement for Mark Webber in the near future?

Samuel McCarthy, UK

Let me think about how I should word this. I believe Lewis is committed to his current team and he's a great driver, but we're very happy with our current driver line-up. What happened in Montreal? Lewis popped round for a Red Bull, he likes the drink and all I'll say is that it wasn't the Lewis I was expecting... →



"We try to treat our drivers with equality and give them equal equipment in which to achieve their goals. They are both very competitive and both have a strong desire to win so there can be a bit of turbulence – but it is a very strong driver pairing"



Can you please stop tapping your foot? It's very annoying. Could it be that you've been drinking too much of your caffeine-based product...?

Stuart Sampson, Trinidad and Tobago

I genuinely don't realise that I'm doing it most of the time. It's one of those things that happens during a race when it all becomes fairly intense. It's a nervous trait and something that I'm not consciously aware that I'm doing until I see my foot on the television.

The 256 members of your fan club – the Hornettes – would like to know what it feels like to be the only team principal to have a fan club?

Melanie Köhler, Germany

Very flattering and very embarrassing. You're not one of the 256 are you?

I used to think that Red Bull were a breath of fresh air in Formula 1 when they first appeared. But after Silverstone last year, I now see Red Bull in the same way as Ferrari and I'm not a fan any more. Why have you alienated your fans by acting this way?

Gavin McLaoughlin, UK

We're a racing team whose objective is to try to achieve the very best results that we can achieve. We were five laps from the end of the race at Silverstone on a damp track with two extremely determined drivers, and sometimes as a team principal you need to make an extremely difficult decision. We had just reached the stage where we thought it would be best to bank the points that we had rather than risk both cars going off. It's like a football match when a team scores and then goes defensive – it's a tactical aspect of the sport. But the majority of the time we will allow our drivers to go and race each other freely.

Christian, in your opinion, who is the biggest talent to emerge from Red Bull's young driver programme? Will we see Daniel Ricciardo replacing Mark Webber in the future?

Wojtek Paprota, Poland

We have two really young exciting talents in the shape of Daniel Ricciardo and Jean-Eric Vergne, now racing for Toro Rosso. They have both demonstrated huge speed and great ability and if they continue to perform well, we'll see whether either of them could eventually be considered as a replacement for Mark when he ultimately decides to stop racing. That could be next year, or it could be the year after that. But

ideally we would like to see the eventual successor to Mark Webber coming from the Red Bull young driver programme.

Christian, why do the BBC only talk to you after every single qualifying session and race? No offence, but isn't there anyone else at Red Bull we can hear from?

Gianni Fasulo, UK

All the other guys are busy doing their jobs! It's such an intense period between qualifying and the race and I think the BBC tend to focus on certain people, whether it is myself, Martin Whitmarsh or Stefano Domenicali.

Who in Red Bull racing wears the trousers: you or Dr Helmut Marko?

Miroslav Petruska, Slovakia

As the team principal I'm responsible for running the team. Helmut is a consultant to Red Bull and he is effectively the eyes and ears – or the extended arm – of Mr Mateschitz. If we need to make a quick decision on a driver or a sponsor, he is there to facilitate that. He keeps Dietrich informed and then gives us quick feedback – it's his role to be the link between Red Bull Racing and Red Bull GmbH. But he has no involvement in the day-to-day running of the team. He might seem close to Sebastian but actually he's always stood on that side of the garage and he's a creature of habit. He was there when David Coulthard was on that side of the garage and he's stayed there since Sebastian has joined the team.

Your best F3000 result was sixth place in Jerez back in 1997 – this was a good ten places better than your average finish. What happened in that race? Did everyone crash out?

Peter Johnson, UK

Mainly, yes. There was a crash on the second or third lap that eliminated a few cars – don't forget it was the weekend Michael Schumacher drove into Jacques Villeneuve – and F3000 was hugely competitive then. In pre-qualifying there were 30-odd cars going for 24 places on the grid. It was the most competitive I ever was in that category, so to come out with a top-six finish was good, but it was mainly just because I was still there at the end.

In business, bosses are usually the most highly paid people in a company. How does it feel to have drivers in your charge who earn a vast amount more than you?

Sarah Reynolds, UK

Strange question. How does she know? [Laughs] The drivers take a huge risk and are rewarded for their skill and the risk they take. Our drivers earn every penny of what they take home.

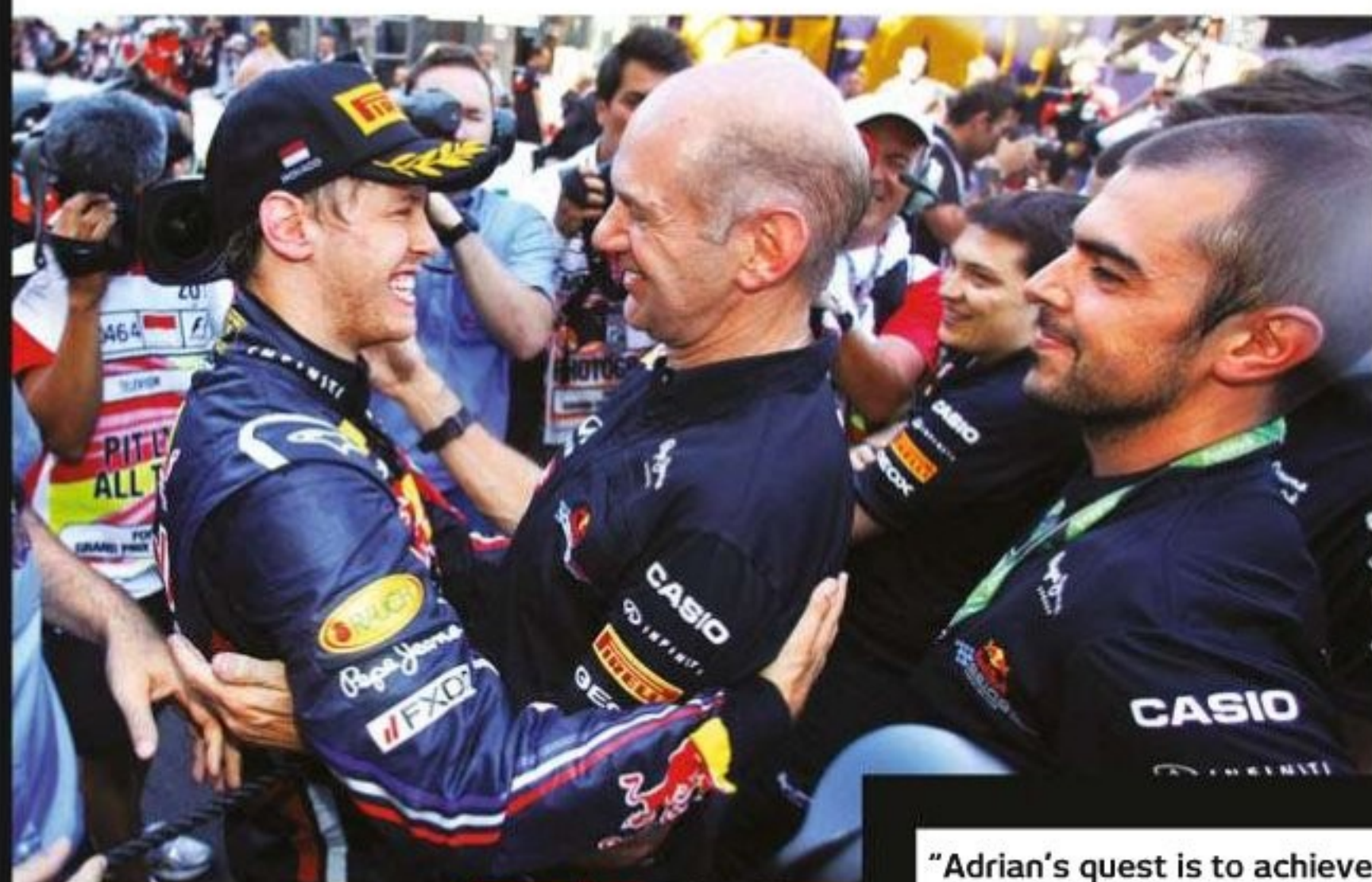
Please tell us: what is Adrian Newey's secret?

Charlene Raucq, France

Adrian's secret is that he's fuelled by Red Bull, obviously. On a serious note, Adrian is unique in many respects. He has a great understanding of the car and what is required from the car; he's obviously a world-renowned aerodynamicist and also a capable mechanical designer and an accomplished race engineer.

He has an empathy with the drivers, having participated in amateur racing himself. He encompasses the whole aspect of a racing car and he isn't

precious about an idea, whether it's his or from another member of the design team. His quest is to achieve the best possible performance from a car and he's unrelenting in that sense. Above all he's a nice guy, so people enjoy working with him – he enthuses young engineers, designers and technicians because he's always accessible. He's still only in his early 50s – he's motivated, his desire and passion for the sport is very much there and I'm sure he'll be around for years to come.



"Adrian's quest is to achieve the best possible performance from a car and he's unrelenting. Above all, he's a nice guy – people enjoy working with him"



On occasions Red Bull are known for their music soundtrack – do you like the style of music and do you listen to it in when driving your car?

Victoria Palmer, UK

The choice of music in the garage comes from the mechanics and some of them do tend to play some very weird stuff. When we won the drivers' championship with Sebastian, this song, *Big Bad Wolf* suddenly started playing and I have no idea of the relevance of it. I thought the CD had jammed, but apparently it's quite a popular song...

What would you do if Ferrari bought Newey and Vettel?

Tomek Latkiewicz, Poland

I didn't know they were for sale...

What else makes your leg shake apart from Formula 1?

Tracey Thompson, UK

A phone call from Bernie Ecclestone.

Speculation keeps arising that Sebastian Vettel is going to make the move to Ferrari at some point. What has he said to you personally about this?

Daniel Coyle, UK

For any successful driver, inevitably the rumours of a seat at Ferrari are going to start circulating sooner or later. But Sebastian has grown up within the Red Bull family, he is immensely popular in the team, he's extremely comfortable in the team and while he has a long career in front of him, at this point in time he's very happy to be where he is.

Hi Christian, what is Seb's sense of humour really like? Tell the truth!

Sarah Shields, UK

He's hugely amusing and he's a very good impressionist. He can pick up accents and take them off very well. He can tell a very good joke and he's naturally just a funny guy. 🏎️

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Chasing

a return to greatness

Ferrari's challenge for the world championship ran into trouble last year, but Fernando Alonso never foundered in his commitment or motivation. So will 2012 finally see the pairing back on top?

Tony Dodgins ponders the evidence

PHOTOS LORENZO BELLANCA/LAT



When Ferrari ended their

association with Kimi Räikkönen a year early and signed Fernando Alonso in his place, they did so, they said, because they wanted a driver who would galvanise the team. Lead it in the way that Michael Schumacher had.

Neither Ferrari nor Alonso will need reminding that Fernando started the last race of 2010 as favourite to take the title. Experienced race strategists – and even the not-so-experienced – were amazed when Ferrari and Alonso covered off Mark Webber's early pitstop at the season finale in Abu Dhabi.

Yas Marina is a fiendishly difficult circuit on which to make an overtaking move stick, although it was made easier in 2011 by the introduction of DRS. On the Mercedes pitwall, race engineer Jock Clear figured on Alonso unnecessarily spending much of the afternoon behind Nico Rosberg. The reality was worse, as the Spaniard's title hopes disappeared down the toilet, leaving him fretting and fuming behind Vitaly Petrov's Renault for the entire race.

Later at Ferrari came the inevitable internal mud-slinging – and most of it seemed to stick to the unfortunate head of race track engineering, Chris Dyer. Even so, there appeared not to be any issues between team and driver – externally at any rate. So early last season we were left to contemplate an extension of Alonso's Ferrari deal that saw the double world champion committed to Maranello until the end of 2016.

"I'm very happy to have reached an agreement," Alonso announced. "I immediately felt comfortable within Ferrari and now it feels

like a second family. The intention is to finish my career with Ferrari and I can't imagine a better place to race. Maybe in 2017 we can do another contract if I'm still quick and Ferrari are still happy with me. It's not a big change for me. When two parties want to continue, you find a decision very quickly. Stability is always good for an F1 team. Ferrari have finished no lower than third in the championship virtually every year for a long time."

Well Ferrari may have finished in the top three yet again in 2011, but they were a distant third. Red Bull Racing scored 650 points; McLaren, 497; and Ferrari, 375. Fernando himself, obviously hopeful that the near-miss of 2010 could be translated into a third championship one year on, went backwards. When Jenson Button passed him in the closing stages of the final round of the season in Brazil, it relegated Alonso to fourth in the final championship classification and booked Mark Webber a seat on the flight to the FIA prize-giving in India.

What Mark thought about that in the middle of his Tasmania Challenge and off-season break in Australia is probably open to debate, but Alonso certainly will not have headed to Ferrari with ambitions – or expectations – of finishing fourth in the championship.

As for that stability Alonso was talking about, well, there was no sign of Dyer and when Ferrari's first upgrade of 2011 turned out not to be what the doctor ordered, technical chief Aldo Costa was put out to pasture. With no disrespect at all to Pat Fry (now heading up the team's technical department) you did start to wonder →



“I immediately felt comfortable with Ferrari and now it feels like a second family. My intention is to finish my career here”



managerial whims or outside influence. The racers went racing. Simple.

When it finally broke apart after a decade, there was no shortage of paddock pundits speculating on whether Ferrari could maintain the solidity that gave us the crushing domination of the Schumacher years. And yet there was no immediate drop-off. The conclusion of that 'Spygate' season in 2007 will always be fertile ground for conspiracy theorists, but through it all came Kimi Räikkönen to take the championship for Ferrari.

In 2008, Felipe Massa was in the thick of it until the last corner of the last lap of the last race and, to all intents and purposes, Ferrari appeared to have bridged 'the change.'

The signing of Alonso was another plus. Kimi was quick but questions were asked when he did not consistently beat his team-mate, despite being on a retainer believed to be many times greater than that of Felipe. Massa's accident in Hungary then sparked something of a crisis.

"For me," says Martin Brundle, "There are three world class drivers out there who are just an ounce ahead: Vettel, Hamilton and Alonso." In terms of 2011, Vettel's year needs no further qualification; Hamilton had a more forgettable season without showing that he had lost any of his inherent speed, and some of Alonso's performances, even while he was effectively fighting with one hand tied behind his back, were simply stunning.

Even so, Alonso seemed to have taken shares in fifth place on the grid as the Ferrari's relative reluctance to rapidly generate tyre temperature made the qualifying hour a tricky one for him.

"We've done a reasonable amount of homework on it," explains Pat Fry, who joined Ferrari from McLaren – a team whose car displays the opposite tendency and generates tyre heat quickly. That went at least some of the way to explaining Button's spectacular Montreal win after tyre temperatures dropped away during the Safety Car period.

"When I first started at Ferrari, because I wasn't having to run the race team or be technical director I had time to look at lots of different areas and see what we were doing and where we needed to improve. With some of our tools we have to try to understand that things need improvement – and that is coming along.

"We've got a better understanding now and we are trying to apply that understanding in terms of what we design into the 2012 car. It does all carry across a little bit into aerodynamics, a little bit into how you set the car up mechanically and also in the way we set up the control systems to link everything together. We have got to be able to get that overall balance right."

The best illustration of the problem was Alonso's race in Barcelona in 2011. From fourth on the grid, Fernando made an incredible getaway, blasted down the inside into Turn 1 and led the opening stint in a car that had no business doing so. But on the hard tyre, the Ferrari simply didn't work. By the end of the race, Alonso had been lapped.

Post-race, Ferrari team principal Stefano Domenicali was admirably candid, effusive in his praise of Alonso's performance and entirely →

F1's most relentless competitor, Alonso can drag an average car to places it shouldn't be. So imagine if he got the car he deserves...

whether these were the signs of a blame culture developing. If not carefully controlled, this can quickly become divisive and all-pervasive within such a competitive environment.

The legendary late British design guru Harvey Postlethwaite once memorably described working with Ferrari as "charming, but all a little bit spaghetti..." That all changed dramatically in the 1990s when a workaholic top-quality manager by the name of Jean Todt took over and built the team around a nucleus of Ross Brawn, Rory Byrne and Michael Schumacher.

Speak to those who know and they will relate how that core group was practically bullet-proof. It was close-knit, tight, took all the important decisions and seemed completely immune to any



“There can be no questioning Alonso’s efforts in 2011. He gave us two of the year’s best moments – that start in Barcelona and another one in Monza”

truthful about Ferrari’s need to give the Spaniard a better car. It was after this race that the tough decision was taken to remove Aldo Costa from the chief technical role.

It had been hoped that the Barcelona update package would allow Alonso to challenge the Red Bulls on a consistent basis but, in fairness to Costa, there had been correlation problems with the team’s windtunnel. While trying to make improvements, Ferrari had changed the windtunnel’s model scale from 50 per cent to 60 per cent and the early tests looked fine. But then they reached the point where increased blockage from the bigger model started to cause problems with the tests.

They had to readjust the whole shape of the tunnel, the boundary layer, the size of the belt – everything. It meant that some of their Friday running became a series of correlation exercises that had to be completed before they could concentrate on their normal runs. It wasn’t a serious problem but it certainly didn’t help.

Fry’s point about Ferrari’s tyre warm-up issues spilling over into other areas is an interesting one in a season dominated by blown diffuser performance. “You’re likely to get more out of blown diffusers with the engine mapping running a car with good tyre warm-up,” he explains. “So again, for us to make that step with our current philosophy was a little bit difficult.

“We started to look at the Red Bull sort of concept in the windtunnel in December and we were starting to think it might be a good way to go. I’m sure Red Bull would have been running theirs from September/October, so they had a three-month head start. Doing that affects the way you run your engine and adjust the stability of the car with the engine controls. When McLaren did their Red Bull copy at the first race, because they run the engine the way they do it gave them an additional advantage in all the corner entries that we couldn’t get.

“If we run the engine that way, it’s no good for the car’s stability. We would miss the corner

and head straight on with understeer. Just from the differential and engine controls we have, what we can do with the car on corner entry is still quite powerful, but the challenge lies in trying to break the loop and get out of it and do something completely different.

“McLaren used to be like us, and it took all of the winter of 2007-2008 for them to reach a point where they could run the way they do now. Whether it was worth it then, I don’t know, but that would have paid off in 2011.”

With this in mind, it’s no surprise that Luca di Montezemolo has recently been advocating a return to at least a limited amount of testing. Fry agrees: “I’d love to have been at Ferrari in the days when you opened the back door, drove the car out, went around Fiorano all day and came back to have another go the next day. A lot of that work now has to be done in simulation land – and that’s where we need to improve.

“At McLaren, we put a lot of effort into simulation because we didn’t have the luxury

Tyres were Alonso’s *bête noire* in 2011. The F150° Italia’s inability to generate heat in its tyres meant he seemed condemned to qualify P5 on the grid – his start position nine times out of 19 races





Barcelona 2011 Alonso's incredible push from fourth to take the lead foundered on the harder tyre. He was lapped and eventually finished fifth



of just popping out the back – it would have meant a trip to Silverstone. If you take testing away, it leaves some teams with a very good simulation department and others without tracks to go testing on. That's oversimplifying it, but it's the situation we have to recover from."

Some of the detail behind Ferrari's 2011 season starts to cast a different light on Alonso's year. Okay, he was only fourth in the drivers' championship, which was not the target, but the fact that he took everything there was to be had from the Ferrari cannot be in doubt.

He was feisty all year and, in the final analysis, he finished just one point behind Mark Webber's Red Bull RB7. Vettel was a runaway champion with 392 points, Button amassed 270 and Webber and Alonso finished on 258 and 257 respectively. Alonso was on the podium ten times, while team-mate Felipe Massa failed to mount the rostrum all year and finished with just 45 per cent of Fernando's total.

The characteristic of Alonso's driving that makes him so formidable is its relentlessness.


