



PEUGEOT 308





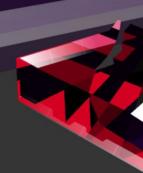


The speed is higher in the land of fire

17-19 June 2016

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8



FIRST SECTOR: THE REGULARS

- **IGNITION WELCOME TO THE CLUB, MAX**
- **PARADES** THE VERY BEST FORMULA 1 PHOTOGRAPHY 10
- 16 **F1 INSIDER NEWS, OPINION AND ANALYSIS**
- 28 **INSIDE TECH DRIVER & CIRCUIT SAFETY IMPROVEMENTS**
- 30 PETER WINDSOR KVYAT IS DOWN... BUT NOT OUT
- 33 **DAMON HILL CONTROLLING YOUR FEAR IS A TRUE SKILL**
- 35 **DIETER RENCKEN SAUBER ARE F1'S UNLUCKY ONES**
- 36 **NOW THAT WAS A CAR THE LOTUS 98T**
- 96 SUBSCRIBE AND GET A FREE FERRARI TEAM CAP



38 LEWIS Why does he polarise opinion to such an astonishing degree?

COVER STORIES

SECOND SECTOR: THE FEATURES

WHY IT'S WRONG TO HATE THIS MAN

He's loyal to his fans and a great British success story, yet no other racing driver has provoked such strong reactions as Lewis Hamilton. F1 Racing investigates

BACKROOM BOYS AND GIRLS

We go behind the scenes at Brackley and Brixworth, to meet the unsung heroes behind the Mercedes success story

YOU ASK THE QUESTIONS

Nico Hülkenberg gets a grilling from our readers on his Question of Sport appearance, and guilty pleasures

K-MAG: A NEW DAWN

Handed a lifeline by Renault after a year on the sidelines, Kevin Magnussen is out to maximise every opportunity

MR MONACO

Local boy Nico Rosberg talks us through what it means to him to be a three-time winner at his home grand prix

THE GREAT SAFETY DEBATE

The sport has committed to increased cockpit protection from 2017... but are halos or canopies the best solution?

FAST FOOD, GROSJEAN STYLE

Haas racer Romain discusses his racing career while showing off his culinary skills. Anyone for Toblerone soufflé?

COUNTDOWN TO BAKU

F1 Racing joins Fernando Alonso on a trip to the land of fire, ahead of the inaugural grand prix at the Baku City Circuit

GO FIGURE

The stats behind F1 circuits, past and present

THE HISTORY OF F1: PART 6 88

The sport enters the 1970s, and as Ford power is made available to all, an era of frantic technical innovation ensues