He is not just very quick, but consistently very quick, from the first lap of a race to the last, and he's usually error-free. His rivals understand that and it explains why Lewis Hamilton looked slightly affronted when a press man asked if his Abu Dhabi win had been easy. "Not at all," he replied, "I've just had one of the best drivers in the world chasing me all afternoon and to beat him is actually quite a good feeling."

Give Alonso a sniff of an opportunity and he doesn't turn it down. Considering the constraints of his car in 2011, that opportunity came at Silverstone, when for one single race the benefits of off-throttle blown diffusers were negated and he took the win and 25 points with it.

Fry explains: "The very high exhaust blowing rates was one of the areas where we've struggled with correlation and that effectively meant that our floor was optimised at lower levels than the others. Naturally Silverstone means others must run at the level we were at. They didn't have time to re-optimize their cars. The teams that took a really bad step there were McLaren, Renault

and, to some degree, Mercedes. Red Bull stayed a similar gap to us. It looked like Red Bull didn't use KERS in qualifying there, which is why we looked that bit closer."

Some questioned Alonso's levels of motivation at Renault in 2008/2009 when the team's car was not a competitive proposition after Fernando had fought tooth-and-nail for the world championship over the three previous seasons. But there can be no questioning his efforts in 2011. He gave us two of the year's best moments – that brilliant start in Barcelona and another one in Monza.

It is more a question of whether Ferrari can, as Domenicali hopes, give Alonso the car he deserves. Adrian Newey will not forget what he knows and at Mercedes the displaced Costa has renewed an association with Ross Brawn in a technical line-up that also includes Bob Bell and Geoff Willis. McLaren's technical line-up looks equally formidable. If Alonso is to achieve his ambition of taking a title in a car carrying the Prancing Horse, it will be no easy task. 

PHOTOS: STEVEN TEE/LAT; STEVE ETHERINGTON/LAT; ANDREW FERRARO/LAT; ANDY HONE/LAT

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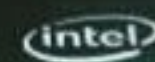
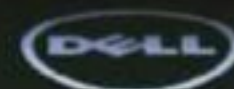
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Ladies and gentlemen...



...F1 2012 . is here

WORDS
HANS SEEBERG
PICTURES
PETER CROWTHER

Last May, the team formerly known as Lotus started the nine-month process of making their 2012 car.

This is the story of how 4,000 parts came together through a seemingly never-ending cycle of meticulous planning and ridiculously long days to reveal the world exclusive you are now witnessing: Caterham's first ever F1 car

Air Asia



Formula 1, roughly nine months ago: Sebastian Vettel was racing in Turkey, about to record his third win in the first four grands prix of 2011, prompting a fruitless attempt by the other teams to catch him and Red Bull throughout the year. But such is the relentless development of this sport that teams fight on two fronts simultaneously. There is the season in hand... and the one looming after that.

And so it was back in May that, just like most other teams, Caterham F1 started to build the CT01 – the first from within their Norfolk factory not to bear the Lotus name. For the likes of Red Bull, working on two cars at once does not pose many challenges beyond making them as fast as possible; they have over 600 people and all the state-of-the-art equipment they need. For the 250 workers at Caterham, it's a bit different.

When the teams turn up to the February tests we assume they've worked hard to put their new cars together, yet we've known little about the inner workings of making them – until now. This, quite simply, is the story of how an F1 car comes into existence, told by some of the key people at Caterham who made it happen.

MAY 2011

MARK SMITH (TECHNICAL DIRECTOR): I joined the team in mid-May 2011, which was roughly when we started to look at the 2012 car; that's when

most teams start. The percentage of the team who begin working on the next car starts off very small, as in one or two people in aero and design looking at overall architecture like the engine, transmission options, fuel-cell requirements and the wheelbase. We try to make these major decisions as early as possible.

LEWIS BUTLER (CHIEF DESIGNER): Yeah, I remember starting on this car some time in late spring 2011 – although I can't quite remember because it's always a bit of a blur.

MARIANNE HINSON (HEAD OF AERODYNAMICS): The first conversation I remember having about the 2012 car was in Mike Gascoyne's office around that time, just talking about some fairly basic stuff like whether or not we'd have KERS, the gearbox supply and things like that. We discuss those big architectural items first of all so that I can define a basic windtunnel model and a wheelbase to get started with.

MARK: We were in a fortunate position as we started on the 2012 car because we knew who our engine, transmission and hydraulics suppliers were. You have to make big decisions – would we run KERS, for example, as Marianne says. So there's an initial discussion and key decisions are made in key areas. As engineers, we'd always want to run KERS and Tony Fernandes and the shareholders were keen for us to do it as well, so that was a fairly straightforward decision.

MARIANNE: We also have a review of the regulations, to ensure we all understand what

they mean. This year, the big one was the nose, which was pretty clear from the beginning.

MARK: Absolutely. It meant that the initial aero work was focused on areas such as that change in the nose-height regulations. You have to plan some aero work and the whole thing just starts to move on from there.

MARIANNE: The only thing is, I'm terrible at sketching! What we do after that first meeting is go off and prepare some basic surfaces for the new car in CAD. I'll go back to my aero department and say, "Right, we've agreed we're going to focus on these areas," and we turn it into a windtunnel test plan. I think the first time we went into the windtunnel with a model of the 2012 car was in May sometime.

ELLIOT DASON-BARBER (HEAD OF R&D AND VEHICLE DYNAMICS): I look after simulation, vehicle dynamics and rig tests, and they get involved in every stage of the process. Vehicle dynamics is probably the first one, which is where you start talking about the concepts and work with the design department to define what we actually want from the car. At that first strategy meeting you know there will be some things on the current car that you'll want to carry through to the next one, but there comes a point where we decide conceptually what we want to do, and obviously that's very aero-driven. In vehicle dynamics, we'll come up with a set of targets about the handling of the car, suspension-behaviour targets and stiffness



targets. We have to try to establish whether the proposals we receive from the design department will help us meet the targets we've set for the car.

MARK: What Elliot is saying shows how much everything is dependant on data when you're starting a new car. In that first meeting where we begin talking about it, it doesn't tend to be a whole room of people passionately arguing the case for a certain length of wheelbase or anything like that; it's more scientific. We do simulations of the key design aspects of the car so that the big decisions are already driven by data. If you go back 20 years in Formula 1, a lot of the decisions we made were intuitive or instinctive, but that doesn't tend to happen now.

MARIANNE: We try to pool our experience a bit in these early stages. You look at certain areas of the car and think, 'Okay, areas A, B and C don't tend to be that sensitive so we're not going to spend ages looking at them in the windtunnel – we'll focus our resources on X, Y and Z instead.' In that early period, I'm trying to get a feeling from Mike and Lewis about which areas we're going to really concentrate on for those early hours in the windtunnel. A bigger team could probably go away and investigate everything, whereas we'll say, 'Okay, we know from last year that the roll hoop's not very sensitive, so we can optimise it a bit in CFD but we won't do a whole programme of testing on it in the windtunnel.'

LEWIS: It's a communal thing because we have to bring together quite a few bits of information.

But it's easier in one respect, I suppose, because we buy our gearbox so we can't change the length of it and move the engine back and forth like some of the other teams can. The rear package is pretty much set in stone.

MARIANNE: We try to choose two or three areas to really focus our development efforts on. For this car, we really wanted to look at the front suspension because it had a different nose layout for the new regulations; we wanted to push quite hard and have a significant amount of windtunnel time on the sidepod front; and then we wanted to focus on the rear of the bodywork as well. We decided to deprioritise the roll hoop and the rear suspension.

MAY – AUGUST: SHUTDOWN

LEWIS: I'd say it's about six weeks from the opening point in May when we like to be at the point where the chassis tooling is somewhere near defined – the 'driver box', in other words. You can't really do much on the rest of the car from a design point of view until this bit is done.

MARIANNE: From aero's point of view, I sat down with Lewis and Mark in about June last year to draw up a set of release dates for parts – these are the dates when aero have to confirm what a certain part of the car will look like so that it can start being designed. The first release is always

the monocoque, which went just before the August shutdown, but the roll hoop and the nose are also done in the early stages. Meanwhile, Lewis will be getting more information about the engine, gearbox and KERS – all the stuff we have to package at the back of the car.

LEWIS: We start with the tub, we have to work pretty early on some of the main architectural points that affect the car – things like the crash structures. You plan out how they'll look and work because it affects the workings of the chassis. For example, the side impact structures affect how the car will look around the sidepod, so all this has to be defined by early August.

MARIANNE: We'll also be working on the front suspension quite a bit at this stage.

LEWIS: Yes, the front suspension – working out where all the sticks are going to go! When the chassis is being finalised, that's when the suspension is getting to quite an advanced stage. Basically, anything that's bolted onto the chassis needs to be worked on pretty early on – power steering is another one, as is the fuel system.

MARIANNE: You then move on to defining things like how big the radiators should be, which is a joint effort between aero and the design office.

We want a radiator that gives the right amount of cooling but in a shape and layout that lets us put a nice, tight bodywork around it, basically.

MARK: As things develop, it's a gradual process of moving resources from the 2011 car to the 2012 one as the project moves along. →

"Six weeks after we first start talking about making the new car in May, the chassis needs to be finished"



F1 RACING: What about rule clarification? Do you ever find that you need to run a certain part or area past the FIA if you're unsure about whether it's legal or not?

MARK: Yes, we do tend to seek clarification from the FIA if there's any doubt about the interpretation of the regulations – especially if it's a regulation that impacts upon the design of a significant part of the car. For smaller things that teams are more confident about, it's more of a question of whether you take the chance and just go with it. For this car we raised two or three relatively minor things with the FIA, but nothing more than that.

MARIANNE: Yes, there were only a few very fine details on this year's car that we did have to get in touch with the FIA about. Sometimes, once you have started working with new rules, you can find a little loophole or a bit of a grey area and a lot of teams will be quite open about it and raise them in the Technical Working Group meetings that we have – or you can just email the FIA for a clarification and then they'll circulate the clarification around to the other teams if you want it to be circulated.

AUGUST – DECEMBER

MARIANNE: In the early stages we do quite a bit of work in CFD – maybe 20 per cent of our CFD resources might be dedicated to the new car. At that stage it's probably about a week a month, but after the summer shutdown almost all of the development is on the new car.

LEWIS: From August until Christmas it's a long slog trying to get the car from this basic tub shape to the point where it's ready to make and put together – there's an awful lot to define and put on it during this period.

MARIANNE: The aero department generally always want to make everything really slim and skinny, so we'll always want small radiators and thin crash tubes so we can have really swoopy sidepods and all the rest of it – but there's usually quite a bit of give and take. The whole thing is a balancing act, although I often catch Lewis rolling his eyes when we go to him with an idea for what he sees as some impossible aero innovation! Either that or he just puts his head in his hands...

LEWIS: Ultimately, though, there's about 4,000 parts on an F1 car, and they all go past my desk before they go through to production.

F1 RACING: How do you ensure that no one misses a deadline?

MARK: Well, we have a project planner, who puts together a very comprehensive schedule for the design and manufacture of the 2012 car. It's very deadline-driven: the guy who's working on the power-steering system knows that by such-and-such a date all the components have to be issued to be manufactured. It isn't totally set in stone, though – if there's something happening in the aero world that suggests there could be gains if we spend an extra three days working on a particular area, then we will.

MARIANNE: Yes, I'd say that we tend not to miss deadlines, but if we do it's usually because we're chasing some extra performance.

MARK: And then, by the time we get to early autumn, there's a weekly meeting to see how things are getting on.

MARIANNE: And it's through the autumn that you tend to get a feeling that certain areas of the car are more productive than others. So I might say to Lewis, "Look, we haven't found so much from, say, the bodywork, but let's stretch out the time for the diffuser." Everyone wants to push deadlines as much as possible.

MARK: Once you're in December there are daily meetings to check the progress of where we are in relation to the schedule. You only have to have one or two things fall behind and it can throw out the whole schedule of the car. →

"Around 4,000 parts need to be signed off between August and January"





The full-scale replica Made by rapid prototyping, this model allows the team to map out all of the car's internals

The finished front wing A wing sits in the workshop with a sticker on it approving it for use at the first test in Jerez



The nose New regulations mean nose-height changes for 2012, so a lot of extra work has gone into this area



The tub Also known among the team as the 'driver box', the tub is the first thing to be designed and made in the process of building a new F1 car. Caterham's 2012 version was signed off before the August shutdown



FACTORY PHOTOS: ANDREW FERRARO/LAT



The, er, hairdryer The best way to cure parts, without them bubbling due to excess heat, is with a standard hairdryer



F1 RACING: So does everyone live in fear of this schedule planner Mark just mentioned?

LEWIS: A little bit...

ELLIOT: The planner's sole role is to go round and bash the right people at the right time and make sure that everything's happening when it should.

LEWIS: It's very tricky for us in design because, like I say, there's about 4,000 parts that need to be made in the second half of the year. Let's just say there's a fairly 'aggressive gradient' for what parts need to be made when. It's quite a tight system: there are tracking numbers for each part of the car and you can track where we are relative to the previous year's car. There's a spreadsheet up in the office with all this information on it, but I'd say it really ramps up in October and just gets worse from there. Then, in the new year it calms down a bit. But you need that schedule document, just to make sure everyone's working on the right bit at the right time.

ELLIOT: It does make it a lot easier, because it ensures that nothing slips through the cracks.

LEWIS: It's an incredibly busy period, though. I'll be seeing new parts right up until the point where the car's put together. November is usually a big month for new parts coming through.

MARIANNE: The last things that go in the run-up to Christmas are the bodywork panels at the rear of the car and the diffuser and front wing – you keep working on these things for as long as possible. The front wing is vital because a lot of performance can be found from it. It's also an area that's relatively quick and cheap to update, so we work on it until the last possible moment. We'll go through hundreds and thousands of iterations with the front wing. In three or four days of windtunnel testing you could easily test 50 or 60 variations of front wing endplates.

ELLIOT: In my job, one of the things that changed this year from 2011 was the rule that all cars have to be fully homologated before the first test – basically, they have to have passed the crash tests before they can go round the track at Jerez on 7 February. Around October time we started doing things like crashing the nose and side structures and learning about how these individual components behave. Fortunately everything worked as we hoped it would, which meant that when we went to our 'witness' test with the FIA, we passed all the tests in a week. It's a gruelling process – you're talking about working from 5am till 10pm every day and, at the end of the week, the person from the FIA will tell you if you've passed or not. It's the sort of thing that keeps you up at night, definitely. But then you have to draw a line under it and keep pushing. Ultimately, passing the crash tests doesn't make your car go faster, it just means you can turn up to testing.

MARK: But to have all the crash tests passed the week before Christmas was a big help – it means

we didn't have to divert people onto solving whatever those problems might have been and everyone could just go off and enjoy their turkey.

LEWIS: The other slightly crazy thing is that we were already working on updates for the car in December – that's two months before we even test it for the first time.

ELLIOT: That's right, we were doing our race one updates in December. There's a production process that means you have to say, "Right, we've got to be at that first test – so how long is it going to take us to design all of the parts, make them and develop them properly in the windtunnel?" You've got to then go back and say, "That's the point where we have to freeze parts for the first test or the first race."

LEWIS: We had a race one front wing that was finished just before Christmas.

DECEMBER ONWARDS...

ELLIOT: It's weird, because making an F1 car is a bit like watching one of those home renovation programmes like *Grand Designs* or something. You feel as though there's this whirlwind of activity where everyone's rushing around, but you're looking at it thinking, "This is never going to get finished" – and then in the last couple of days it does. The last week when the build starts happening is quite incredible.

LEWIS: But you're never truly happy until you see it running – and running reliably...

MARK: The fire-up is a massive milestone because it's the time when the new car comes to life. But when it runs on track for the first time is another milestone as well, because a car can be fired up with almost no bodywork on it – it can look a lot different to the animal that's driven out of the garage for the first time.

MARIANNE: The thing with aero is that there's never a finishing post. We move directly from the launch car to race one updates and, before you know it, we're developing updates for the first European race. In aero, we probably get more excited about the first race updates than the launch car, because that's when we really get to see some performance gains.

F1 RACING: So which part of the Caterham CT01 car are you most proud of?

"Making an F1 car is like watching *Grand Designs* – you never think it'll get finished, and suddenly it does"

ELLIOT: We've tried to evolve this car from last year's. Last year we tried some clever things with front suspension that we didn't really realise the potential of; this year we've tried to develop them. Getting that to work has been a challenge.

LEWIS: Yeah, I'm quite a fan of the front suspension. There's a lot of detail in that area and a lot of work goes into it. I think the level of detailing on this car in the coming season will be noticeably better than the 2011 car. There's just more detail in every area – it'll look a bit more like what I call 'a proper F1 car'.

ELLIOT: I have to say that the detailing around the back end and the sidepods is brilliant as well – even though it was nothing to do with me. It just looks like a step forward. I'd love to be able to say it was down to a damper or suspension concept, but I can't.

MARIANNE: I like what we call the 'lole' – the lower leading edge, which is the bit of the floor at the front of the sidepod – because we've got a nice arrangement of thin side-impact tubes this year. We've been able to make that lole quite thin, which is good, and we've worked hard to prove that there were potential gains to be had there. I really like the rear of the bodywork, too. The wheelbase is longer this year because of KERS and gearbox packaging, which has allowed the rear of the car to look quite different.

F1 RACING: Does making a new car ever get so stressful that you wish you did a normal job?

ELLIOT: Oh yeah – absolutely...

MARK: I have said in the past on occasion that I wanted to go off and be a postman in the Peak District, but that hasn't happened this year.

MARIANNE: Overall no, but there's a several-month period in an F1 engineer's life every year where you don't see much daylight. For me that's from about October onwards – everyone puts in some pretty serious hours. Sometimes you catch yourself at the end of a 16-hour day wishing you had a normal job, but I can't really think of one that I want to do, to be honest.

ELLIOT: Do you want to know the really scary thing? We've already started looking at the 2014 car, because of the big rule changes.

MARK: Oh, and don't forget everyone: it's only about four months until we start talking about the making of the 2013 car... **F1**

Get ready for the first issue of the team's insider mag, coming soon via www.caterhamf1.com



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imagination at work

EVAPORATION
SAFETY

"Tracks have to be designed for F1 and MotoGP – that **compromises** us"

"We are presented with a piece of land – and it has its **limitations**"

"We don't have the **monopoly** on building F1 tracks – we just make fewer mistakes than anyone else"

Tilke's Indian GP circuit features elevation changes created by shifting 4million cubic metres of earth



TILKE

answers his critics

Flat, uninspired and impossible to overtake on: why do Hermann Tilke's circuits get so much flak from fans? Here, he explains what he's up against

WORDS JAMES ROBERTS PORTRAITS LORENZO BELLANCA/LAT



T

here is one man in F1 who has a lot to answer for. Over the past decade, the sport has increasingly migrated away from traditional tracks in its European heartland and expanded to new state-of-the-art but soulless autodromes, east of Silverstone. Popular venues such as Imola, Estoril and Zandvoort have made way for new 'facilities' in Bahrain, China, Turkey, Korea, Abu Dhabi and, most recently, India. All have been designed by one man: Hermann Tilke.

Critics argue the 'Tilke-drones' offer nothing more than insipid racing, don't provide drivers

with any real challenge and have none of the crumbling majesty of Spa or Monza. Sir Jackie Stewart, master of the Nordschleife, the most daunting circuit on the planet, is one such critic. "Today, I think all the tracks are too similar and the corners too uniform," he says. "When you look at the major golf courses around the world they are all designed by different people and the problem is that too many new F1 tracks are too similar as they are designed by the same person."

A lack of challenging high-speed corners; wide run-off areas that don't penalise drivers; impossible to overtake on: are these criticisms fair? In the light of India's GP debut in 2011 and the new venues planned in Austin, New Jersey and Sochi, Russia, there is little chance of F1 returning to the likes of Zandvoort or Imola any time soon. The future is Tilke.

The German racing-driver-turned-engineer founded Tilke GmbH in 1984 and was a consultant on the revamping of the Nürburgring. Ten years later, architect Peter Wahl joined the company and the pair expanded the firm. Its staff now number 350 people worldwide, with as many as 40 people working on each F1 project at any one time, covering all aspects of the site from engineering and soil analysis to architecture and asphalt-laying. Currently ten circuits are in the pipeline, mainly for categories below F1, including the Moscow Raceway and a new track in Germany. Recent construction work has even expanded to include hospitals, too.

But in the world of F1, we thought it was time for Tilke and his right-hand man Peter Wahl to answer the criticisms levelled at them. And let's face it, there have been quite a few... →

ILLUSTRATION: ALAN ELDREDGE

Why are so many of your circuits flat? If you wanted to increase the spectacle of the track, then why haven't you recreated the awesome challenges presented by corners such as Eau Rouge, with its huge changes in elevation?

Peter Wahl: We are often criticised for this, but people have to realise that we are presented with a piece of land and it has its limitations so we cannot always do everything that we want with it. An exception to this was the new Buddh track in India – there we moved around 4million cubic metres of earth to bring in a number of elevation changes. You can't always see that on TV and it would be even better to shift 20million

cubic metres – but the problem is that no one can afford to do that. We want interesting corners, we want places that provide overtaking opportunities, but we are always fighting against boundaries in the land and budgets and that limits how creative you can be.

When Nico Rosberg first drove the new India circuit, he congratulated you on what a challenge it was. But you have built other tracks, such as Shanghai and Korea, that haven't been so great. Why is that?

Hermann Tilke: A problem we are often faced with is that when a client wants us to build a race track, they want us to produce a circuit that can

be used for Formula 1 and also for MotoGP. This is another compromising factor in our design, so you will see that when we built the track in India we built two corners at certain points. The most obvious one is at Turn 10 where we have one inside corner for bikes and a separate outside corner for Formula 1. In addition to this, there are different safety rules from the two sets of governing bodies, FIM and the FIA. We calculate the speed and the braking points for both categories and then we take a look at the options on the outside of the corner. For example, the bikes prefer to have gravel traps on the edge of corners, whereas safety research in Formula 1 points more towards asphalt run-off areas.

Sepang in Malaysia was the first complete Formula 1 circuit to be built by Tilke, back in 1999



One of the biggest criticisms of your circuits is that they no longer penalise drivers who go off the road. In the past, if a driver made an error they paid for it – quite often with a very big accident – which increased the level of skill and bravery required to enter a corner. Now if they get it wrong, they simply come back onto the track...

Wahl: Well, I think 'penalised' is the wrong word. When we had more gravel run-offs you risked going off on the first lap and your race being completely over. So now a driver can catch his car on the asphalt run-off and continue in the race. Yes, he's penalised by losing a little bit

of time in comparison to a rival, but he has no longer lost the whole race, which I personally thought was stupid. Also, a driver can now take more risks, so that can lead to more exciting racing and overtaking.

Why can't we have more corners that drivers rave about, like 130R at Suzuka or Copse at Silverstone? Why are there so few high-speed challenges at your new tracks that really test a driver's skill?

Tilke: The problem is that it's very difficult to design really fast corners that are challenging because the best ones – like those you've just mentioned – are exciting when you have to lift off the throttle ever so slightly. That's when they are a challenge. So we calculate a radius of corner to achieve this, but then discover that the following year the downforce on the cars has increased so much that the same corner is now easily flat-out. Think of Eau Rouge: yes, it's a fantastic corner, but it's now easily flat in an F1 car and it's no longer down to the driver to make the difference. So you can see our problem when you factor in the continual changing of the regulations and the development of the cars.

So do the drivers have an input into your circuit designs?

Tilke: Yes, they do, but in a positive way, because they are using what we have created and we listen to them quite carefully. Sometimes the drivers do criticise but they never say the track is bad, they might say that maybe one particular corner could be better if it was opened or tightened slightly. Just details, really.

Since you built your first major F1 circuit at Sepang in 1999, what mistakes have you learnt to avoid in future creations?

Wahl: We've been trying to improve all the time since Malaysia – maybe we had features in Sepang that didn't work so we left them out of our next design. After we've completed a track we analyse the race and then if something is obviously good, we put that into the next design. We like the criticism, but only if it's constructive

"We want to have interesting corners, we want overtaking opportunities, but we are always fighting limitations in the land and budgets and that limits our creativity"



ILLUSTRATIONS: ALAN ELLDRIDGE. INSETS: ANDREW FERRARO/LAT

and fair. Then we learn: you can only learn by having critics. But we do think that every track we've done from Malaysia up until now has been a step forward.

Another criticism is that your tracks don't offer enough overtaking opportunities. India might be a great challenge, but where was the action in that race?

Tilke: If you look at Turn 3 in India, you'll see we've doubled the width of the track in the entrance to the corner, which has a blind apex. This happened after some long discussions with the FIA and some of the drivers. With this →



The Istanbul Park circuit is one of Tilke's more popular tracks, rightly famed for its fast, sweeping Turn 8

Three classic Tilke corners



Turn 8: Istanbul Park, Turkey

It hasn't got a fancy name, but Turn 8 is the stuff of legends. A four-apex left-hander, drivers need to build the speed through sixth gear at 165mph, trying to avoid the kerb on the exit that can throw them off track. Clipping each apex full-throttle on full tanks on the opening lap is a nervy experience...



Turn 10: Buddh International Circuit, India

Drivers accelerate through 120mph in fourth gear on this slightly banked right-hander that suddenly tightens on the exit. They can just get away with running their left-hand wheels over the kerb and Astroturf, then it's downhill dropping away and back onto the power into the next roller-coaster turn.



Turn 14: Sepang International Circuit, Malaysia

This is one of the hardest corners on the calendar to perfect. As drivers approach this right-hander in sixth gear, it's very difficult to choose a braking point turning at the same time into second gear at 75mph as the corner tightens. The apex is on a slight incline, which makes it blind, then it drops away off-camber at the exit, unsettling the car under acceleration.



layout, it makes it harder to defend and opens up an opportunity to take more than one line into the corner. When you have a car behind you, you have to defend the inside, but the car behind will have a wider entrance and a faster exit for the following straight, so a corner like this should encourage overtaking. That's the theory behind it. I'm convinced that it works but, of course, it doesn't work every time. Look at the hairpin at Hockenheim: we widened it and it works. You get overtaking all the time at that corner.

One of the main problems you get in F1 is that the grid is ordered fastest to slowest, so unless there is a differential in tyres, or a driver makes



Shanghai is a typical Tilke track with a long back straight followed by a hairpin turn



a mistake, then you're going to get races where nothing happens. It's unavoidable.

Sir Jackie Stewart says the problem is that all the tracks are designed by you. Why do you have the monopoly in F1?

Tilke: We don't. Singapore wasn't designed by us: an Australian company called KBR took our initial idea and designed the circuit.

I suppose the reason we get asked is that we make fewer mistakes than other companies because we have the experience of over 60 tracks. We haven't done a bad job in the recent years – if we had, we wouldn't be still doing this.


Tell us about the New Jersey street track, which is scheduled to host a GP in 2013...

Wahl: The circuit is on the Hudson River, in a westerly direction from downtown Manhattan and will be on a steep slope with an elevation of 60 metres. There will be some really fast sections on this street course and a maximum speed of 200mph. There will be partly permanent pits – the ground floor will be the pits and the first floor will be temporary, like in Monaco. In terms of elevation it's like Spa, but with a Monaco street-course nature – so imagine a combination of those two in New York. It will also be a green race: you won't be able to get there by car.

And what's the situation with the Russian GP circuit at Sochi for the following year?

Tilke: Sochi is a track that will be built inside the Olympic village, around the stadiums they are building now for the 2014 Winter Olympics. We will have a permanent pit building and a main grandstand, but all the other main parts of the track around the stadiums will be non-permanent. Sochi is a great location: it has decent hotels and is a good Russian tourist area.

Finally, which is your favourite circuit in the world?

Tilke: It has to be the Nürburgring Nordschleife. 



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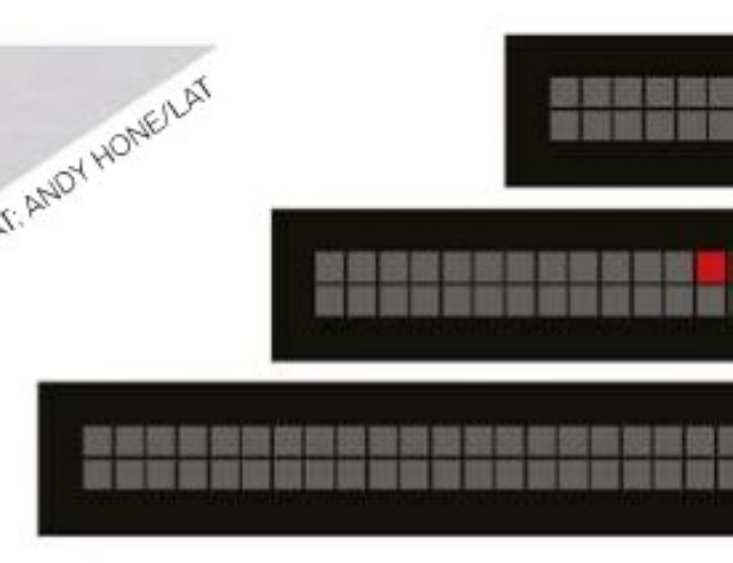


THAT EFFECTIVE?

The adjustable rear wing accounted for less than half of all overtaking manoeuvres that took place over the 2011 F1 season



PHOTOS: CHARLES COATES/LAT; GLENN DUNBAR/LAT; ANDY HONE/LAT





■ The red boxes show how many DRS and non-DRS overtakes took place at each race





RENAULT

SIEMENS

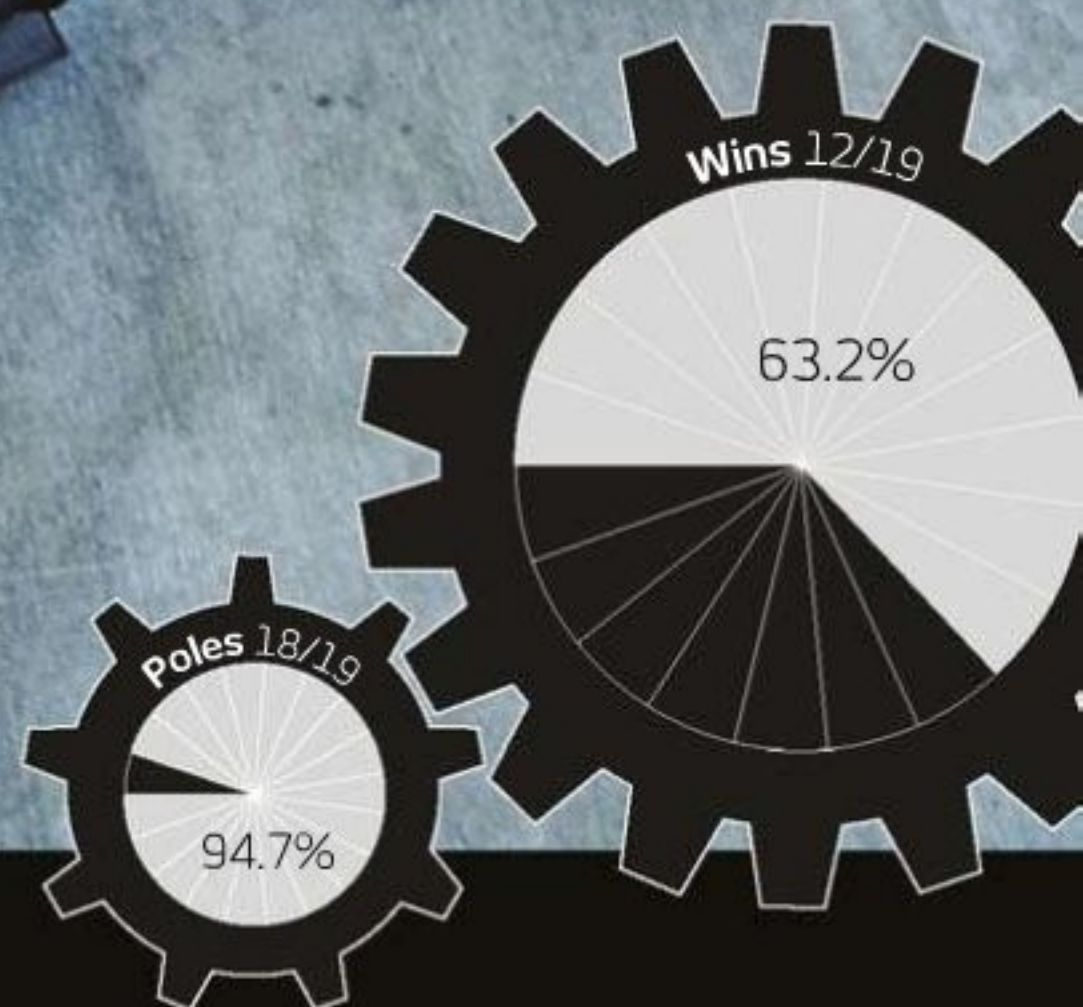
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Lean, mean, winning machines

With 18 poles and 11 wins under its belt, last year's Red Bull RB7 certainly ranks as one of the best grand prix cars of the past 25 years. We judge its merits against three other dominant machines

WORDS JONATHAN REYNOLDS MAIN PHOTO STEVEN TEE/LAT

Red Bull Racing RB7 2011



The Red Bull RB7 was an evolution of the aerodynamically dominant RB6 rather than a new concept, yet it differed from its predecessor in several ways. Chief among them was the need to fit in KERS. Red Bull hadn't bothered with it when it was first used in 2009, feeling that the weight penalty and packaging disadvantages outweighed potential performance gains. But as the FIA raised the minimum car weight for 2011, the team decided to proceed with the technology. Adrian Newey chose to package it low down under the fuel cell, refusing to compromise the shape of the bodywork because, as with the RB6, the strength of the RB7 was in its aerodynamics.

Red Bull had maximised the performance of their front wing and the flow of air downstream over the tight packaging at the rear enabled maximum airflow between the tyres and into the brilliantly engineered diffuser. With double diffusers banned for 2011, they regained downforce by refining the off-throttle exhaust-blown diffuser concept they had pioneered the year before. This system involved energising the airflow entering the diffuser with hot exhaust gases, even when the driver was off-throttle.

Other teams imitated the system, but no one got it to work as consistently well as RBR. Onboard cameras revealed Webber and, in particular, Vettel, were quicker on the throttle out of corners than the competition. But where in previous years this downforce had come at the expense of outright speed, in 2011 Vettel was untouchable at previous bogey tracks Spa, Monza and Montreal, showing they'd struck the perfect balance between drag and downforce.

Red Bull were at pains to ensure no detail was overlooked on the RB7. For example, it has emerged that Vettel's tyre failure on the first lap in Abu Dhabi was due to a system that used exhaust gases to heat the rear tyres – which explains why he was so exceptional on the opening lap of races. The only question over the RB7's dominance is that while Vettel repeatedly crushed the opposition, Webber's performances were much weaker. If the car was so far above the rest, surely they should have achieved more than the three one-two finishes they delivered?



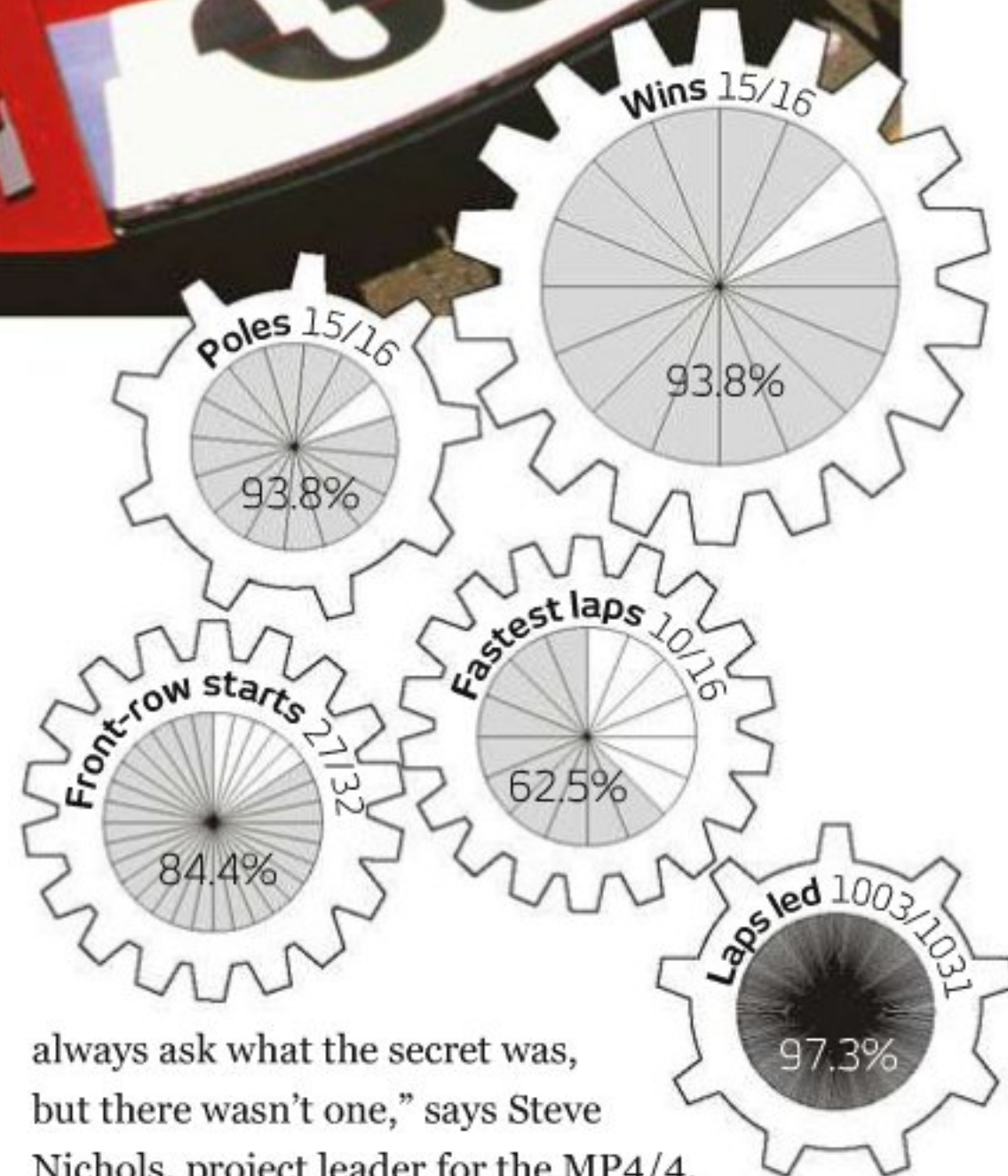
McLaren MP4/4 1988

When he returned to the pits after his first test run in the McLaren MP4/4 Ayrton Senna sat stunned in the cockpit. When he finally got out he said simply: "This car's going to be fucking quick!" His teammate Alain Prost's response was reportedly to go straight to team principal Ron Dennis to tell him the car would win the world championship. The MP4/4, it seems, was special right out of the box.

Arguably McLaren's finest-ever creation, the stats alone do the talking: the McLaren MP4/4 won all but one of the 16 GPs in 1988, just missing a clean sweep when Senna tripped over Jean-Louis Schlesser at Monza. Senna and Prost finished one-two on ten occasions and the team's final tally was nearly three times that of runners-up Ferrari and only two points fewer than the rest of the field combined.

What's so remarkable is that few had foreseen such domination. McLaren may have acquired Honda turbo power for 1988, but their hand was expected to be significantly weakened by new regulations that sought to equalise the performance of normally aspirated cars ahead of the 1989 turbo ban. Turbo boost was cut from 4 bar to 2.5, lopping off more than 300bhp, while fuel allowance was cut from 195 litres to 150. All this, plus the fact that normally aspirated cars were allowed to run 40kg lighter, makes McLaren's domination even more staggering.