80 BAKU What can F1 expect when it heads to Azerbaijan later this month?

36 Senna set pole eight times in 1986

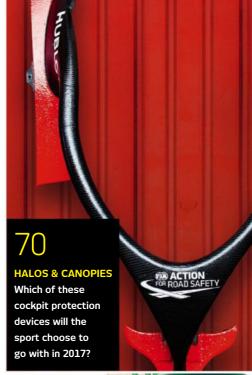


HISTORY OF F1 Aerodynamics take Centre stage as we move into the '70s

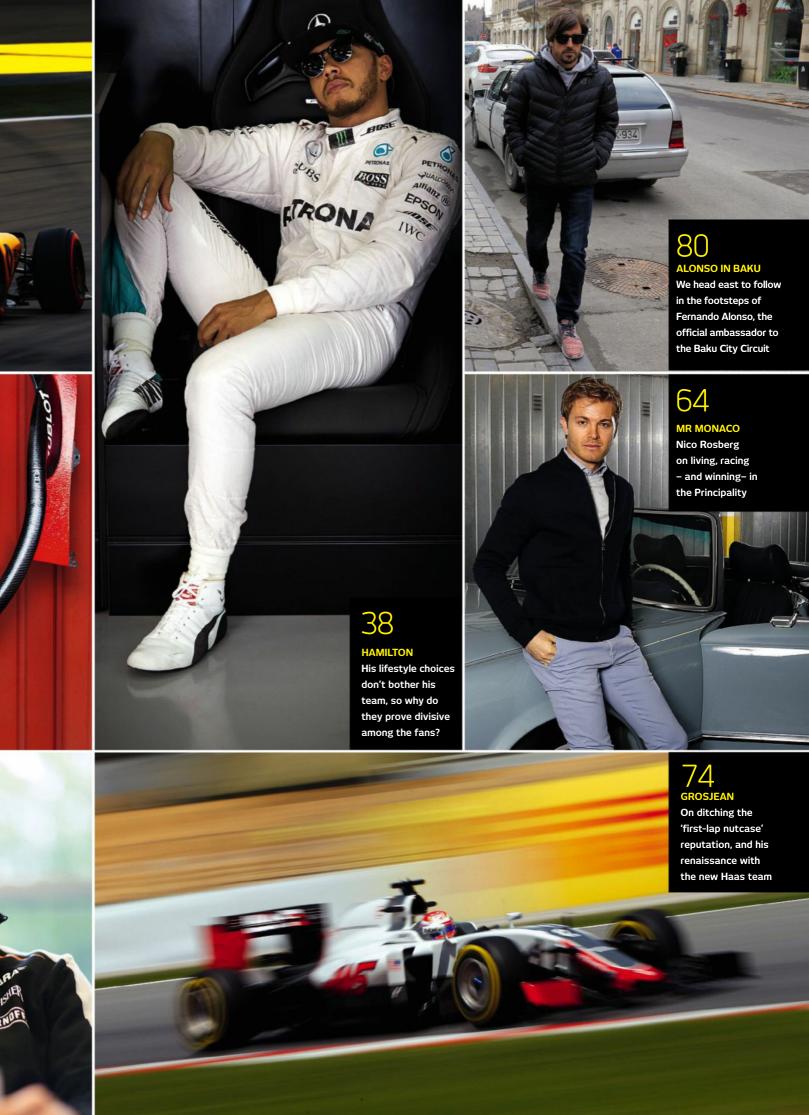
THIRD SECTOR: FINISHING STRAIGHT

- 100 RUSSIAN GP DEBRIEF ROSBERG DOES IT AGAIN
- 104 SPANISH GP DEBRIEF F1 GETS A BRAND NEW WINNER
- 108 CANADIAN GP PREVIEW A CIRCUIT OF EXTREMES
- 110 BAKU PREVIEW A FIRST VISIT TO AZERBAIJAN 112 INBOX YOUR VIEWS AND OPINIONS
- 114 MURRAY WALKER COME BACK, ALFA ROMEO!









Ignition / Anthony Rowlinson / 06.16

Why it was all change in Spain



Follow Anthony on Twitter: @Rowlinson_F1

We hate to say 'we told you so'. But, well, we told you so – about Max Verstappen, that is.

In April, Max became our youngest-ever cover star and we explained why he was such a hit in his 2015 rookie season and precisely what it was about his Hamiltonesque driving style that made future victories inevitable.

The cover star treatment was

just one of myriad 'youngest-ever' records that Max, 18, will doubtless keep setting, having just become the 'youngest ever F1 winner' and 'youngest ever podium finisher' at the 2016 Spanish GP (see race report, page 104). And while both of these achievements were brilliant, surprising they were not. Insiders speak of the 0.2s per lap advantage Verstappen had in hand over his less fluent and now demoted team mate Daniil Kvyat. No way was RB's driver Svengali Helmut Marko going to let that kind of talent be poached by an aggressive rival, so accelerated promotion represented the best option for keeping the boy wonder in the family.

Verstappen's polished pace was immediately evident on his elevation to the senior Red Bull team, even against the swift Daniel Ricciardo. They'll give us quite the intra-team battle to savour for the rest of 2016 – and beyond if Red Bull can find a way to accommodate their racing egos without blowing up the team. Good luck with that one, Christian, although it's surely the kind of problem any team boss secretly relishes.

Just ask Mercedee' Toto Wolff who's trying to keep a lid on an ever more intense feud between Nico Rosberg and Lewis Hamilton. Events in Barcelona were the clearest evidence of a new steel to Rosberg's approach: he seems a man willing to explore any possible advantage in pursuit of a first world title. He knows he still enjoys the best technical package in the field, as he has since 2014; he also knows that his team-mate Lewis Hamilton is one of the fastest, most complete drivers ever to have competed in Formula 1.

So should we be surprised that, having taken advantage of Hamilton's failure to win over the first four 2016 grands prix, by winning them all himself, Nico should seek to secure his advantage by refusing to cede ground when Lewis launched his reflexive attack into T4 in Spain? Equally, should we be surprised that Lewis, ever the instinctive racer, went for the gap as keenly as he did – fully committed and with little margin for recovery should his racing opponent play hardball?

That first-lap incident, for which neither driver was penalised, will surely be looked back on as one of the defining moments of the season and those pro- or antieither driver will continue to air their views via social media. Some of the more vociferous are likely to aim their barbs at Hamilton, for, as we explore on page 38, rarely, if ever, has an F1 driver proved so fan-divisive.

For our money, Hamilton is one of the best things to have happened to Formula 1, and the venom with which he is often attacked is as mystifying as it is objectionable. We only hope Verstappen is spared such excesses as he progresses through what should be a storied career.



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F1 Racing is published monthly in Australia, Germany, Greece, Hong Kong India, Indonesia, Malaysia, Mexico, Middle East, Philippines, Poland, South Africa, UK, USA Formula One, Formula 1 and F1 (trademarks of Formula

Circulation querie

Frontline Ltd, Midgate House, Midgate, Peterborough, Cambridgeshire, PE1 1TN. Tel: +44(0)1733 555161. ISSN 13614487. EAN 0771361448001.

Printed by Southemprint, Ltd. 17-21 Factory Road, Upton Industrial Estate, booke, Dorses, BHT-ISSN. Codour by Haymarket Propriess Reproduction in whole or in part of any photograph, text or illustration without written semission from the publisher is prohibited. Due care is taken to ensure hat the content of FI Racing is fully accurate, but the publisher and printer annot accept liability for errors and omissions. FI Racing is a member of the Audit Bureau of Circulations.