But to suggest that an engine advantage was the reason is to do a disservice to the car. "People

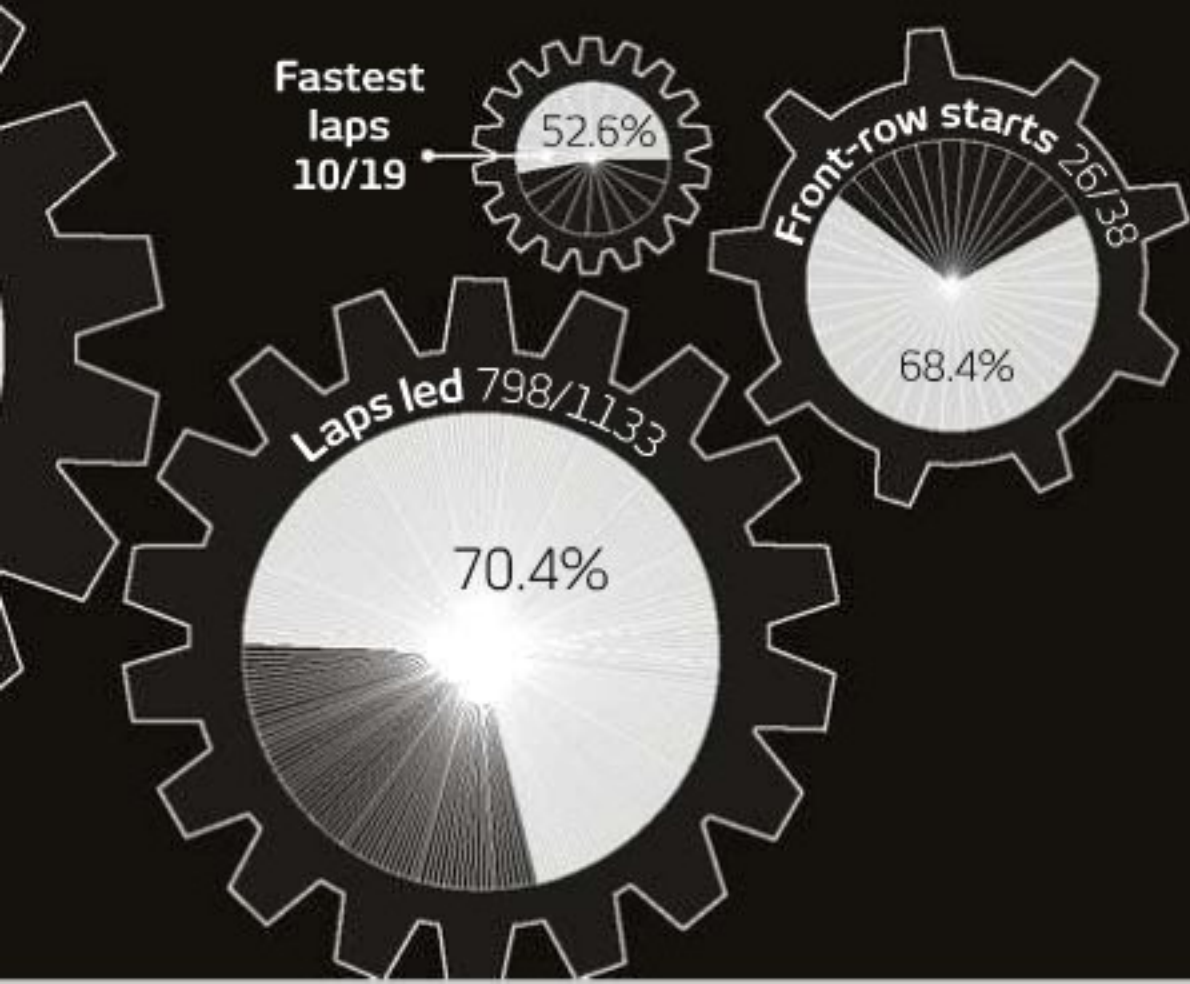


always ask what the secret was, but there wasn't one," says Steve Nichols, project leader for the MP4/4.

"The car was good in every respect and gave the drivers confidence. They could wring its neck, really give it some shit, and it asked for more."

The car had a sleek, low-lying appearance and although this demanded a more prone driving position, it brought with it an improved lift-to-drag ratio. This meant that even when running modest amounts of wing, the downforce produced was immense. To fit the engine so low a three-shaft gearbox had to be designed and built, but once it was in it gave major aerodynamic advantages. The clever rear suspension also made the car very stable under braking and gave the drivers excellent traction.

Rivals couldn't sit back and hope the McLaren would break since it suffered only one mechanical failure when Prost's engine blew at Monza. In an era when cars often broke down, you could argue that the MP4/4 was so dominant that it was just never pushed to breaking point. →





PHOTOS: LAT ARCHIVE

Williams FW14B 1992

With its active suspension, traction control and semi-automatic gearbox it's little wonder that the Williams FW14B has been described as the most sophisticated F1 car of all time. Yet what's often overlooked is the fact the FW14B was only ever intended as a stop-gap, but became such a successful development of 1991's FW14 that the planned FW15 was never needed.

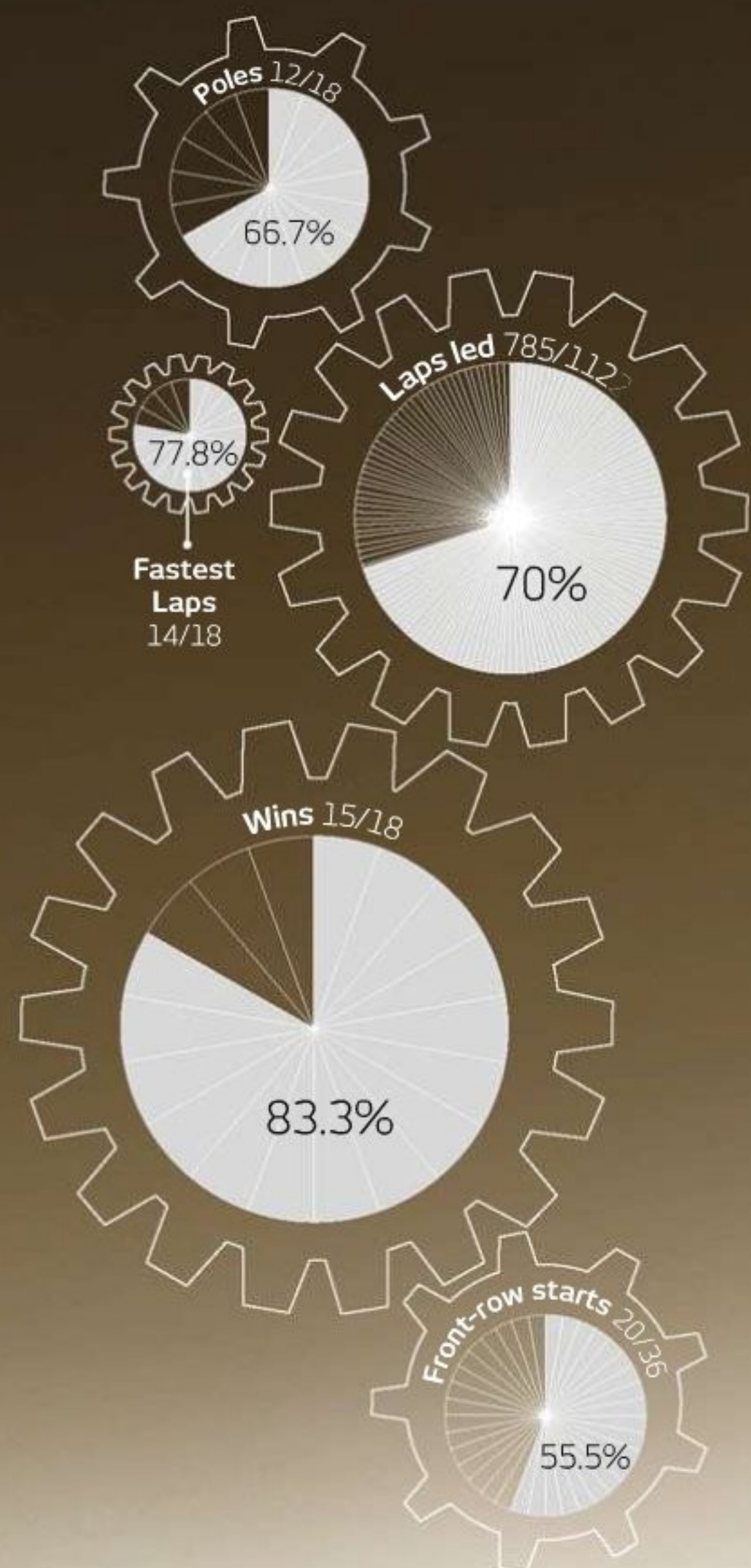
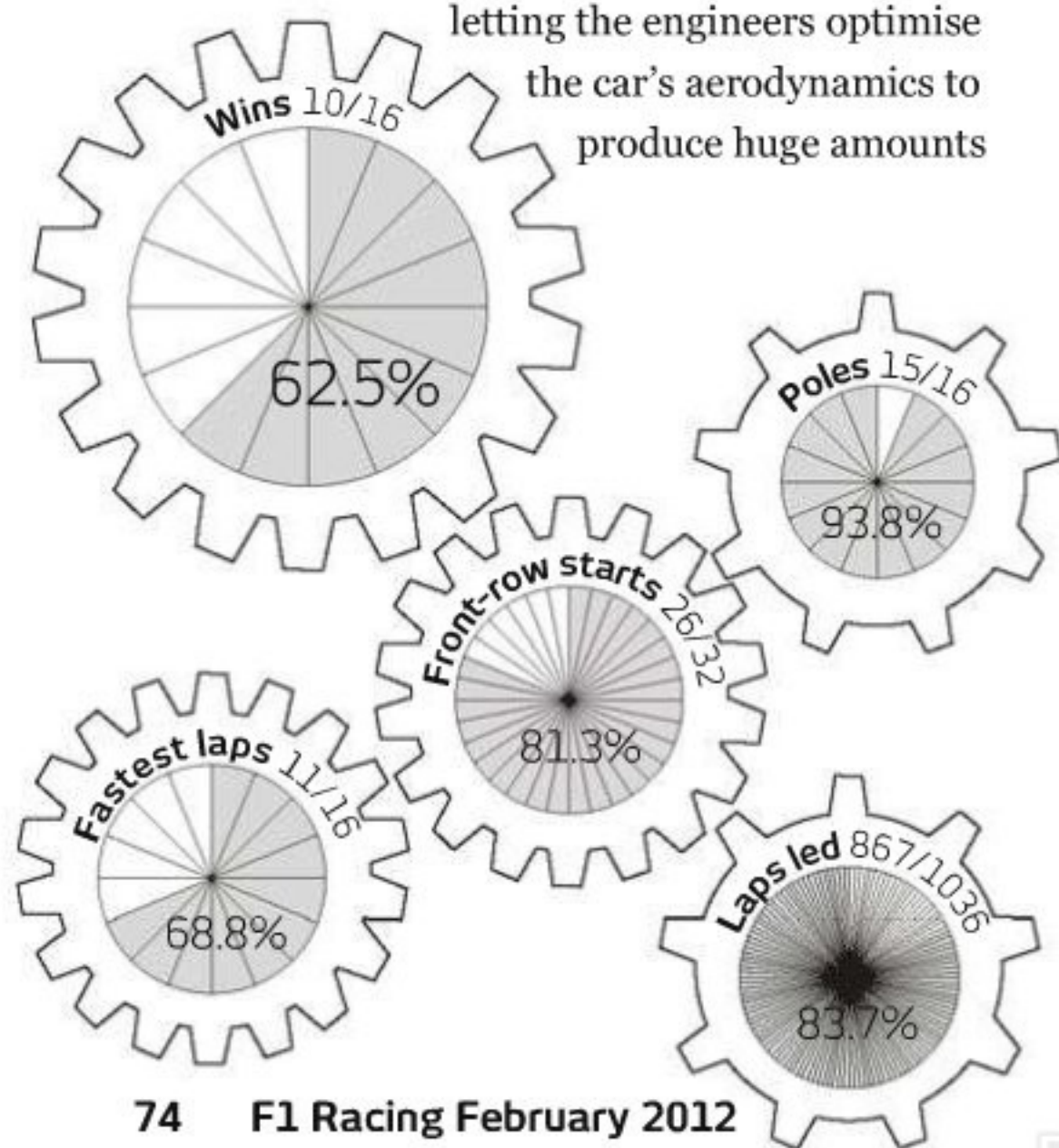
The FW14B differed from the FW14 both mechanically and aerodynamically, but the major difference was that the 14 was designed as a passive car whereas the 14B utilised active suspension. Put simply, this computer-controlled system offered control of the car's ride height,

letting the engineers optimise the car's aerodynamics to produce huge amounts

of downforce on a consistent basis. This gave the drivers far more grip than their non-active rivals' cars were able to produce, and the gutsy Nigel Mansell took full advantage, winning five consecutive races to start the 1992 season. To underline the dominance of the package, Mansell's team-mate Riccardo Patrese was second in four of the first five events.

Active-ride aside, the FW14B was a hugely impressive car in its own right and one that co-designer Patrick Head insists could have won the world title. The semi-automatic gearbox, for example, let the drivers make quicker changes and keep both hands on the steering wheel at all times. Over a lap it may not have made a huge difference but over the course of a race, it was an advantage over the majority of the opposition.

Traction control also made the driver's job easier, particularly midway through a stint when the tyres started to lose their grip and the driver's concentration could begin to waver. The team's technical director, Adrian Newey, reckoned that the progress made by the Renault's 3.5-litre V10 and their oil supplier Elf was such that Williams could have won the first few races even without active ride. In fact the FW14B was so dominant that there were concerns about the damage the car's superiority could do to the sport. In reality, Williams ended up winning ten out of 16 races, but it took 19 years for Sebastian Vettel to break Nigel Mansell's 1992 pole record – and even then it happened over 19 races rather than 16.



Ferrari F2004 **2004**

After he crushed the opposition in 2002, Michael Schumacher's march to the 2003 title was a tighter affair and, with McLaren, Williams and Renault all gaining momentum, many predicted an end to Ferrari's dominance. But the Scuderia had learned from their struggles with the F2003-GA and set about creating the F2004, which went on to win 15 of the 18 races on the calendar that season.

Built in the midst of the Bridgestone/Michelin tyre war, initial pre-season testing of the F2004 suggested that Ferrari were struggling, but they were deep in development work with tyre firm Bridgestone, establishing a relationship with the tyre supplier like no other team had had before or since. Indeed, not a single piece of suspension would be made without first consulting the Japanese manufacturer as to what effect it would

"After five races and five **Schumacher victories**, the bookies were giving odds on the German winning every single race"

have on the performance of the tyres. After five races and five imperious Michael Schumacher victories, the bookies were giving odds on the German winning every single race.

The car itself, designed by Rory Byrne and Ross Brawn, had a shorter wheelbase and smaller gearbox than its predecessor to aid handling and aerodynamics respectively. The intricately designed chimneys, winglets

and bargeboards helped to create a car that generated plenty of downforce and Paolo Martinelli and Gilles Simon ensured that the 053 engine was bettered by no one. Additionally, the F2004 had superb reliability – neither Michael Schumacher nor Rubens Barrichello suffered a race-day technical failure in 2004. A modified F2004M even started the first two races of 2005.

Ferrari had a technical team working in perfect harmony to develop the car and in Schumacher they had a driver at the top of his game, constantly pushing the team forwards. He and Barrichello recorded an incredible eight one-two finishes and the likelihood of every race turning into another Ferrari procession meant that TV viewing figures slumped in many countries – not good for the sport, but an excellent barometer of the F2004's superiority. **F1**



Four grand prizes

McLaren unlock their impressive trophy cabinet to reveal four favourites from their huge collection of GP-winning awards from the past 40 years

WORDS JAMES ROBERTS PICTURES ANDREW FERRARO/LAT

Coupe de S.M. Leopold III trophy

Presented at: 1968 Belgian Grand Prix,
9 June 1968 – Spa-Francorchamps
Winner: Bruce McLaren, McLaren M7A



INSETS: LAT ARCHIVE



McLaren
win
number

1

The first of McLaren's 175 F1 victories came over 40 years ago when Bruce McLaren took his maiden GP win as a driver and constructor at the 1968 Belgian Grand Prix. McLaren crossed the line in the M7A to take what he believed would be second place. Yet unbeknown to him, Jackie Stewart, who had been leading, had been forced to pit his Matra on the very last lap, handing victory to McLaren. The New Zealander learned he'd won only after being notified by one of the BRM mechanics. "It was about the nicest thing I'd ever been told," he said afterwards.

Bruce McLaren was presented with the prestigious Coupe de S.M. Leopold III trophy, which had first been won by Tazio Nuvolari at Spa in 1933. The cup was then awarded to every subsequent winner of the Belgian Grand Prix up until 1990. The last time it was handed out was when Ayrton Senna took his third consecutive race win at Spa – and it would appear that after that impressive hat-trick, McLaren were allowed to take the illustrious award home to keep.



Senna wins for a third time at Spa in 1990 and the cup is duly retired to McLaren's trophy cabinet

1976 United States Grand Prix trophy

Presented at: 1976 United States Grand Prix, 10 October 1976 – Watkins Glen

Winner: James Hunt, McLaren M23



INSETS: LAT ARCHIVE

The 1976 US GP was a crucial victory for McLaren. After taking the spoils a week earlier at Mosport, James Hunt needed to continue to apply the pressure on his Ferrari rival Niki Lauda at Watkins Glen if he had any chance of clinching the world championship.

Jody Scheckter led the early stages of the race, with Hunt moving in to take the lead with only a dozen laps remaining. After suffering oversteer, Lauda could only manage third,

which meant the title would be decided in a thrilling showdown at Fuji. On the podium, Hunt was presented with a bowl trophy, which was inscribed: 'The Grand Prix of the United States World Championship of Drivers, Watkins Glen, New York, USA, 10 October 1976.' It was filled with champagne and he duly drank from it... just the first drop in a long night of celebrations for Hunt, who then moved on to the Seneca Lodge watering hole down the road in Watkins Glen. →



McLaren
win
number

21

1993 Grand Prix of Europe trophy

Presented at: 1993 Grand Prix of Europe,
11 April 1993 – Donington Park

Winner Ayrton Senna, McLaren MP4/8



Although Ayrton Senna was starting the 1993 season on a race-by-race basis, he was tempted to stick around for the whole year with McLaren after his dominant win at the rain-soaked Grand Prix of Europe.

Senna's opening lap has been well-documented, but the MP4/8 also featured some of the most advanced electronics ever seen in F1 up to that point, including a sophisticated traction-control system – something that is regularly overlooked by those recalling Senna's performance on that wet April day. The podium was a strange double-take with Senna wearing two caps and receiving two trophies. The first, handed over by Donington Park owner Tom Wheatcroft (bedecked in a top hat) was a bronze replica of Sonic the Hedgehog in deference to Sega's sponsorship of the race.

Since Sega also sponsored Williams, it was perhaps rather apt that Senna had a sticker of a squashed hedgehog on the side of his McLaren. Unsurprisingly, that trophy is nowhere to be seen at McLaren, but the elegant, 'Grand Prix of Europe, Donington 1993 – Winning Driver' trophy is still on display.



2011 Canadian Grand Prix trophy


Presented at: 2011 Canadian Grand Prix
12 June 2011 – Montreal

Winner: Jenson Button, McLaren MP4-26



INSETS: CHARLES COATES/LAT; ANDY HONE/LAT

On a wet June day at Montreal last year, Jenson Button occupied every position between first and last. He made contact with his team-mate Lewis Hamilton, as well as Ferrari's Fernando Alonso, and pitted a total of six times. Yet JB's delicate driving in the treacherous conditions and the numerous appearances of the Safety Car allowed him to take a memorable victory at the 2011 Canadian GP.

Despite a two-hour delay due to the horrendous, driving rain, Button managed to keep spectators on the edge of their seats as he hunted down Sebastian Vettel and forced him into an error on the last lap of the race. McLaren's technical director Paddy Lowe rates it as the best grand prix victory he's been involved in. "It was probably the most extraordinary race and most unlikely victory in F1 history," says Lowe. "And I was there on the podium!" 

McLaren
win
number

171



PRESSO

PORTRAIT LORENZO BELLANCA



WHAT PRESSO

SURE?



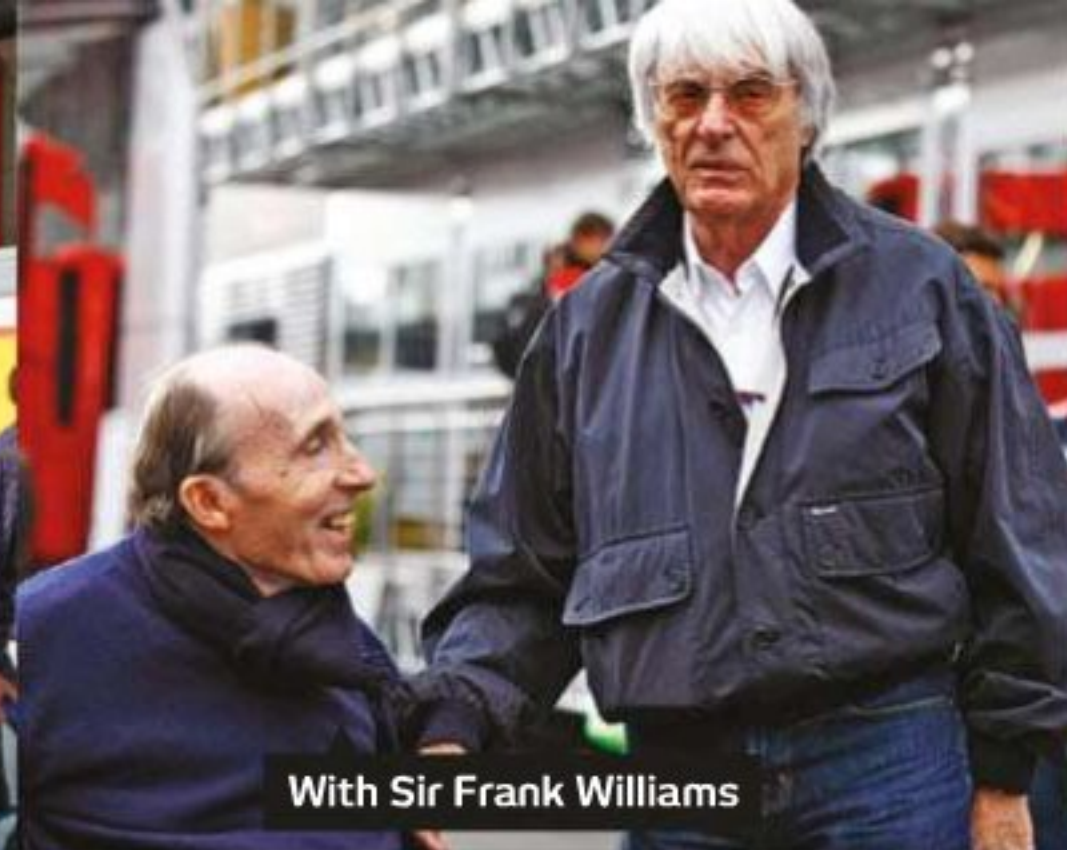
As F1 enters a crucial year politically, the sport still remains under the command of just one man. Faced with nagging issues over bribery court cases, Sky TV, the sale of CVC and Bahrain, can Bernie sort it all out... again?

WORDS TOM CARY **PORTRAIT** LORENZO BELLANCA/LAT

SURE?



With McLaren's Martin Whitmarsh



With Sir Frank Williams



With Ferrari's Stefano Domenicali

WHAT PRESURER?



A grey November day in Bavaria and a gaggle of press and public have been queuing for hours to gain entry to Room 101 of Munich's Higher Regional Court. There is a hush of expectation. Most of those gathered have never met the star witness in what has been billed as 'Germany's biggest post-war corruption trial.' But they know all about him.

They have heard how presidents and prime ministers trip over themselves to give him what he wants. They have heard about his family's lavish lifestyle (his daughter Tamara has just starred, in these straitened times, in her own fly-on-the-wall documentary series entitled *Billion \$\$ Girl*). They have heard about the vast sums of money this son of a Suffolk trawlerman has generated and pocketed from the commercial machine that is modern-day Formula 1.

It is, of course, the reason we are all here. £27.5million of that money has wound up, via various mailbox companies set up expressly for purpose, in the hands of a German banker – and Munich's state prosecutor believes it was paid as a bribe to facilitate the last sale of the sport in 2006. The man accused of paying that bribe shuffles into the room, all 5ft 3in of him. The camera bulbs flash. Whatever they may say about the true stars of Formula 1 being the cars or the drivers, there is only one principal actor. One person on whom everything hinges.

"Can you confirm that your name is Bernard Charles Ecclestone?" asks the judge.

It remains to be seen whether Room 101 will turn into Ecclestone's personal nightmare. Thus far, F1's 81-year-old chief executive has not actually been charged with anything; he has only been accused of making corrupt payments. But he was warned, as he left after two days on the stand, that his presence might be required again.

It's fair to say his defence – that he was blackmailed by Gerhard Gribkowsky, formerly the chairman of F1's holding company SLEC – has left plenty sceptical. But no one seriously imagines him going down. And if they can, they are not saying so out loud. Within F1, Ecclestone's power is absolute and is questioned only by those with no regard for their future. Such has been his longevity and resistance to attacks, Ecclestone has developed an aura of being almost bullet-proof; the biggest fish with the sharpest teeth in the self-styled Piranha Club. He likes this reputation. He has cultivated it.

What is clear, however, is that these accusations have arrived at an inconvenient moment for Formula 1's pint-sized ringmaster. 2012 is shaping up to be a critical year for the sport with the Concorde Agreement – the commercial pact that binds the sport's stakeholders – up for renewal at the end of the season. For all the fear and respect Ecclestone inspires, for all that he likes to portray himself as the absolute ruler, the future of Formula 1 is delicately poised. No longer its majority owner, not every decision is down to Bernie.

F1's majority owners, private equity fund CVC Capital Partners, watch on anxiously from the sidelines. There is speculation that they may cash in on their investment now or replace Ecclestone as chief exec if things get too hairy. Sir Stuart Rose, the former Marks & Spencer boss, was one name recently touted in the press as a possible replacement. CVC rushed out a statement dismissing the story, but there is no doubt that they have thought long and hard about the post-Ecclestone era. They've had to. Not only is Ecclestone 81, he's also a PR's nightmare.

For a start, he doesn't employ a PR. After he made his infamous remark to Rachel Sylvester and Alice Thomson of *The Times* about Hitler's ability to "get things done" in 2009, CVC's board were split. One member, Sir Martin Sorrell, the Jewish chief executive of WPP, agitated to 'move him upstairs', describing the comments as "disgusting". When Ecclestone backed Flavio Briatore's appeal against his 'Crashgate' ban Sorrell blasted him as "out of touch with reality". The pair have reportedly since made up over dinner at Mark's Club in Mayfair but, for many, the accusation is still pertinent.

Now in his ninth decade, there are question marks over how long Ecclestone can continue to juggle so many balls and how long he can keep emerging unscathed from each crisis like a mop-topped Houdini. Without Max Mosley at the helm of the FIA, he does not have his old friend and ally at the governing body. His handling of the Bahrain crisis last year – letting it drag on for too long, then voting it through before performing an 11th hour U-turn in the face of



With Force India's Vijay Mallya



With Red Bull's Christian Horner



With FIA president Jean Todt



Ecclestone on his way to give court evidence in the case of German investment banker Gerhard Gribkowsky, who stands accused of receiving a £27.5million bribe to facilitate the sale of Formula 1

parliamentary condemnation and blaming the confusion on the FIA – damaged F1's credibility. It was no coincidence that it was Mosley who helped him out of that scrape, unearthing some helpful Articles that the teams were able to use to reject the WMSC's revised calendar.

Bahrain threatens to turn into a PR disaster for Ecclestone again this year. At last month's FIA World Council meeting – just days after a bomb exploded near the British Embassy in Manama and weeks after the publication of a damning independent report detailing the

human rights abuses that went on during last spring's uprising – the race retained its April slot. Ecclestone's insistence that Formula 1 has nothing to do with politics is fine in principle (it would set a dangerous precedent to start making decisions on where to race based on a country's politics) but sponsors and teams are clearly nervous about visiting the kingdom and it's easy to see a similar chain of events unfolding whereby protesters threaten to target the race. Formula 1 risks inflaming an already volatile situation.

Ecclestone, as always, appears sanguine. A few days after his court appearance in Munich, he was at the race in Abu Dhabi giving the Bahraini Crown Prince a guided tour. A few of us journalists received a tap on the shoulder from Bernie's 'fixer' Pasquale Lattuneddu to go over and talk to the delegation. While some would have shied away from such a delicate situation, Ecclestone was happy to stand by the man and the regime. The Bahrainis are good paying customers.

After the Crown Prince left, Ecclestone stayed on for a chat. "We had a bit of fun in Munich this week, didn't we?" he said to me. "Did you see how trim Gerhard was looking?" I suggested that might be what ten months in jail can do for you. "I wouldn't know about that," he smiled.

It was classic Ecclestone; mischievous and sharp. He has a distinctive patter. Phone calls to his office are typically short and to the point. Questions are often answered with questions whereby he plays dumb. "What do you think will happen in Bahrain, Bernie?" you might ask. "What's happening in Bahrain?" he'll shoot back. Or "Do you think you will be going back to Munich then?" "Maybe," he'll say. "I'm thinking about going back for Oktoberfest next year." →

"Thus far, Formula 1's 81 year-old **chief executive** has not actually been **charged** with anything; he has only been **accused** of making **corrupt payments**"



With Lotus's Eric Boullier



With Caterham's Tony Fernandes



With ex-HRT boss Dr Colin Kolles

WHAT PRESURER?

What he is really doing, of course, is putting you off-guard; buying himself more time. His legendary negotiating skills, honed as a youth in the motor trade, remain fully intact. Most recently he played hardball with the organisers of the US Grand Prix in Austin, threatening to cancel their race this autumn unless he got paid. The money was wired through with hours to spare. "Mr Ecclestone is a masterful negotiator," noted the Circuit of The Americas' founding partner Bobby Epstein. "He fights hard for his company's best interests." No kidding.

CVC know no one else could make as much money for them as Ecclestone. Purists may be horrified by the commercialisation of F1 with races in Europe sacrificed to make way for state-backed PR stunts in far-flung nations with no history of motor racing. Ecclestone is unapologetic. "Europe is finished," he says, as he eyes up Russia and Mexico. "It will be a good place for tourism but little else." He is proud to have turned a mere enthusiasts' sport into one of the world's most-watched entertainments.

There is, though, the thorny issue of his mortality. In his recent biography of Ecclestone, investigative journalist Tom Bower recounts a conversation between the F1 supremo and CVC co-founder Donald Mackenzie three years ago. "Bernie, I want to plan your retirement when you get to 80," Mackenzie is supposed to have said. "I've got bad news for you," Ecclestone quipped. "I'm 81." Rather than being the architect of a rebirth, Bower concluded, Mackenzie stepped back "to enjoy a flinty maverick pour increasing profits into his account."

The question is: how long can he continue to do so? Ecclestone is seen as being indispensable but, as Charles de Gaulle famously said, the cemeteries of the world are full of indispensable people. CVC's problem is that Ecclestone will not countenance the idea of grooming a successor or stepping aside. "If CVC put someone in with me he would either be no good or he would run away," Ecclestone says. "And if he is that good, I don't want him around. I have no intention of leaving. I love being involved in motor racing. I care more now than I did before."

CVC may simply sell before having to make a decision: there are plenty of interested parties. Sovereign wealth funds from the Middle East have been linked. A flotation in Asia has been

mooted. Last year, Rupert Murdoch's News Corporation formed a consortium that included Exor, an investment company run by the Agnelli family, which owns Fiat and, by extension, Ferrari, to explore the possibility of a takeover.

That speculation was put on the back burner in the wake of the phone-hacking scandal – a turn of events that delighted Bernie. But Sky's acquisition of the UK TV rights in a controversial rights-sharing deal with the BBC may foreshadow greater involvement from Murdoch's company.

Would Murdoch retain Ecclestone as CEO if he bought F1? Would any other buyer? Would Ecclestone's fabled 'right of veto' ensure he could block a sale to a buyer that didn't want to retain him? These are just some of the unknowns.

In the meantime, Ecclestone powers on, projecting absolute authority. He ridicules the idea that the teams might take ownership of the sport themselves. "Half of them can't even pay their own bills," he says bluntly. He laughs at the idea that FOTA could organise a breakaway series. The recent departures of Ferrari and Red Bull from the organisation would seem to back up that confidence – as well as suggesting that those two teams may have cut their own deals with Ecclestone going forward. It wouldn't be the first time in Ferrari's case. Divide and conquer is one of Ecclestone's favourite tactics.

As we enter 2012, Ecclestone looks as up for the fight as ever. Who knows how long he can go on? The only certainty is that he will be gone one day. His old friend and rival – and one of the many people he has made fabulously wealthy over the years – Sir Frank Williams, once said: "Bernard likes to encourage the view that he's controlling everything, and that a leaf doesn't fall in Abyssinia without his approval." The implicit suggestion being that behind the façade Ecclestone is human, just like the rest of us.

Back in Room 101 in Munich the judge is wrapping things up. Ecclestone has been a hit during his testimony, talking much but revealing little, often making the court laugh with his deadpan quips. But now he must go. His private jet is waiting to whisk him off to Abu Dhabi. "Would you like a form for your *per diem* expenses?" asks the judge. "Don't worry," he says. "I'll wait. In case I need to come back."





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THE MAURICE HAMILTON INTERVIEW

A lunch time chat with the legends of F1, every month

“It’s rare to see a driver get injured in F1 these days, let alone killed. Today’s drivers don’t know what it’s like to get hurt. They haven’t got a clue”

Opinionated, amusing and always entertaining, **John Watson** still has plenty to say about F1. Here he shares his views on Sebastian Vettel, Robert Kubica and Kimi Räikkönen, amongst others...

PORTRAITS ALASTAIR STALEY/LAT

Lunch at **The Cherwell Boathouse** in Oxford was interrupted by a man in a sharp suit. In the mistaken belief that he was being included in the photographs of our table, he grew loud and long in his public protest. And continued to do so once he had returned to his table some distance away. At which point my guest, much to the amusement of the other diners, politely but firmly explained that permission had been gained from the management and it might be a good idea if the offended party would have the good manners to be quiet. Only he didn’t say it *quite* like that. Typical Wattie; straight to the point – and entertaining with it. And then we carried on. With John starting the conversation for me, talking about the early days...

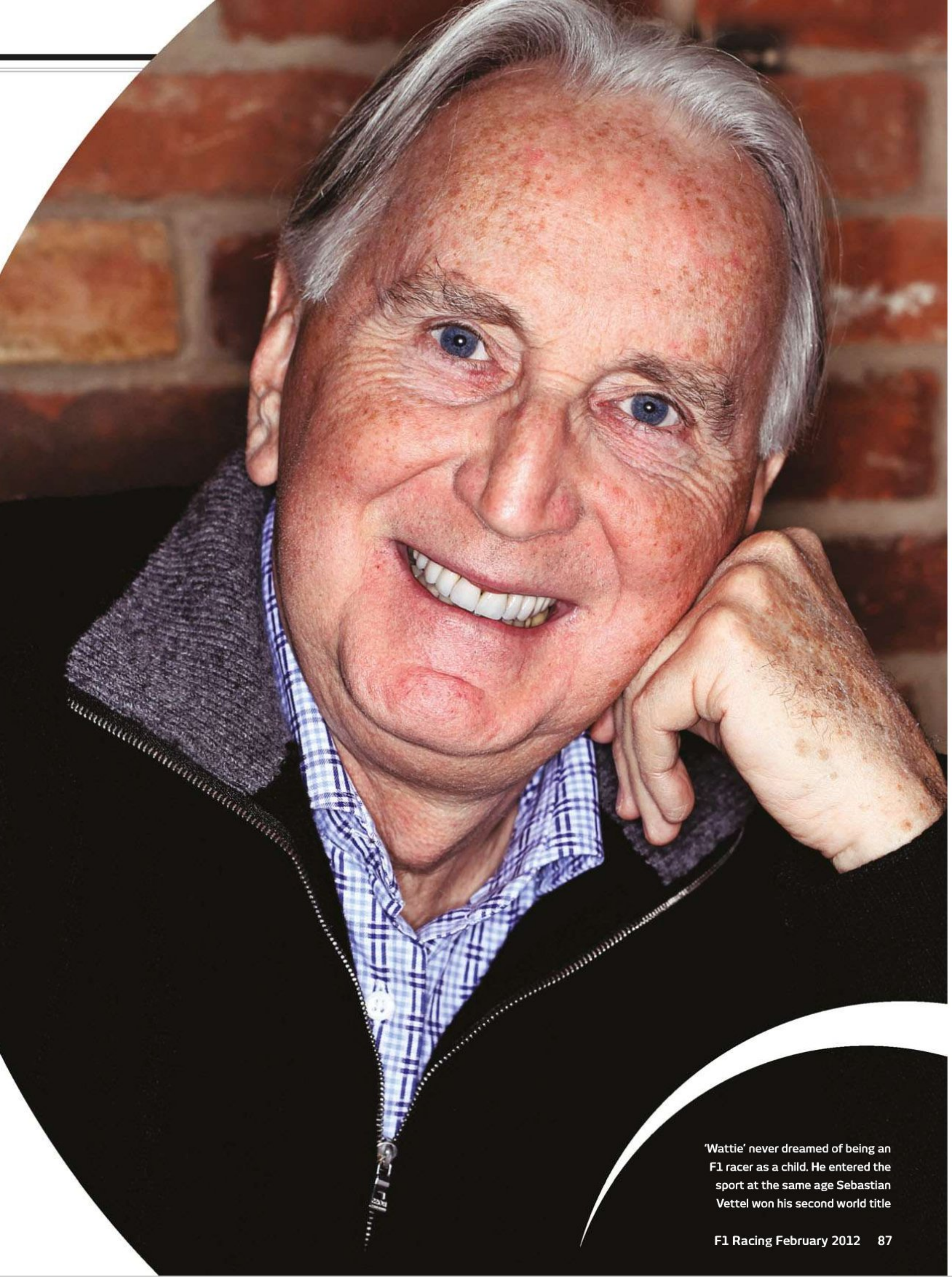
John Watson: Interesting we’ve met today. I was checking some things about Stirling Moss last night and I was looking back at the 1955 Tourist Trophy at Dundrod because I was there – and I think you were too?

Maurice Hamilton: I was.

JW: I came up with some interesting facts – like the fastest lap by Mike Hawthorn in the D-Type being 94mph. The current fastest lap by the bikes in the Ulster Grand Prix is 133mph.

MH: Blimey! So, 94mph was bloody quick in 1955. And that would have included a hairpin and the twists and turns across Leathemstown Bridge.

JW: That’s the point. It’s a pretty impressive lap time. They must have been doing 140-150mph on the fast sections. →



'Wattie' never dreamed of being an F1 racer as a child. He entered the sport at the same age Sebastian Vettel won his second world title



THE MAURICE HAMILTON INTERVIEW

MH: Grass banks, gate posts, trees, telegraph poles everywhere.

JW: Indeed. I was checking out some film clips on YouTube. There's one particular shot of Moss in the Mercedes SLR just exiting the Leathemstown Bridge and you can see he's really got that thing moving.