Subscription

Email help@fl.racingthemsgazivestropcom
1et 0344848 8926 Overseas Tel +440 (0)1504 251 454
1? Rozing (ISSN number 74597X) is published monthly by Haymarket
Media Group, Bridge House, 69 London Road, Twickenham, TWI 35P,
United Kingdom, Arlifegist and malling in the USA by agent named Ar Business Ltd. Cel Worldnet Shipping Inc., 156-15, 146th Avenue, 2nd Floo Jamaria, TWI 1464 USA Periodical postage paid at Immica NY 11431. Subscription records are maintained at Haymarket Media Group, Bridge House, 69 London Road, Twickenham, TWI 35P, Air Business Ltd is sacting as our mailing agent.

haymarket^{*}

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Justin Hynes
Talented F1 writer takes
a look behind the scenes

Every team has their unsung heroes and Justin speaks to those Mercedes men and women who help Lewis and Nico on the way to glory. Read their stories on p46



Thomas Butler

Award-winning snapper

who never misses a trick

A master at reportage and studio work, Thomas was the obvious choice when we were given the opportunity to capture the Mercedes unsung heroes at work...



Pat Symonds
Top tech guru both at
Williams... and F1 Racing

Following on from his investigation into car safety, last month, Pat runs his eye over the improvements that have been made to track and driver safety on p28



James Roberts
Baku is the next stop for our jet-setting associate editor

With the inaugural GP in Azerbaijan looming, Jimmy went to Baku to get a flavour of what F1 is in for when it heads to the shores of the Caspian Sea (p80)





Thanks to Patrick Allen, Nigar Arpadarai, Matt Bishop, Roberto Boccafogli, John Booth, Tom Butcher, Karun Chandhok, Tom Conney, Steve Cooper, Ben Cowley, Lucy Genon, Gulnaz Guliyeva, Johnny Herbert, Will Hings, Silvia Hoffer, Clarisse Hoffmann, Darren Jones, Jai Joshi, Laurence Letresor, Bradley Lord, Chris Murray, Georg Nolte, Sophie Ogg, Duncan Olley, Anthony Peacock, Carl Price, Andy Stobart, Lynden Swainston, Jason Swales, Deborah Tee, David Tremayne, Katie Tyler, Rosa Herrero Venegas, John Watson, Derek Wanwick, Bob Wayman, Richard Williams











Boy Wonder Max Verstappen strikes a heroic pose after one of the most extraordinary results of recent years. Promoted from Toro Rosso to Red Bull in favour of the hapless Daniil Kvyat, 18-year-old Verstappen stunned just about everyone when he scored an unlikely maiden victory on his first outing for the senior Red Bull team. F1 has a new star

Where Barcelona, Spain When 4.11pm, Sunday 15 May 2016

Photographer Darren Heath













FELIPE MASSA



HONDA







Has Rosberg turned the tables on Hamilton?

The Spanish Grand Prix clash marks a shift in the dynamic between the Mercedes team-mates – and leaves Lewis Hamilton with even more ground to make up

Lewis Hamilton faces arguably the toughest challenge of his career in trying to win his fourth world title from a substantial points deficit, and against a team-mate who is demonstrating ruthless determination to secure the championship for himself.

Hamilton collided with Mercedes team-mate Nico Rosberg on the first lap of the Spanish Grand Prix, resulting in both cars crashing out of the race and bringing the drivers' already cool relationship to a new low.

The incident was triggered by a combination of circumstances for which both drivers were held by stewards to be partly to blame, resulting in the verdict that it was a racing incident. The sequence of events leading up to the collision began to unfold even before the race started, when Rosberg failed to change his engine mode on the grid from the energy-harvesting mode used on the formation lap to the one for the race. Rosberg said: "It did not affect the car's performance on the run to the first corner."

Both cars made equally good starts, but Rosberg slipstreamed Hamilton and pulled off







Mercedes team boss Toto Wolff said: "It was an incident that could have been avoided from both sides"

a brave and well-judged passing move into the lead around the outside of Turn 1. But as the cars headed through Turn 3, Rosberg's engine went into energy-harvesting mode, resulting in him losing approximately 160bhp of hybrid boost.

Hamilton closed in and dived for the inside line. Rosberg covered aggressively, but not quickly enough to prevent Hamilton from getting his front wing and part of his front wheel alongside Rosberg's rear wheel while he was still on the track.

Despite this, Rosberg kept moving towards the inside, forcing Hamilton to either back off Hamilton chose the latter, lost control, spun and collected Rosberg's car.

or take evasive action by going onto the grass.

Rosberg's defensive move contravened article 27.7 of the sporting regulations, which dictates that the leading driver must leave room if there is a "significant proportion" of the car attempting to pass alongside. However, the stewards took into account the speed at which events unfolded and decided that Rosberg "had the right to make the manoeuvre he did", and that Hamilton's "attempt to overtake was reasonable".

Each driver made it clear he felt the other was to blame. Hamilton said he "saw a gap and went for it. I was a significant portion alongside and I had to avoid a collision". Rosberg countered with: "I saw Lewis closing in so as soon as I could I closed the door to the inside with a clear, strong move to make sure he understands there is not going to be space there, and I was very surprised that he went for it anyway".

Mercedes, in stark contrast to their reaction to the last collision between the two in Belgium in 2014, refused to apportion blame. F1 boss Toto Wolff said: "It was an incident that could have been avoided from both sides."

Behind closed doors, the team will continue to emphasise to both drivers that their priority is to ensure both cars finish, and never to compromise a Mercedes win. It is in that context that the battle between the two will be fought out over the rest of the season. And as the dust settles, Hamilton may well ponder two different aspects of the seconds leading up to the crash.