MH: Which of course he had to do because he had lost time with a puncture that stripped the tyre and wrecked part of the rear bodywork. It was a fantastic drive in a great race. Were you there because, like me, your dad was a big fan of motorsport?

JW: Yes. My father raced a couple of times in the Ulster Trophy at Dundrod. He drove a JP Special and he also had a Formula 2 Alta. But, for the 1955 event, Ron Flockhart was staying with us; he knew us because my father was in the motor business. Flockhart was driving one of the works MGAs. So we were in the paddock and I'm a nine-year-old wandering around and seeing Mike Hawthorn, Peter Collins, Fangio, Stirling Moss, Taruffi, Behra... I went through

the entry list last night and I couldn't believe it! At the time, it made me realise that suddenly I was seeing something I hadn't appreciated before. Never mind there being hardly any motor racing on television in those days; we'd only got our first TV the year before! It was a case of reading the magazines my father would buy and dreaming. Seeing all these amazing cars and drivers in the paddock, you suddenly realised there was a big world out there beyond Northern Ireland.

MH: I remember doing an interview with you once where I was surprised to hear you say that you didn't actually think from an early age that you wanted to be a racing driver.

JW: That race at Dundrod in 1955 was the first time I'd seen what I would call, on reflection, 'grown-up motor racing'. All of a sudden I realised that this was something that could be the end destination, but I didn't see how I could make that transition. At the age of nine, I hadn't formed that view, but it began to develop through my teenage years. Those cars

at Dundrod were being hammered like I'd never seen before. That came home to me last night watching that little video clip. Those guys were on a bloody difficult race track; a dangerous race track. That was real racing by drivers who were very, very skilful, courageous and committed – not least Stirling. He was fully committed. You get the shivers thinking about it.

MH: For me, to a much lesser degree in later years, I was thinking the same thing about being a motorsport writer and wondering...

JW: How am I going to get there?

MH: Exactly. There were no structures like karting in place. There was nothing.

JW: My first race was in 1964 and karting in Northern Ireland was in its infancy. I remember watching a kart race in a market area in Belfast. It was mad; quite mad. But no one ever thought of it as a stepping stone. You looked down your nose at karting – you didn't take it seriously. There was no natural way to progress.

MH: Did you talk to your dad about racing? When did that seed germinate in your mind?



"In hospital, I ran my hand down my thigh, not knowing if I still had the rest of my leg"

JW: I had this dream. Parents can either humour your dreams or try to knock them out of you. I was very fortunate and was allowed to have the dream. When I began racing, I took it a lot more seriously than my contemporaries.

MH: I remember watching you at Kirkistown – me and my mate Jimmy would go to the races there – and what always stood out about you, apart from the fact that you were pretty quick, was the immaculate preparation of your white Crosslé sportscar and your own personal turnout. I remember you used to have a flameproof face mask, which a lot of drivers at that time never had.

JW: I'd always fiddle with the car and attached a lot of importance to keeping it neat and tidy. I didn't know much about the mechanical side; I would have a local guy make sure that all the corners were pointing in the right direction.

MH: You took that car across the border and raced it in Ireland, at places like Dunboyne and Phoenix Park. These were international events. It must have been good for you to go there and think: 'Hang on; I'm stacking up quite well against these guys who have come over from England.' Did that provide a yardstick for you?

JW: It did. The level of domestic driving was very good, but I remember going to Dunboyne

as a spectator and seeing Ken Tyrrell's Formula Junior team. The speed those guys carried through Dunboyne village; it was at a different level compared to the local guys. Amazing.

MH: You really sprang to prominence by coming across to the Easter Monday International F2 meeting at Thruxton in 1969. That was massive because you had a drive in an old Lotus 48 belonging to a Belfast man and you were right up there. You drove the wheels off that car. Did you see this as your big chance? You eventually went off the road. Looking back on it now, did you overdrive?

JW: I think it was probably just inexperience. I had never driven a car with wings – the Lotus had this quite high rear wing – and I just got in and drove it. I wasn't thinking: 'This is my big opportunity.' All of a sudden, in the main race I found myself catching people and overtaking. At the Complex, I ran wide, understeered onto the gravel, into the bank and clobbered the front. I can't remember who I passed, but these were people I had read about; I thought they were gods. Suddenly I'm racing among them, and I've caught and passed some of them. The feeling was: 'This isn't real; it can't be true.'

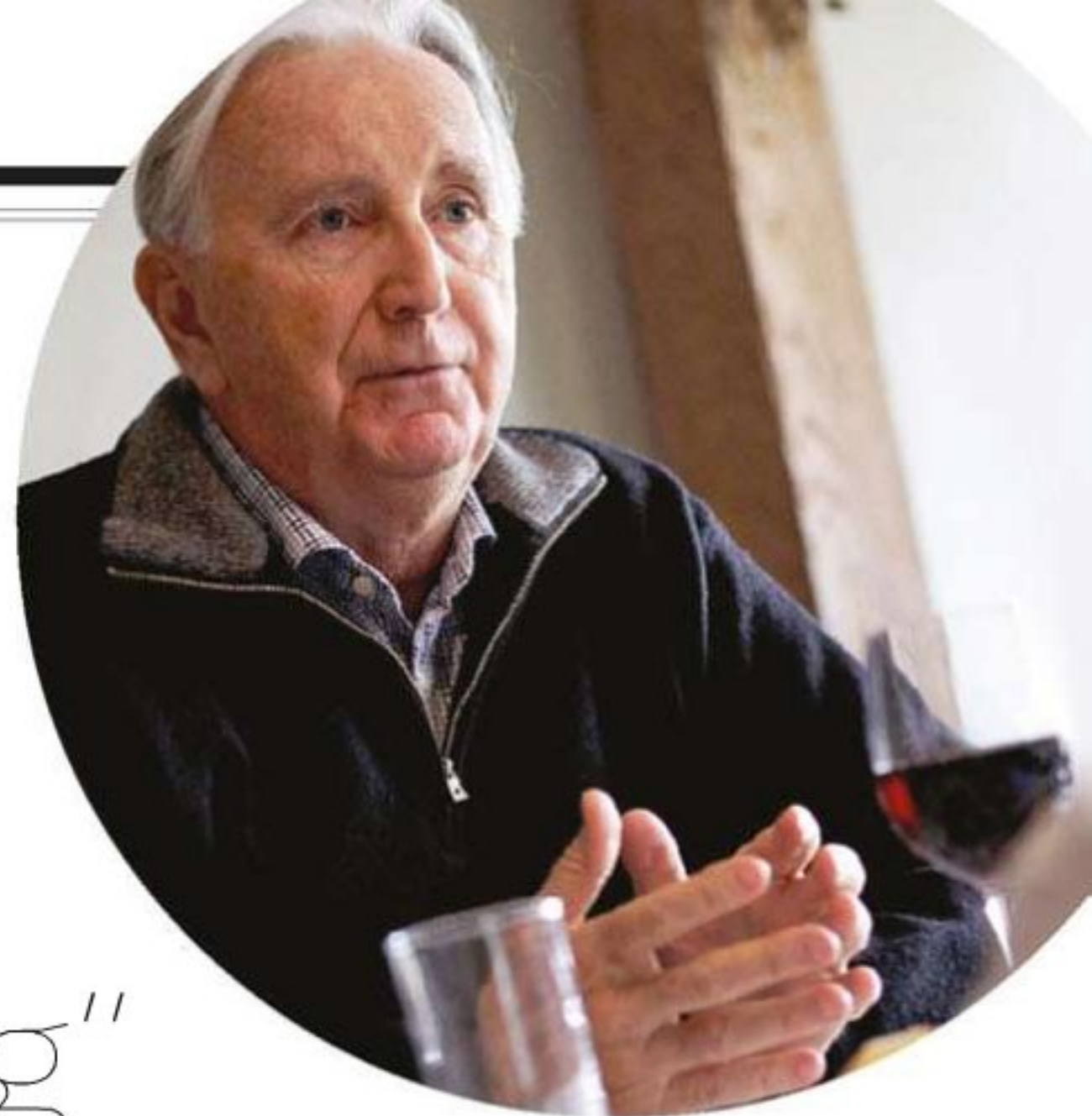
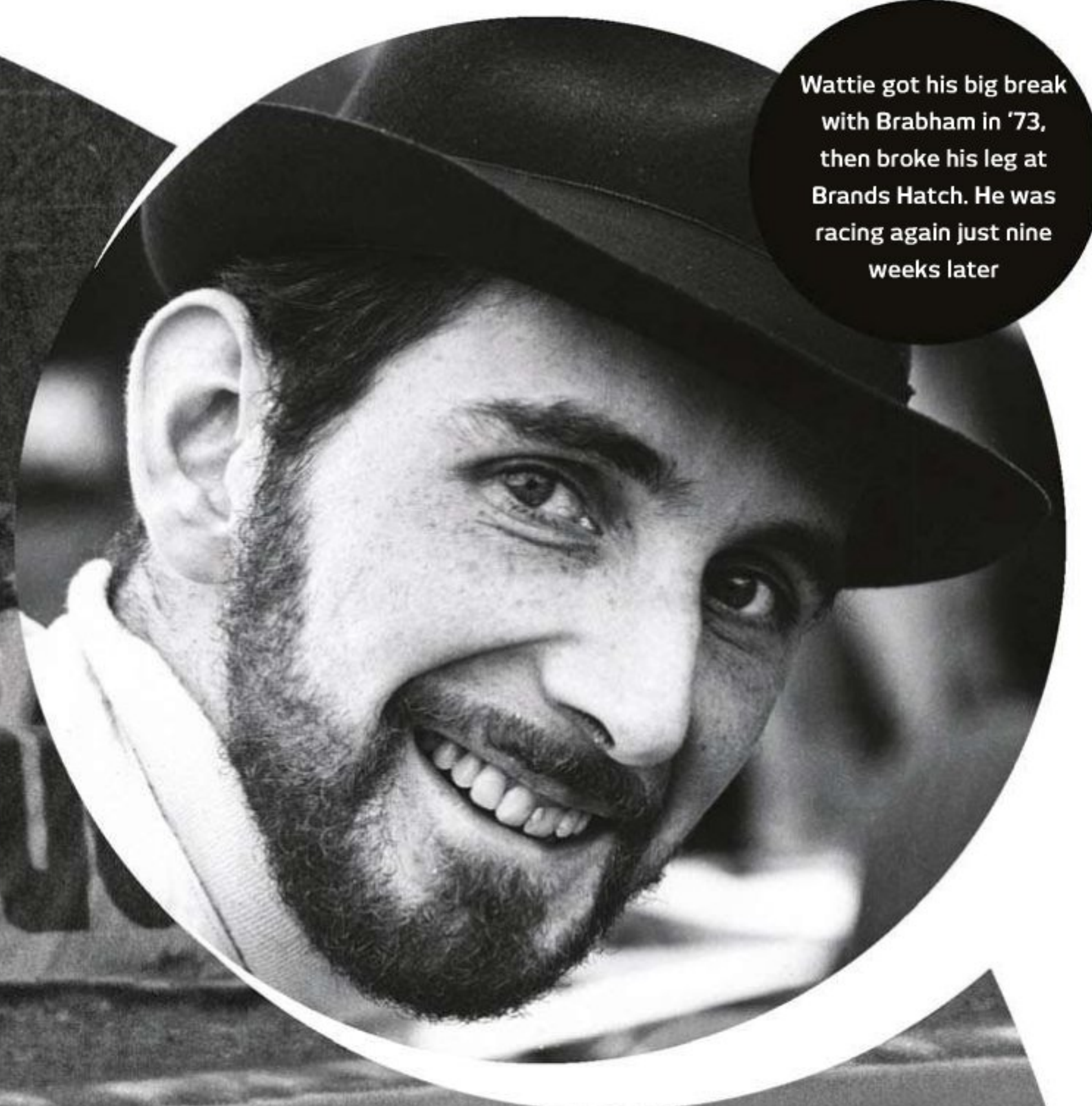
MH: But you must have come away thinking: 'You know what? I'm actually quite quick.'

JW: I remember having a conversation about this with my parents and my father said: "You'll never be as good as John Surtees anyway, so why worry?"

MH: What was he trying to tell you?

JW: He said it out of love; not for any other reason. He said it because parents will try to protect their children, and the worst thing for any young person is disillusionment. I thought: 'Well, maybe you're right – but can I have another chance please?' My parents realised I wasn't going to settle into the lifestyle that they thought I should move into. That's when we bought an F2 Brabham and I set off to do the full European season in 1970. The funding came through the business and family money. My parents reasoned that if they didn't go ahead →

Wattie got his big break with Brabham in '73, then broke his leg at Brands Hatch. He was racing again just nine weeks later





THE MAURICE HAMILTON INTERVIEW

and support this, they would end up with a young man who was probably going to do something he just wasn't passionate about. I was not quite 24, and all of a sudden my potential had been realised at Thruxton.

MH: Interesting how times change. You were almost 24 and embarking on your career – and look at Sebastian Vettel; he's the same age now.

JW: I was at the Autosport Awards in December and Vettel was there. Not only is he a double world champion at 24, he's the most amazing young man in any sport I've seen. He gets on the stage with Steve Rider, who's no shrinking violet, and carries out an amazing two-way spoof.

MH: And not in his mother tongue.

JW: Exactly – and with humour and references to some of our great British heroes. Apart from just watching what he does in the car, the kid's bright and that's something that really stands

out. You never hear Lewis speaking German. Mark Webber can't speak English; he speaks Australian. At least Alonso is multi-lingual. But Vettel is bright: he's Niki-Lauda-bright; Alain Prost-bright. They may not be physicists but they're extremely clever and I think that's such an important element.

MH: Getting back to 1970...

JW: Brian Hart very kindly allowed us to use his workshops in Harlow as a base for the car. Brian was looking after the engine and, as a racer himself, he would offer good advice. But I found it difficult to know how to accept that. At Hockenheim, for instance, there were no chicanes in those days. It was flat-out all the way back to the stadium. I'd never had any experience of a slipstream circuit. I couldn't get my head around the fact that I could go out there and drive the wheels off my car and yet I would be a second slower than Xavier Perrot [a journeyman driver]. These guys understood the effect of slipstreaming, which is just the most unbelievable experience. I thought I would be quicker on my own – and I didn't qualify.

MH: Then there was the big shunt at Rouen. Was that inexperience too?

JW: No, it wasn't. I broke my arm, leg and ankle; quite badly. I loved that road circuit. Within two laps, I was taking the first downhill turn flat.

You would get to the hairpin at the bottom and then there was a series of corners climbing back up the other side. At the top, there was a very quick corner onto the back straight, which was a main road. This corner was flat. But I hadn't realised the left-rear tyre had either been punctured or had a slow puncture and the centrifugal force was keeping the tyre on the rim. Turn into the fast right and, suddenly – bang! I hit the barrier and had to be taken out of the car. When they went to pick up the car later, they couldn't find the battery. In those days, the battery was under your legs. The pedal box and everything in front of that was gone. They never found the battery.

MH: So, on its way out, the battery broke your leg?

JW: They think that's what happened. I never did know how my arm got broken; it might have been hit against the chassis tube. I was taken to a French hospital, which was pretty dire. Someone – I'm not sure who it was – went to

Bernie Ecclestone because, at that point, Bernie was Jochen Rindt's manager. They organised for one of the planes Bernie had sold to Jochen to be available to fly me and my father back to Belfast City Hospital. Bernie took care of all the costs; that was typical of him.

MH: What did you think about your future?

JW: That it was all over. The desire to continue was still strong but, clearly, this was a major setback. I was out for the rest of that year. The Brabham wasn't a total loss, but the chassis was destroyed. We decided to give it another go in 1971 and set about repairing the car.

MH: But your career didn't look much better at the end of 1971....


JW: It looked like it was all over once again. F2 was going to two litres; you needed a brand new car and new engines. We weren't in a position to support it any further. I went back to Belfast just before Christmas and spent the next three or four months wishing and hoping something would happen. The opportunity came through somebody else's misfortune.

MH: We're talking here about the loss of Bert Hawthorne at Hockenheim?

JW: He was killed in a stupid accident. I took his place in the Tui, a neat little F2 car designed and run by Alan McCall. Alan gave me the drive for much of the rest of the year and I jumped into a Chevron from time to time. Those circumstances helped me to a stage where, at the end of the year, I could have driven for John Surtees in 1973 in his F2 car, or go with Bernie with his Brabham F2 car, with the tease of maybe F1 with Brabham [Ecclestone had bought Brabham in 1972]. I went with Bernie.

MH: I remember at the start of 1973 being really excited for you. By then I was living in England, and looking for a way into motorsport and here you were, the Northern Ireland lad about to break into the really big time. You'd got the F2 drive, you were going to drive the Gulf Mirage at Daytona and Le Mans. And the next thing we know, you're driving the brand new Brabham BT42 – Gordon Murray's first proper F1 car – in the non-championship Race of Champions at Brands Hatch in March. And then...

JW: The throttle hadn't been shutting cleanly and I thought I could drive my way through it, which was me being either innocent or stupid. Going into Stirling's Bend I was just a touch on the brakes when the thing pushed forward. I ran a little bit wide, got onto the dirty part of the track and hit the barrier on the outside at a relatively low speed. But the construction of the car was such that there was a big section change between where the cockpit and the footbox joined. When the car hit the barrier, the footbox



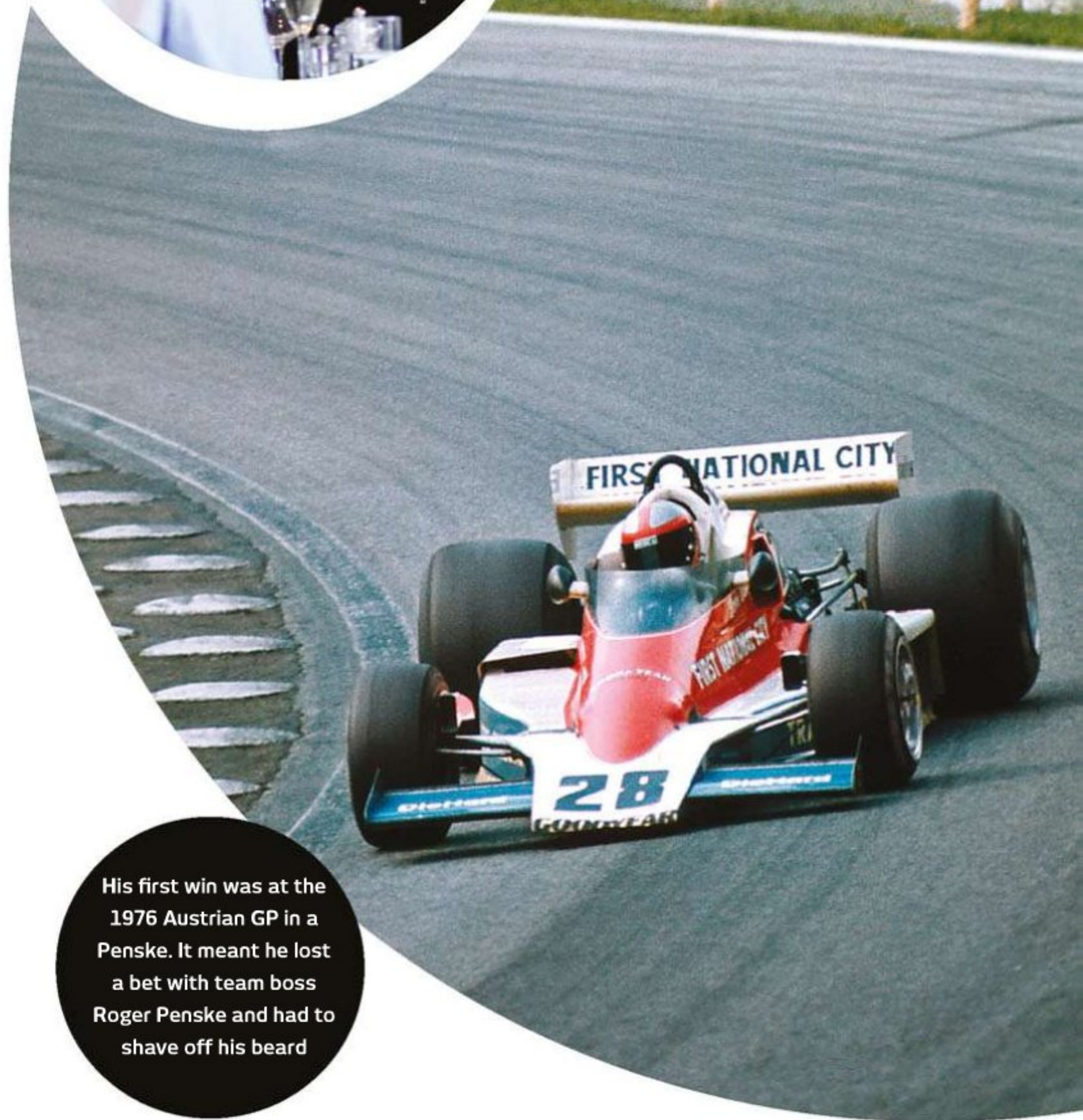
Holding the trophy on the podium after his maiden F1 win in Austria, 1976. This was Penske's one and only victory

"My father said: 'You'll never be as good as John Surtees, so why worry?'"

did a 90° turn, my right leg went through 90° and popped out the tibia and fibula. It was a compound fracture. I was trapped in the car for over an hour. I couldn't move. The late Peter Gethin, who won the race, came around on his lap of honour and came to see how I was. He went "Oh my God!" and then got back onto the official car and continued the lap of honour!