The first is that at Turn 1, Rosberg pulled off the sort of move he has often found difficult. The second is that Hamilton now knows Rosberg will not be intimidated in the way he has in the past

NEWS DIGEST

The month's big stories at a glance

01.05.16 A July deadline has been set for a decision on cockpit protection systems (more on p70)

03.05.16 Sauber announce they will not attend the post-Spanish Grand Prix test in Barcelona



04.05.16 Mercedes publish an open letter to fans in response to Hamilton conspiracy theories 10.05.16 FIA race director Charlie Whiting praises European Grand Prix preparations during Baku visit 12.5.16 Silverstone announces crowd-capacity expansion for British Grand Prix 18.5.16 Pascal Wehrlein receives a late call-up to test for Mercedes in Barcelona

- in incidents such as losing the lead in Austin in 2014, and last year the second corner at Suzuka and the first corner in Austin.

The crash also reduced Hamilton's scoring opportunities. The deficit to Rosberg after Spain was 43 points - more than ten per cent of the 400 points remaining in 2016. But in some ways the crash played into Hamilton's hands - had Rosberg remained ahead, he might have gone on to win the race and extend his points lead.

Both men run the risk of internal punishment from the team if this sort of incident happens again, but Hamilton has the most to lose if the two keep coming together - each clash reduces his opportunities to close the gap.

Rosberg can now afford to hold position where in the past he might have given way. How Hamilton chooses to respond to that will define the rest of the season.



away from contact, continuing

to move to the inside as Hamilton sought to pass,

proving to Hamilton that he

will no longer be intimidated





Aeroscreen takes pole position in safety debate

While the concept of cockpit protection remains divisive, Red Bull's proposal is the more favoured of the two tested so far

Formula 1 is moving towards adopting Red Bull's 'aeroscreen' as the form of mandatory cockpit head protection for next season.

The FIA is still pushing ahead with plans to introduce this controversial new approach

to safety, and the aeroscreen has supplanted the 'halo' tested by Ferrari pre-season as the preferred method. The fundamental reason is that the Red Bull concept is considered to be the more aesthetically pleasing of the two options.

Ekness

Rene Serma

The aeroscreen pioneered by Red Bull is favoured over the halo due to its greater frontal protection

Both devices are primarily designed to protect a driver from larger pieces of flying debris – for example, a wheel – hitting the car from the front. The driver's head will remains unprotected from above in both cases, but this is not considered an issue since an F1 car will, by definition, always be moving quickly when any such object strikes – ensuring the trajectory is highly unlikely to be vertical. The aeroscreen has the added benefit of providing extra frontal protection from smaller pieces of debris, which could penetrate between the halo's structure and the car.

However, a problem has emerged in that the structure of the aeroscreen intrudes on what the FIA refers to as the "free head space" – the area it determines must remain free of bodywork because it marks the extremities of where a driver's head could move to as it is thrown around in an accident. The areas in question are forward of the driver at an angle of about 45°. FIA race director Charlie Whiting met with Red Bull at the Spanish Grand Prix to discuss what could be done about this.

Because of these ongoing concerns, the FIA is also still pressing ahead with perfecting the halo for now. A new version of the device, made from titanium rather than the steel used initially, will be trialled in the near future.

None of the issues currently under discussion is considered a potential road block to the adoption of extra head protection, and F1 remains on a path to embrace it for 2017.

• For an in-depth look at the relative merits of halos and aeroscreens, read our feature on p70

QUIZ



THE CANADIAN GP

Q1 in which year did Montréal hold its first Canadian GP?

Q2 True or false: it was Jean Alesi's 31st birthday the day he claimed his only win, at the 1995 Canadian GP?

Q3 From what grid position did Jenson Button start the 2011 Canadian GP, which he famously won after dropping to 21st?

Q4 Ligier's sole Canadian GP win came in 1981. Who was the driver? Q5 Which current drivers have led a Canadian GP but never won one?

Q6 Who was Robert Kubica trying to overtake when he had his huge shunt in Canada in 2007?

Q7 Which river flows past the Circuit Gilles Villeneuve?

Q8 What made its first appearance in the 1973 Canadian GP at Mosport?
Q9 When the 2009 race was

cancelled, which GP moved into Canada's slot on the calendar?

Q10 Which father of a current driver scored his only championship point at the Canadian GP?

Q11 Jenson Button and Kimi Räikkönen are the only drivers to have managed what feat in the last ten Canadian Grands Prix?

Q12 Aside from Michael
Schumacher and Lewis Hamilton,
only five drivers have won more

than a single Canadian Grand Prix. Who are they?

Q13 Montréal is twinned with which other F1 GP host city?

Q14 The 'Wall of Champions' was so-named after which three drivers crashed into it in 1999?

Q15 McLaren have been the most successful team in Canada. How many races have they won there?