MH: I remember seeing Bernie climb into a Merc 250 in the paddock and going over and asking him how you were. He said you were okay. But you weren't, were you?

JW: The muscle that runs down the top of my tib and fib got crushed by the steering rack. Actually, it's never recovered from that. I eventually ended up in Lambeth Hospital. They decided it had to be operated on and a plate was inserted. When I came out of the theatre I was brought back to an empty ward. When I woke up, it was dark; I was on my own. I had no idea what time of the day it was and I was trying to orientate myself. I put my hand on my thigh and there was no plaster, which was a big worry because when I'd broken my left leg at Rouen, I had plaster all the way to the top. I hadn't put the light on and I ran my hand down my thigh, not knowing if I still had the rest of my leg. I got to my knee and all of a sudden I felt a thick bandage and realised that having it plated meant they didn't need to put a plaster on. That was one of the toughest moments I ever had in my life; not knowing whether I'd lost a leg.



His first win was at the 1976 Austrian GP in a Penske. It meant he lost a bet with team boss Roger Penske and had to shave off his beard

MH: So when did you race again?

JW: The next race was in a Gulf Mirage at Le Mans in '73. I did the British Grand Prix in a Brabham BT37 entered by Paul Michaels and Hexagon of Highgate. Bernie provided the BT37 and at the same time, or shortly thereafter, Paul had been running a Formula 5000 Trojan that I was asked to drive for the rest of the year. So I did that and some of the Gulf Mirage stuff.

MH: I remember going to Le Mans in 1975 with Renault [by then powering the Gulf sportscars] and they arranged a dinner with the team. By sheer good luck, I sat beside the legendary John

Wyer. We talked about his running the team and Jo Siffert and Pedro Rodríguez and the fabulous Gulf Porsche 917s. I got round to asking him about you. I remember repeating this to you later and you were quite taken aback because Wyer said he thought you were a very good driver, but – and this is the bit that got your attention – he thought the leg break had affected you and you were not quite as fast as before.

JW: Let me put that into a current context for you. Early in 2011, Red Bull were having an event at the Red Bull Ring in Austria. They invited all the Red Bull drivers plus former →



THE MAURICE HAMILTON INTERVIEW

Austrian GP winners. I flew out with the Red Bull team from Oxford and Mark Webber was on the flight. I hadn't spoken to Mark at any length for a long time and the subject came round to accidents. We compared our leg fractures. Mark hasn't made an issue out of it, but he highlighted the speed of his recovery. His injury was very severe; make no mistake. And he said: "We could have died from that sort of injury." I said I'd never thought about it. But then you think about Ronnie Peterson's accident at Monza '78; he had severe leg injuries. When you get a major compound fracture, there is concern that you might get a bone poking through the skin and then there is the possibility of cross-contamination of fat into the cardiovascular system – and then you get the consequent embolism that killed Ronnie later that night in hospital. It does make you think.

I said to Mark: "Let's have a look." So, we're sitting in this plane with our trouser legs pulled up! I said: "My leg went 90° that way, with both bones sticking out. What was yours like?" He asked how soon I drove a car afterwards and I said I was probably driving a car within eight or nine weeks. And he's going: "Aw, shit, mate! That was a bit quick, wasn't it?"

MH: Mark's recovery was November through to March, wasn't it?

JW: Yes, but he'd driven a car in testing. Mark broke his leg in a bicycle accident. I broke mine in a car crash and looking back now, Le Mans in particular was difficult because I'd never been there before and it's quite daunting. So I'm sure an element of what John Wyer said was true.

"I suspect Kimi will find things may not come so easily this time round"

MH: So, the injury was playing on your mind even though you didn't – or wouldn't – recognise that was the case?

JW: When you come back from a motor racing injury, there is a mental caution, if you like. It's only when you get hurt that you realise you *can* be hurt. And it does take time to recover. Going back to Rouen in 1970, I'd say my 1971 season suffered a little bit. You've been hurt; you know what it's like and you don't want to get hurt again. The other point is that I literally couldn't afford to crash because, if I did, I couldn't get the start money and the prize money.

It takes a period of time for a driver to reassimilate following an injury – especially an injury in a racing car – and I don't think you ever do get back to the point where you were before. But you learn to adapt and approach things from a slightly different perspective. Prior to an injury – a serious injury – you go at it head-on, like a bull in a china shop. After an

injury, you allow yourself fractionally more margin for error. It doesn't mean that by doing so you're not effective any more. But you are beginning to enter a compromise that wasn't there before. If you look at F1 today, it's rare to see a driver getting injured, let alone killed. So a lot of drivers don't know what it's like to get hurt and a lot of what we see today is the consequence of them not actually understanding that motorsport is dangerous.

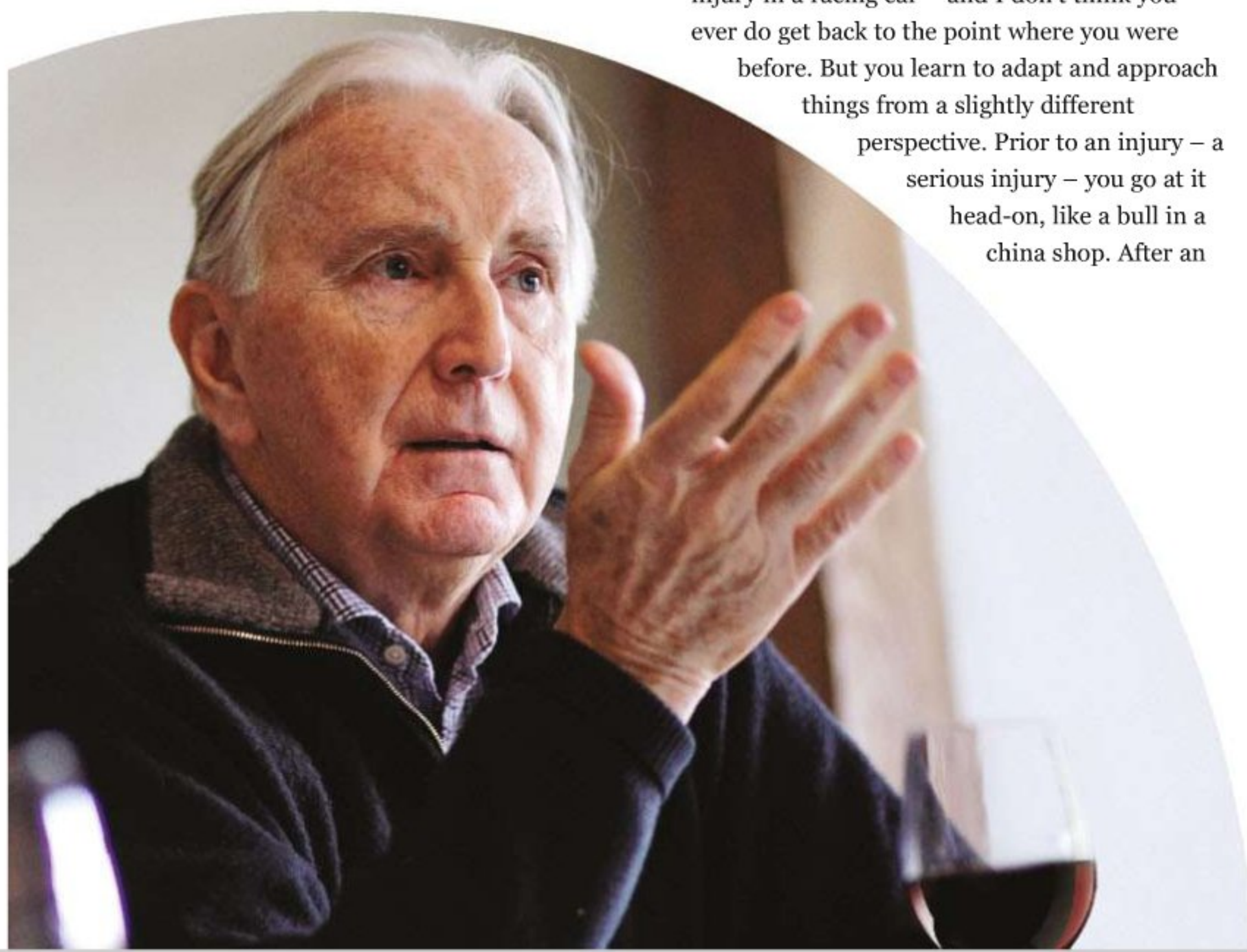
It's not as dangerous as it used to be but, in spite of all the work that's been done to improve track and car safety, it's still dangerous. At some circuits you've got high debris fencing relatively close to the side of a track and if two race cars become interlocked and one gets airborne and goes cockpit-side into that debris fencing, I believe you're looking at the same outcome in an F1 race as befell poor Dan Wheldon in IndyCar. Debris fencing shreds a car. But because I grew up with this in F1, I adapted to it, accepted it as a risk, and knew I couldn't do anything about it. Today's drivers haven't got a clue.

MH: What about Robert Kubica? Are you saying he will have been affected, even though his injuries were not the result of an F1 accident?

JW: We don't know how much psychological damage has been done as a consequence not just of the injury, but also the recovery time because your mind goes through all these machinations.

MH: But would Robert not reason that it was in a rally car; it didn't happen in an F1 car?

JW: That would be the way to do it. To rationalise it in a manner in which you would say without hesitation it's okay – and Robert may have that ability. But it's the period he's been out that matters. It's the amount of damage that was done to his body; the number





After two years out, Watson had a one-off drive for McLaren in '85. He didn't score points and left to become a TV commentator

of operations his body has gone through; the amount of anaesthetics he has had to deal with. I wish him every success in his recuperation and his return to F1 because he's got a huge amount of mental baggage that he's got to compartmentalise. He needs to lock that door and never ever re-enter the room. That will be a massive moment for him. It's eased by the fact that he can go into a simulator and get 80 to 90 per cent of the real experience. Nonetheless, when you get into the car for real and you get all those feelings... I mean, if you're out of a Formula 1 car for a year or more, it takes a few minutes just for your eye, brain and speed coordination to cope. I think it'll happen very quickly for him because he's a young man, but if there's any self-doubt, it'll either be immediate or it will disappear straight away.

MH: Talking about coming back, albeit under less painful circumstances, this is a good moment to ask about that one-off drive at the end of your career with McLaren in 1985. You'd been out of the sport for two years. Was that an

issue when you climbed back in the cockpit? By then you were 39 years old...

JW: The age factor wasn't the problem. McLaren gave me every opportunity to drive the car and we did two days at Donington Park to give me time to reacclimatise. The difference was that I was doing it on my own with no traffic around. The other thing was that turbo-powered cars, even in 1985, were producing over 1,000bhp in qualifying. They weren't like a Cosworth engine, which sort of flattened out in terms of its acceleration. The turbo power just went vertical and never stopped accelerating. So I was having to recalculate the closing speed – the approach speed to a given corner. Doing that on your own isn't the problem; doing it when you're trying to manoeuvre around other cars is quite different.

I came away from that race disappointed. I should have scored a point and I didn't. If I'd been able to start the race at the level I finished, I would have done a much better job. I had stepped from a Cosworth engine into the turbo around Brands Hatch and that meant it was

a pretty busy circuit. The cars were, in effect, dragsters; they were squirt, turn, squirt, turn. There wasn't a huge amount of subtlety.

MH: Which can't have helped because you were all about feel and subtlety.

JW: Yes, I liked to feel the car. It was something I enjoyed doing and it was no longer flowing naturally. As you know, Kimi Räikkönen is coming back in 2012 and I suspect he'll find the things that were completely natural to him may not come so easily this time round – just as Michael Schumacher has found. It's taken him two years to get to the point where he's able to race in an impressive way. But his first year with a difficult car wasn't pretty. With Kimi, it will also be interesting because he's not returning to a top team. If he was going into a Red Bull, a McLaren or a Ferrari, it would be different.

MH: Interesting times, both on the race track and here in the restaurant. Thanks for your contribution – all round.

JW: Maurice, it was a pleasure. Can't say our friend over there would agree though...

The day F1 got on a bus and went on strike

Thirty years ago this month, F1 drivers took industrial action and locked themselves into a large hotel room. **Alan Henry** recalls a stand-off against the authorities – and a spot of piano-playing from Gilles Villeneuve

PICTURES LAT ARCHIVE



T

he 1980s started on a highly political note for the F1 business, with the sport becoming polarised in a battle for control of the lucrative television coverage and trackside advertising revenues. On one side of the fence were the predominantly British teams who made up the Formula 1 Constructors' Association (FOCA) under Bernie Ecclestone's control, while on the other was the sport's governing body, FISA, which benefited from the firepower mustered by the major motor manufacturers, specifically Ferrari and Renault as far as the F1 championship was concerned.

On the face of it, the battle lines had been drawn up due to conflicting views about the technical regulations. FOCA and FISA had been embroiled in a destructive dispute over the prohibition, from the start of 1981, of the sliding aerodynamic side skirts that were an essential element behind the competitive efficiency of the new breed of ground-effect (FOCA) racers.

Inevitably, this polarised into a battle between the specialist British constructors who pioneered ground effect, and Renault and Ferrari who the Brits reckoned were working hand-in-glove with the sport's governing body in a bid to further the performance of their new turbocharged engines.

This row came to a head in early 1981 when the FOCA teams staged a pirate race at Kyalami for cars conforming to old 'sliding-skirt' rules in defiance of a ban from FISA. Won by Carlos Reutemann's Williams FW07, the race never went down as an official world championship result – and Ferrari and Renault stayed away.

Yet 12 months on and Kyalami would again be the focus of Formula 1 attention for a very different reason. This time, it was because the Formula 1 drivers went on strike.

At the centre of the 1982 Kyalami controversy was Niki Lauda. The 33-year-old Austrian was making a return after two-and-a-half years out of the cockpit, and was understandably pleased when a letter arrived from FISA confirming that the requisite F1 superlicence for the 1982 season had been issued in his name. But when he read it more closely, he was less than delighted.

"It was clear that FISA had issued the licence in conjunction with the specific team for which the driver had been contracted to drive," he said. "It was an unfair restraint on my freedom and Didier Pironi, chairman of the Grand Prix Drivers' Association, hadn't picked up on it either.

"I immediately rang him and said, 'Have you read this shit?' and he confessed that he'd made →



The wording that upset the drivers

The details inside the FISA superlicence applications that led to the strike

1) A superlicence will only be issued when a driver has entered into a commitment to drive for a particular team and signed the superlicence form issued by FISA.

2) The licence issued to the driver will name the team with which he has a commitment to drive.

3) I (the driver) of Holder of International Licence No issued by hereby apply for a FISA superlicence to drive for (the team) in the 1982 FIA Formula 1 World Championship.

4) In consideration of the issue of this licence I undertake and agree as follows:

5) I am committed to the above team to drive exclusively for them in the FIA Formula 1 World Championship(s) until the 19...

6) I will do nothing which might harm the moral or material interests or image of International Motorsport or the FIA Formula 1 World Championship.



Spokesman for the strikers was Niki Lauda, newly returned to F1 following a 2.5-year sabbatical



The confused press clamour for information, as the bus containing most of the grid leaves the circuit



With no one left to drive their cars, equally confused team bosses debate what to do. From left to right: Daniel Audetto, Jackie Oliver, Ken Tyrrell, Bernie Ecclestone, Peter Warr and Colin Chapman

a mistake and hadn't realised the implications. So I told him that he'd better get onto Bernie or Jean-Marie Balestre, the FISA president, to get it sorted out. He said he would do that, but by the time we arrived at Kyalami, where the South African GP was due to open the new season, the situation still had not been resolved and it seemed as though we were stuck with this clause binding us to our individual contracted team."

Lauda knew it would be politically difficult to force a confrontation with FISA over the question of its licences, but after intense discussions with all the other drivers, he formed the strong impression that there would be an overwhelming amount of support among their ranks for some sort of direct action.

Accordingly, Lauda organised the hire of a large room in a nearby hotel. Then he chartered a coach, which he arranged to be parked in the access road to the circuit, blocking the tunnel into the paddock. Anybody who wasn't already inside the drivers' camp had no idea what was going on. All they knew was that there seemed to be a bus blocking the entrance to the circuit and there were just a few rather confused drivers strolling around the paddock.

"I figured that once we'd persuaded a handful of drivers to climb aboard, the rest would join us," added Lauda. "In the end, everybody apart from Jacky Ickx and Jochen Mass, who'd entered the circuit from the opposite end, joined in. Oh yes, and Teo Fabi didn't take part as he was too worried about what Alex Hawkridge, the Toleman team boss might have to say about it, so he had to watch himself." Jochen, in his RAM March, later joined Fabi out on the circuit for a two-car practice session, which was applauded politely by the equally confused – and very small – group of spectators in the main grandstand.

Those onboard the bus were driven to the hotel, where Lauda took charge of stiffening the resolve of the doubters. They all bedded down in sleeping bags and a key for the toilet was left on a table in the middle of the room – all of the participants under an oath not to cut and run on any occasion that they left the room.

There was one surprise visitor, though. That evening there was a tap on the window. It was Katie Guerrero, wife of Ensign driver Roberto, who was beside herself with worry about what was going on. "Rather than leave her outside, we thought it would be more polite to ask her in," said Lauda. "So she became the only lady to join our gathering. Young love!" Ultimately, Roberto's participation in the strike was a waste of time. His Ensign was withdrawn from the race after a contractual dispute and he spent the rest of the weekend twiddling his thumbs.

The demonstration soon developed a party atmosphere. There was a piano in the 'dormitory' and it wasn't long before Ferrari ace Gilles Villeneuve was bashing out Scott Joplin



Niki Lauda was angered by the restrictive wording of the new superlicences



"The licence was issued in conjunction with the team to which a driver was contracted. It was an unfair restraint on my freedom"

numbers, followed by Lotus driver Elio de Angelis, who displayed the same sensitive touch at the keyboard that he did behind the wheel with a classical medley. "It all seemed slightly overwhelming," said Toleman driver Derek Warwick. "In principle, we all figured Niki knew what he was doing – but it was uncomfortable for drivers like myself who were new to F1."

Meanwhile, in the outside world, officialdom was trying to resolve the situation or, more to the point, force the drivers to capitulate. Threats from Balestre emerged to the effect that striking drivers would be fined or could even have their licences suspended for life.