1978 2 True 3 Seventh 4 J Laffite 5 R Grosjean and F Massa 6 J Trulli 7 St Lawrence 8 Safety Car 9 Turkey 10 Jan Magnussen in 1998 11 Win & fastest lap 12 N Piquet Sr, J Ickx, J Stewart, A Jones, A Senna 13 Shanghai 14 D Hill, M Schumacher, J Villeneuve 15 13



Ricciardo "bitter" about Spain result

Verstappen made history in Spain - but team-mate Ricciardo has queried Red Bull's strategy



Max Verstappen won the Spanish Grand Prix following a controversial strategy call, despite team-mate Daniel Ricciardo having led for most of the race

F1 rejoiced in Barcelona as Max Verstappen became the youngest driver to win a grand prix. But the strategy that helped him win on his Red Bull debut has been questioned. Both his teammate Daniel Ricciardo, who led much of the race, and strategists from rival teams were baffled by a mid-race call to switch Ricciardo to an ultimately disadvantageous three-stop strategy.

Eighteen-year-old Verstappen was promoted from Toro Rosso partly because of Daniil Kvyat's failure to get on terms with Ricciardo, but also by a desire to lock Verstappen into Red Bull in the face of interest from Mercedes and Ferrari.

The switch, in which Kvyat was effectively demoted, involved renegotiation of Verstappen's contract, locking him in to Red Bull until the end of 2019 - two years longer than previously and a year beyond the end of Ricciardo's deal, which was itself renegotiated in the wake of his stellar first season for the team in 2014.

After Verstappen's win, team boss Christian Horner said he believed Red Bull now had "the strongest driver pairing in F1". But even before Barcelona, observers were asking how long that partnership could be sustained.

Verstappen's win came about only because Ricciardo, who led 30 of the 66 laps, was put on a three-stop strategy that meant he had to try to pass both Ferraris and his team-mate to regain the lead and win. Horner claimed the decision was made because Red Bull were worried about Sebastian Vettel, who they believed was faster.

Christian Horner: "We felt by splitting our strategies it gave us both options"



"In clean air, Ferrari probably had a slight car advantage on us," said Horner, "but it is pretty tricky to overtake around here and that is why we elected to split the strategies because it wasn't obvious which was going to be the quicker route, the three-stop or the two-stop. We were asking: 'How do we beat Vettel?' and we felt by splitting our strategies it gave us both options and we knew the two-stop was going to be under a lot of pressure at the end in terms of degradation."

Horner said Red Bull expected Ferrari to try to pass on a three-stop strategy. But that raises two key questions. First, why choose Ricciardo and not Verstappen to defend from a Ferrari the Red Bulls were already in front of? And second, track position is key in Barcelona because overtaking is so difficult, so why did Red Bull surrender it?

"To not be on the podium sucks. I will pull the guys aside, to ask them what the deal was."





Red Bull start to close in on Ferrari pace

Not only are Ferrari behind Mercedes again this season, they are falling into the grip of their rapidly improving rivals

Ferrari face a tough battle with

Red Bull for second in the constructors' championship following Max Verstappen's Spanish Grand Prix win. Events there proved what was already suspected – that Red Bull have a significantly better chassis than Ferrari. And so, it seems, do McLaren.

Ferrari have a significant engine-power advantage in this battle, which even after they'd messed up qualifying gave them an advantage in the race. But the final sector of the qualifying lap in Barcelona, where engine power is as unimportant in terms of overall time as almost any section of track on the calendar, told its own story. There, the fastest car was the Mercedes, followed by the Red Bull, followed by Fernando Alonso's McLaren – it was only then that Sebastian Vettel's Ferrari appeared.

Ferrari's biggest concern will be the major Renault engine upgrade, which, as *F1 Racing* went to press, was scheduled to make its full debut at the Canadian Grand Prix. This is expected to give the car a laptime boost of some 0.45s.

It was run at the post-Spanish Grand Prix test in Barcelona, after which Renault were to decide whether to bring its debut forward to Monaco. That lap-time improvement equates to a power gain of about 30bhp — which would put Renault's engine performance very close to Ferrari's, and potentially enable the excellent Red Bull chassis to put them ahead. At the very least, Red Bull expect it to let them regularly challenge Ferrari.

Red Bull team principal Christian Horner said after the Spanish Grand Prix: "With what's in the pipeline for the coming races there is a lot of reason for optimism.

"If we get what's advertised, it is going to put us in a position at least to race the Ferraris every weekend, and then hopefully we can start getting into closing the gap down to Mercedes at certain circuits.

"The upgrades coming on the power unit and the chassis will enable us to start building on this performance, and hopefully have a few more performances like this in the remaining races." F1 BANTER

PASSNOTES

Your essential F1 briefing #27 Lunacy



Name Lunacy
Age Around 2,000 years
Appearance
Dangerous

Ah, mental incapacity brought on by the moon. What the deuce are you on about?

Did you not know that? The etymology comes from the Latin *lunaticus*, meaning moonstruck, which folk in less enlightened times used to describe a range of fevers, agues and fits.

Phew, for a minute I thought you were going to pull your usual stunt of sending our ongoing dialogue down the eternal blind alley of pop trivia.

Well there is *The Lunatics Have Taken Over The Asylum* by Fun Boy Three...

Only reached number 20, according to my *Guinness Book of British Hit Singles*. It barely qualifies. Jog on.

Oh well. What lunacy news, then?

Mercedes boss Toto Wolff has described the internet conspiracy theorists who think the team are deliberately nobbling Lewis Hamilton's car this season as "lunatics".

As well he might. Not very PC, but then again they are on the internet so he's not far wrong. Indeed. You say "conspiracy theories", I say post hoc ergo propter hoc.

Quite the latin scholar, aren't we? Now, speaking of scholars, don't Mercedes employ a clever cove, once of this parish, who would go online to debunk such twaddle with the sword and shield of pure logic and good sense?

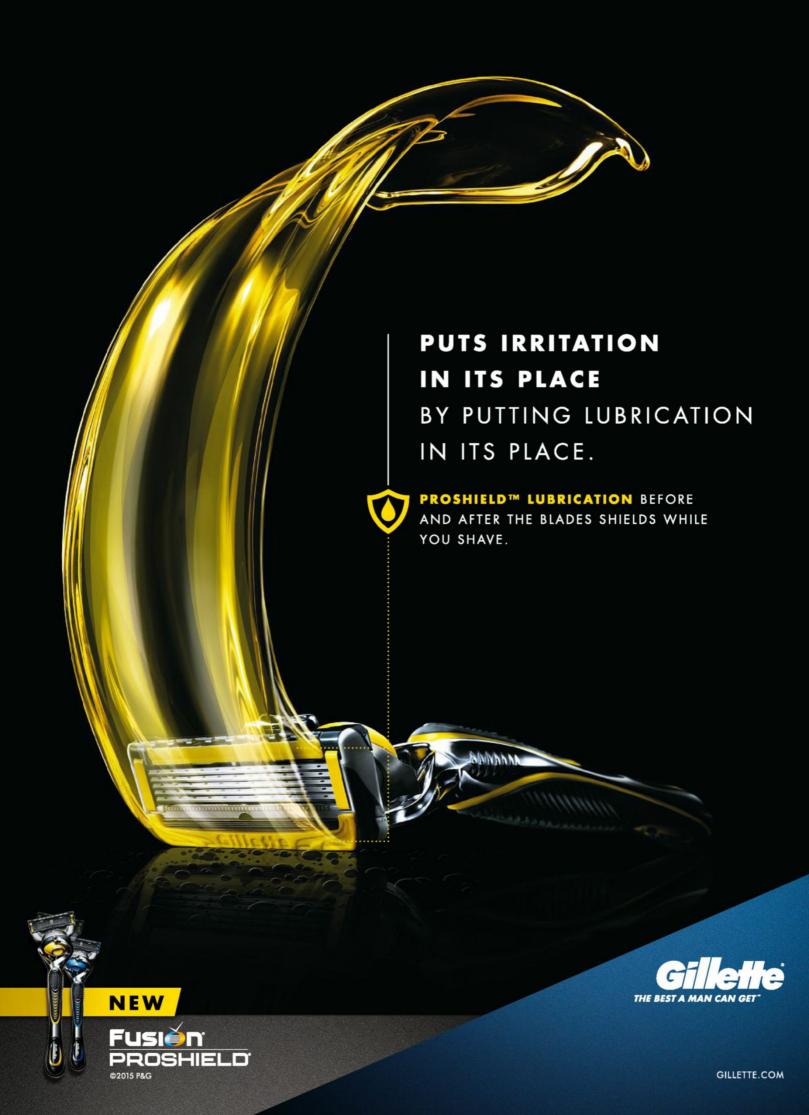
That might be why Mercedes published an open letter to the fans politely suggesting that the conspiracy theories are, indeed, twaddle.

Dear Lord! What were they thinking? You can't reason with people on the internet. That's just not what it's for! If I were Toto I'd be tempted to just tell the tinfoil hat brigade to come out from behind their web pseudonyms so I could tell them to get lost in person.

Dear Lord indeed...

Do say Occam's Razor. Shaves as close as a blade or your money back.

Don't say Now, BorgKing95, are you sure the FBI really blew up your house or did you just leave the gas on?





NEWS

Engine manufacturers agree on F1's future

Disputes over cost, performance and noise are being resolved, but the independent teams are yet to be fully convinced

Formula 1's engine manufacturers have finally concluded a deal with the FIA that will cut the cost of engines supplied to customers and is also intended to close up the grid. The agreement covers the four areas manufacturers agreed last November to address.

The token system is to be abolished, leaving suppliers free to make any changes they want



The first of these is cost. It has been agreed that prices will come down by €1m in 2017 and reduce by a further €3m in 2018.

Next up is convergence. The 'token system' restricting engine development will be abandoned from 2017, leaving manufacturers free to change their engines in any way they see fit whenever they want.

The third point is supply. An 'obligation to supply' agreement has been concluded to ensure that no team will ever be without an engine. If an engine is ever required, the agreement will guarantee the cost of that supply at €12m.

Last of all is noise. Engineers are working on a sound generator system to enhance the noise the engines make. This was described by FIA head of powertrains, Fabrice Lom, as "not fake, but not purely natural". The intention is that it will "really increase the intensity and quality of the engine sound".

The 'obligation to supply' aspect of the arrangement came about because of the situation in which Red Bull found themselves last year, when they wanted to drop Renault but could not persuade any other manufacturer to supply them.

Red Bull team principal Christian Horner was critical of the agreement, saying it "tickles the price, deals a little bit with convergence, the obligation to supply doesn't really apply". And Force India deputy team principal Bob Fernley said his team "reserved their position".