Ecclestone was also furious that his two Brabham team drivers, Nelson Piquet and Riccardo Patrese had become involved, not least because this was the first race at which both his cars would be racing with the new BMW four-cylinder turbo engine, and he was hopeful

of a really strong performance on the high-altitude Kyalami track. Ironically, Bernie was now running with the hare and hunting with the hounds. He was ostensibly a FOCA stalwart, but the fact that his team now had works engines from a major car manufacturer also placed him shoulder-to-shoulder with Ferrari and Renault.

Some who were present recall the mood at Kyalami as being tense and unpleasant. But, as I remember it, there was more a sense of confusion and muted amusement. It was a touch of light relief – an antidote to the seriousness of F1. Back at the track, we were insulated from the action that was taking place at a hotel a few miles away. Today, with mobile phones, texting and Twitter, we could have been in touch with any of the drivers in a matter of seconds. Back then, all we had were snatches of third-hand conversation or comments from Bernie and Balestre. Not enough to formulate a balanced picture of what was really going on. →

By the Friday morning, an agreement had been reached that the controversial clauses would be revisited, so the race was reinstated. But Piquet in particular found himself frozen out by Ecclestone. In front of the Brabham pits stood three of the new BT50s; two race cars and a spare. But all three of them carried Patrese's race number 'two'; Piquet's race number 'one' was nowhere to be seen. Only Bernie could have dreamed up such a loaded gesture, without a word having to be uttered. Nelson looked peeved and piqued in even measure...


But Bernie had more to say about his drivers. "Given that they were up all night, I can't think either of them are necessarily fit enough to go out and practice behind the wheel of an F1 car until they've had a proper medical check-up," said the Brabham boss.

Well, Bernie was both right and wrong. Nelson qualified his new Brabham second on the grid alongside the pole-setting Renault RE30B of René Arnoux. So far, so good. It was a different story come the race, though. Braking for the high-speed approach to Crowthorne corner, Nelson locked up and slid straight into the catch fencing on the outside of the corner. Patrese retired shortly afterwards with turbo failure.

Elsewhere in the field, Alain Prost scored a victory for Renault, despite an unscheduled pitstop to change a punctured tyre. In the Ferrari camp, Pironi came 18th after encountering a succession of minor problems, while Villeneuve suffered a turbo-bearing failure that allowed much of his oil to blow out. Niki Lauda, on his comeback race for McLaren, just missed out on a podium finish, but was content to be fourth.

Was the drivers' strike a success? Not really. Not much changed as a result of F1 washing its dirty laundry in public. The FIA did not back down and the season simply moved on. There was more strife to come with FOCA boycotting the San Marino GP at Imola. Not that this mattered to the Italian crowds who were delighted with a two-car battle for the lead between the Ferraris of Pironi and Villeneuve.

Eventually, 'normality' resumed and the memories of Kyalami '82 became an unusual footnote in the sport's history. It had certainly been an amusing diversion, but to no real end. No circuit was closed as a result of this episode. No major rule changes were implemented. No drivers lost their seats as a consequence – either directly or indirectly. Ultimately, the striking drivers were merely fined \$5,000 each and then given a one-race ban, which was suspended for six months.

It all seemed important at the time and it was good to be there, watching events unfold. But somehow, I can't imagine it happening now... 

Kyalami 1982

An amusing diversion, but to no real end

The race carried on as scheduled. Here's what happened on track.



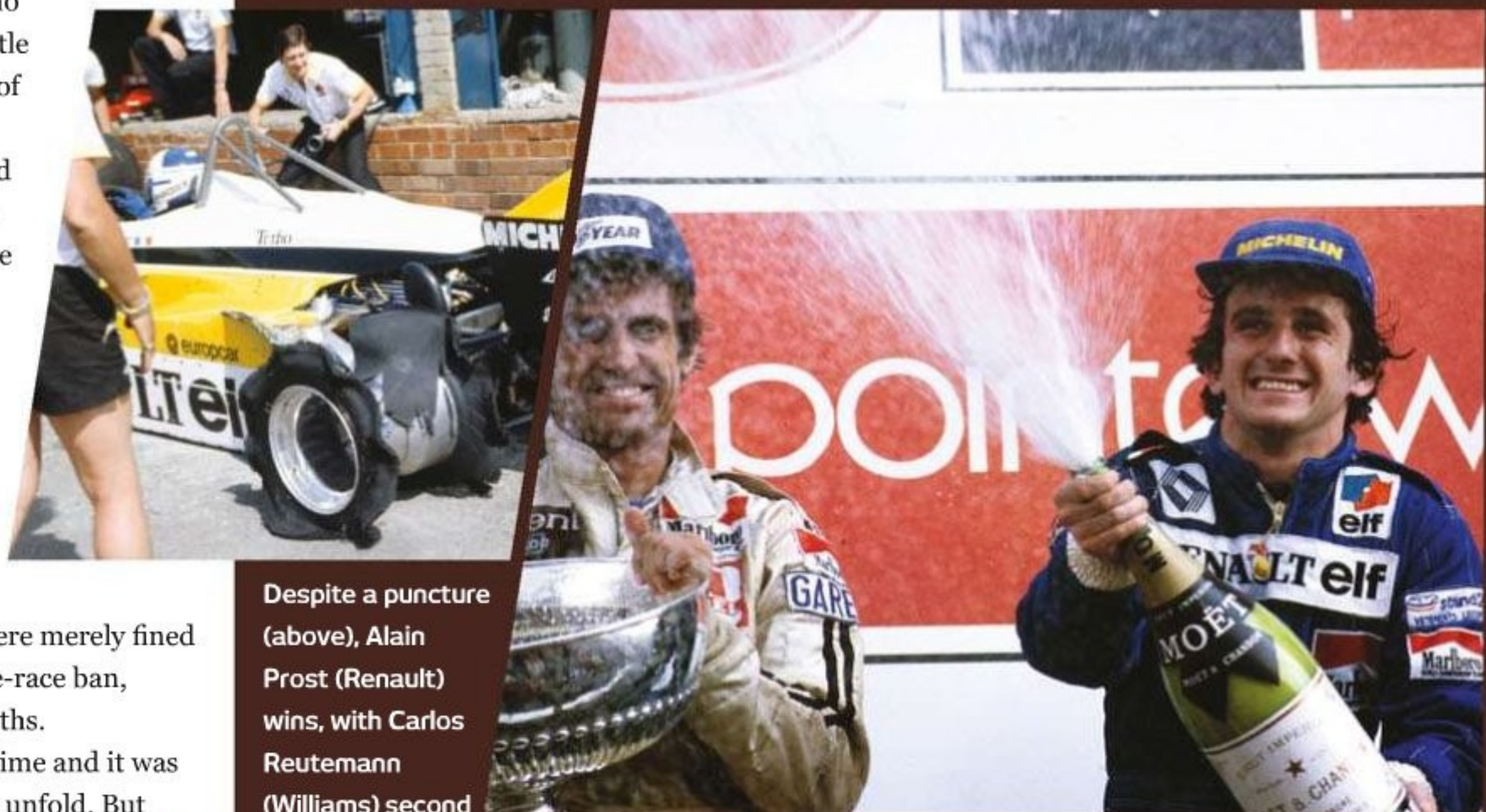
René Arnoux and team-mate Alain Prost take the lead at the race's start in their Renault RE30Bs



Gilles Villeneuve retires with smoke billowing from his Ferrari 126C2 after a turbo failure



More bad luck on the turbo front as the Brabham BT50 of Riccardo Patrese is also forced to retire



Despite a puncture (above), Alain Prost (Renault) wins, with Carlos Reutemann (Williams) second



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Way back when

Famous Formula 1 occurrences from the month of February, many moons ago...



THIS
MONTH
33
YEARS
AGO

Early promise falls away

Lotus had dominated F1 in 1978 but it looked as if 1979 would be the year for French outfit Ligier. With the gorgeous ground-effect JS11, the team locked out the front row in the first two races, Argentina and Brazil (pictured). Jacques Laffite (right) won in Argentina with Patrick Depailler following him home in Brazil on 4 February to score the team's first one-two. Amazingly, it was their last. Depailler won in Spain but the team failed to improve. Ferrari did and the title went to Jody Scheckter.

THIS
MONTH
31
YEARS
AGO

No home run for Desiré

Due to the ongoing FISA-FOCA war, the planned season-opening 1981 South African GP on 7 February 1981 was run as a Formula Libre event and was struck from the official records. The FOCA-aligned teams attended anyway and this allowed Tyrrell to run South African Desiré Wilson for a one-off drive. She hadn't qualified for the 1980 British GP and the downgrading of this race, from which she retired, meant she failed to become the third woman to enter an F1 GP. She remains, however, the only woman to win an F1 race after a victory in the 1980 British F1 series.



THIS
MONTH
11
YEARS
AGO

All around the world

In the early part of the last decade, Benetton (subsequently Renault) were renowned for launching their new cars in some fantastic venues. In 2000, it was in Spain at Barcelona's Museu Nacional d'Art de Catalunya and then, a year later, on 6 February 2001, the Benetton Renault B201 and the team's two drivers, Jenson Button and Giancarlo Fisichella, were paraded in the stunning surroundings of St Mark's Square in Venice. Benetton 'officially' became Renault in 2002 but continued their lavish launches, culminating in 2004 when they unveiled their new car, along with drivers Fernando Alonso and Jarno Trulli, inside the Teatro Massimo opera house in Palermo, Sicily.

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My month in F1

FRANK WILLIAMS

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IT'S NOT SO CALM BEFORE THE STORM

I never get excited about a new season; all I do is worry. The factory is working flat-out to prepare for the coming season and I worry about every aspect of the team, from car performance down to whether the transporters are ready to travel. The level of worry doesn't diminish with time, no matter how long you've been in the business.

RIP SHERIDAN THYNNE

I'd known Sheridan for a long time before he joined our commercial department in 1979 and I was sad to hear of his death at the end of last year. He was a good man and I'll never forget the job he did for Williams. His main role was to sell sponsorship and he got us the British Leyland deal, plus many others. He had his own very old-fashioned English way of approaching people, he was loyal – and he was a gentleman.

WILLIAMS FACTORY FESTIVE KNEES-UP

The Williams Christmas party took place at the beginning of December. Despite 2011 being a difficult year for the team, all our employees and their partners got together and had some fun. We want Williams to be a happy place to work and the Christmas party is one of several things we do to give something back.

"2011 was a year of transition... but we're now on the road to better things"



CHRISTMAS AT HOME

My wife does a brilliant job at Christmas. She spoils the whole family rotten, but she doesn't see it as work. She, like me, loves it when we get together under one roof and that only happens at Christmas. I took two days off this year – Christmas Day and Boxing Day – before heading back to the office on 27 December.

A BIT OF A CHANGE FROM MARY POPPINS

If you haven't seen the documentary *Closer to the Edge*, go and get it on DVD. It's about the Isle of Man TT races and it's unbelievable – I watched it ten times over Christmas! My family got bored of hearing me say how good it is, so I started telling the dog. Those riders are right on the limit and some of the shunts are terrifying.

TIME TO REFLECT

Christmas gave me chance to reflect on 2011. It was a year of transition: we made a lot of changes and we believe we've taken great strides to correct the wrongs of the past few years. The car wasn't quick enough last year, nor was the engine, and we could have managed things better. But we're now on a road to better things.

WHERE'S MY WINGMAN?

I miss Patrick Head already. He stood down at the end of 2011 after 34 years: I miss having him around and I miss our lunchtime chats. He was a habit for me. Occasionally he could be extremely forthright, but he's a truly remarkable man and a gifted engineer. He was the author of a number of outstanding championships for us.

ADRIAN NEWY OBE

Nobody on this planet understands how air goes around a racing car better than Adrian. I don't think the people who dish out the honours fully

understand the complexity of the cars, or the intellectual requirement needed to optimise their performance. So you could say Adrian's been short-changed with an OBE! It's long overdue and hopefully more will come his way.

RÄIKKÖNEN RETURNS

It'll be fantastic to have six champions on the grid now and Kimi's an amazing driver – although hopefully not as good as he was! He's apolitical, which is every team's wish, and comes without baggage. I'm intrigued to see how quickly he gets up to speed after two years away.

On my mind this month...

"I was sad to hear of Sheridan Thynne's death: he was old-fashioned, loyal – and a gentleman"



"If you haven't seen the documentary *Closer to the Edge*, go and get it on DVD"

"You could say Adrian Newey's been short-changed with an OBE – it's long overdue!"



"I'm intrigued to see how quickly Kimi gets up to speed after two years away"

For more information on Williams and what they're up to, visit www.attwilliams.com

ALAN HENRY

Forty years and counting on the frontline of Formula 1

The rule with rules is: always keep them simple

I've always been a great believer in the old adage that any aspect of F1's rules should be capable of being explained on a single sheet of A4 paper. In my view, this is not the case with the FIA's latest well-intentioned edict offering a clarification on the subject of defensive driving, which will be applicable from the start of the 2012 world championship season.

To a very large extent the sport's governing body has been attempting to put the genie back in the bottle ever since Michael Schumacher single-handedly invented – and furthermore effectively legitimised – the so-called one-move technique, which he used to assert his pole position advantage, and intimidate his rivals, when accelerating away from the starting grid. To be fair to Michael, F1 competition is all about grabbing an advantage and stamping it firmly on your rivals and this was what Michael did, unconsciously or not, when he was establishing his reputation as a ruthless exponent of F1.

The one-move rule has often been criticised as being a contrived regulation, but it is one that seeks to make the best of an uncomfortable situation. In a sense, it has its roots in the admirable levels of active and passive safety that have been introduced in the sport over recent decades. There was a time when competitors would have been constrained from pulling a one-move stunt by their natural sense of self-preservation, ensconced as



The one-move rule in 2012: drivers can now return to the racing line, having moved off it to defend position

they were in a fragile cockpits with limited impact-resistance. Happily, this is not the case today.

Originally it was the case that drivers would not be permitted to move back onto the racing line if they had already moved off it in order to defend their position. However, in an effort to plug every potential gap and ambiguity, the FIA has issued a clarification about defensive moves, which will be permissible from the start of 2012. Now drivers will be allowed to move back onto the racing line, but in doing so they must leave sufficient room – one car's width – between their car and the edge of the track when approaching corners.

"Michael single-handedly invented the one-move technique"

But it doesn't stop there. Similarly, there have been clarifications to the rule permitting all lapped cars to unlap themselves and join the queue at the back of the field during periods when the Safety Car has been deployed. Taken as a whole, this raft of subtle amendments to the race rules should, I suppose, be viewed as a welcome bid to further enhance the 'flow' of the racing. Branding it as an exercise in spoon-feeding common sense and consideration to certain people who ought to know better would be a harsh judgement indeed – even on a single sheet of A4 paper.

BUEMI GETS RBR RESERVE DRIVE



Damon Hill once told me he got more satisfaction from being the Williams team's test driver at the height of Nigel Mansell's winning ascendancy in the early 1990s than he did trailing around at the back of the field at the wheel of an arthritic Brabham BT60 in 1992. Damon's reasoning was that he was doing more for his emergent reputation testing the best car in the business than racing what was possibly the worst. I'm sure that same logic will help buttress Sébastien Buemi's newly announced role as third driver for Red Bull Racing in 2012.

Memo to Mark Webber: check that Buemi isn't polishing the stairs of the Red Bull Energy Station while you're out in the thick of the action!

BERGER LETS RIP OVER RÄIKKÖNEN



One of the reasons that the late Ayrton Senna liked Gerhard Berger so much was that the Austrian was always brutally honest. Ayrton may to some extent have been surrounded by sycophants, but Berger always told it straight to the Brazilian. It was just the same when Gerhard was asked to offer an opinion on Kimi Räikkönen's F1 return.

"I would say that it is 50-50 whether Kimi is able to reach the top again," Berger was quoted as telling Austrian broadcaster *ORF*. "I would be surprised if he has the strength, discipline and ambition to return to the front. I would not have taken him. F1 is so unique. If you don't really live it day and night, constantly perfecting yourself and working on it, it is difficult."

So there you have it – and he might just be right.

Kimi winning the world championship in 2007: Berger doesn't rate his chances of a repeat performance...





Inside the mind of... **SÉBASTIEN BUEMI**

The pen-and-paper-based Q&A that you can win

Full name: Buemi Sébastien Nickname: Sébs

Occupation: F1 Driver

Describe yourself in three words: Committed Precise Competitive

Who is your favourite F1 driver in history and why? A. Senna
Simply the best

What's your favourite corner in F1? Monaco Tunnel Who's your best mate in F1? My race engineer

What's the best grand prix you've ever seen? Brazil 2008 Who do you owe your success to? My family

What was your best overtaking manoeuvre? On Michael in Montreal 2010

If F1 could introduce one new rule, what would it be? More tyres!

What would you be if you weren't an F1 driver? No idea!!!

What's the best piece of advice you've ever had in F1? keep pushing!

What's your career highlight so far? From 23rd to 8th in Budapest 2011

What car do you drive? Citro R

What was the last thing Bernie Ecclestone said to you? How are you? (Can I check your Pass) was the first thing he asked me.

Who's the sport's toughest competitor (apart from you)?

Michael

Please draw a quick self-portrait:



What are the three key elements to a perfect lap?

Let it go!!!

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signed S Buemi

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7 October Japanese Grand Prix,
Suzuka

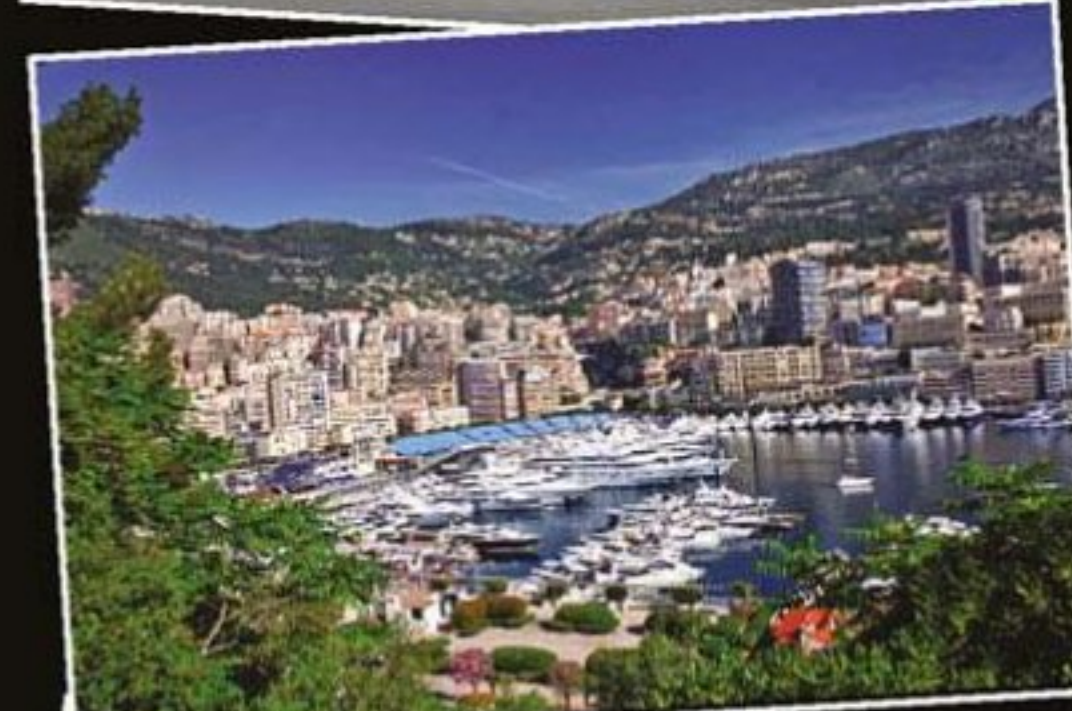
14 October Korean Grand Prix,
Yeongam

28 October Indian Grand Prix,
Greater Noida

4 November Abu Dhabi Grand Prix,
Abu Dhabi

18 November United States Grand Prix,
Austin

25 November Brazilian Grand Prix,
São Paulo



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