This led an exasperated Toto Wolff of Mercedes to say: "I just want to digest what I heard in the last five minutes. We achieved a major price reduction over two years. We have opened up development scope for others to catch up. We have designed an obligation to supply so no team runs out of an engine contract. We have found a mechanism how performance convergence could be triggered. Lots of good things, months of hard work in trying to get everybody on the same page — I think it's a good step forward."

Red Bull's engine contract with Renault expires this season, but they are unlikely to fall back on the obligation-to-supply guarantees. Renault have already offered them a new deal, and they will almost certainly continue with the current arrangement of buying Renault's engines and badging them for a sponsor, currently the watch manufacturer Tag Heuer.



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NEWS

Williams eye new driver line-up for next year

Felipe Massa may be on his way out as Williams consider alternative drivers – including McLaren's Jenson Button

Felipe Massa is in danger of losing his Formula 1 race seat at the end of the season as Williams contemplate a change of driver line-up for the 2017 season.

At this stage, the most likely scenario is that Williams will drop Massa at the end of this campaign, leaving him the choice of trying to find another drive – with no top team likely to have such a vacancy – or retiring. Valtteri Bottas is under option for next season and is likely to stay.

Massa's fate could hang on the options Williams have available. Both Jenson Button and McLaren reserve driver Stoffel Vandoorne are of interest to the team.

McLaren will choose between Button and Vandoorne as a partner for Fernando Alonso for 2017, which is the last year of Alonso's current contract. However, rumours that the team have already decided to promote Vandoorne following his impressive debut in Bahrain are wide of the mark, according to sources at McLaren.

Vandoorne is the logical choice in many ways

– he is more than ten years younger than Button

McLaren must choose between the experienced and popular Jenson Button (left) and highly rated reserve driver Stoffel Vandoorne (right)



and is regarded as the most promising driver outside F1. And his performance in Bahrain, where he outqualified Button on his debut, suggests he is more than ready.

Equally, if McLaren retain Button, they risk losing Vandoorne for good – which would mean they have lost two rising stars in the space of two seasons following their decision to let Kevin Magnussen go. But against that is Button's experience, his continued good form, and the fact that he is very popular with sponsors.

McLaren have an option on Vandoorne which runs out in the autumn, meaning he is not free to sign for another team until that lapses. If the team do not promote him, he has a strong chance of a seat at Renault next season. Renault racing director Frederic Vasseur is a big fan of Vandoorne, whom he ran in GP2, and believes is the best driver who has ever raced for him. Vasseur is said to be keen to partner Vandoorne with current Renault race driver Kevin Magnussen for 2017.

Unusually, Vandoorne has no management representation, so has no one pushing his case at other top teams. This could be a weakness in the context of the number of major vacancies this year, including at Ferrari, where Kimi Räikkönen's contract is up for renewal.











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Honda push for gains in power and efficiency

The ICE, turbo and hybrid systems are being developed as Honda wrestle with continuing performance shortcomings

McLaren's engine suppliers Honda are working on developments to both the internal combustion engine and turbo as they seek to close the performance gap to their rivals.

Honda F1 boss Yusuke Hasagawa said that he believed the internal combustion engine was the power unit's biggest weakness, but that they were working on a development of the turbine to enhance the efficiency of the MGU-H, the energy recovery system attached to the turbo.

Hasagawa said he accepted the ICE was the main weakness in the McLaren-Honda package and that he felt "huge pressure" to improve it.

McLaren believe that their chassis is now the second best in F1 this season, after Mercedes' The pressure, he said, came from "the name of Honda - Honda has to win".

Insiders say the deficit to Mercedes is at least 80bhp and could be as much as 100bhp. But Hasagawa maintained there was "not such a big difference" between it and the Renault, the least powerful of the other three engines.

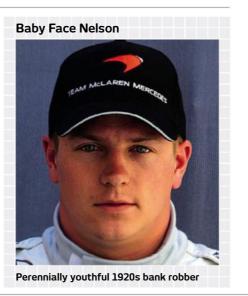
A turbine development will be introduced in June to improve the deployment of the hybrid system - which was the biggest step forward Honda made over the winter. Last year's engine tended to run out of hybrid boost - by as much as 180bhp - part-way down most straights.

Fernando Alonso and Jenson Button say the engine is "much better" this year, and McLaren are happy with the performance of their chassis.



SEPARATED AT BIRTH...





NEWS IN BRIEF

RUSSIA AIMS FOR NIGHT RACE

The promoters of the Russian GP have declared their intent to make it a night race within the next four seasons. Currently the race begins at 3pm local time. "I'm sure before 2020, it will happen," said chief executive Sergey Vorobyev. "We are waiting for final confirmation from the government because it's a necessary capital investment. At this moment, we're not fully ready to cover a night race operating cost. The decision has been made without specific dates."



LYNN GETS FIRST 2016 WILLIAMS RUN

Williams F1 development driver and 2014 GP3 champion Alex Lynn sampled the FW38 for the first time at the Barcelona test immediately after the Spanish Grand Prix, evaluating development parts that included an unusual double-decker rear wing. Lynn is the team's nominated 'young driver', complying with regulations that stipulate each team must dedicate two of the four in-season test days to running drivers who have competed in fewer than two grands prix.

SHELL ENDS SIGNAGE DEAL

Long-time F1 sponsors Shell have opted not to renew their title sponsorship of the Belgian GP or their trackside signage deal with FOM, although they will continue to work with Ferrari. "They have chosen instead to focus on and strengthen their newly upgraded Innovation Partnership with Scuderia Ferrari," said Shell's global sponsorship manager, Kai-Uwe Witterstein. "Running until 2020, this agreement with the most successful team in the sport, acts as proof of Shell's continued commitment to Formula 1."

PHONE BIDDER BAGS SCHUMACHER BENETTON

A Benetton-Ford B191B driven by Michael Schumacher, Nelson Piquet and Martin Brundle fetched €1.058.000 at the Bonhams auction on the Monaco Historic Grand Prix weekend. Schumacher took his first podium finish at the 1992 Mexican Grand Prix









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INSIDER



Pat Symonds explains THE SCIENCE BEHIND...

Driver and circuit safety improvements



Last month we looked at how the F1 car had evolved in terms of safety, but there have been a lot of changes in other areas, haven't there? Yes, while the car itself is the safety cocoon that the driver sits in, the advances made in the design of car safety systems would be severely compromised if the driver's equipment and the circuits themselves were not regularly updated to ever higher safety standards.

There are two significant pieces of driver safety equipment that have proved gamechanging in recent years. The first of these is the HANS device. The acronym HANS stands for Head And Neck Support. Physically it is a carbon-fibre yoke that is attached to the driver's shoulders by means of the wide shoulder straps of the safety harness. The yoke has an upstand behind the driver's head, and two strong tethers are attached to it. These, in turn, attach to clips on the side of the driver's helmet. In a frontal accident, the neck no longer needs to support the full G-force experienced by the combined mass of the head and helmet. Instead, a significant proportion of the load is absorbed through the tethers. Not only does this reduce the load on the critical upper vertebrae, but it also limits the movement of the head, thereby making it virtually impossible for the head to strike the steering wheel.

The second major advance for the drivers is the introduction of the 8860 helmet standard. This came about as a result of work carried out by the FIA Institute to modernise helmet design and make use of the advances in material science that have occurred since the old Snell standards were first introduced. The helmet itself is made of carbon fibre, and while it weighs just 1kg it provides a tenfold improvement in strength over old designs. In fact, it is strong enough that a 55-ton tank can be driven over it without the helmet failing. This increased strength has permitted the inner liner design to also be improved thereby allowing the head to be decelerated relatively slowly within the helmet shell itself.

What was the driving force behind these changes? The FIA Institute, which was founded in 2004, has been instrumental in creating research needed to bring about improvements in the safety of circuits and driver equipment. It has also sponsored several bodies of work that have improved safety for track workers and spectators alike. Since its inception, it has become the home of motorsport safety research and development and has investigated items as diverse as setting standards of helmet sizing for teenage kart racers to the introduction of wheel tethers and low noses on F1 cars to limit their propensity to become airborne in accidents. It has also helped develop much more effective crash barriers to contain the energy of high-speed incidents.

In addition, the FIA Institute has taken a lead in developing motorsport-specific medicine, creating world-wide databases of impact and injury information, which, in turn, has led to the creation of new FIA standards for safety equipment of every type.

How is this work funded?

The \$100million fine that was levied on the McLaren team as a result of the 'Spygate' incident was used to help fund the FIA Institute. The Institute is a non-profit-making organisation that undertakes research and development for motorsport in the areas of safety and the environment. It also acts as promoter of best practice and manages the distribution of motorsport development grants in partnership with the FIA Foundation.

Of course the teams themselves are also involved and often make available components for testing purposes. In addition, through the technical regulations committee, they add expertise to the work of the FIA.

Have crash barriers been improved?

Indeed they have. The Institute has been working on high-speed barriers for years to avoid the enormous energy of a car hitting a barrier at high



speed causing either penetration of the barrier, or forcing the car to go over or under the barrier – each instance leading to different problems. It was found early on that the evolution of the car impact structures was, at times, contrary to the requirements for the safe arrest of a wayward car and, since then, changes have been made to both the car's impact structures and the barriers themselves to limit penetration and to avoid gross deformation of the barriers, which could lead to a driver being trapped under the very structure that was designed to protect him.

Does the FIA get involved in the design of the circuits themselves?

Yes it does, and this is a programme that has been going on for a number of years. A computer programme was devised that identified the criteria that constituted a 'dangerous corner'.



This was linked to the radius of the corner, the likely trajectory of a car after loss of control and the amount and type of run-off area. This has led to a best-practice framework under which circuit designers must work if they are to get their facilities licensed for top-class motorsport.

The guidelines that circuit designers must follow now analyse potential accidents and

establish minimum criteria for the amount of run-off area, the surface of that area and the type of barrier that must be present at the extremities of the circuit.

The FIA was also instrumental in the development of the TecPro barrier. These are now widely specified as part of the requirements for licencing a circuit for F1 use. They resist

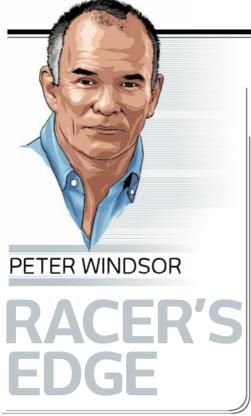
penetration by the car on impact and instead absorb energy by displacing a significant length and hence mass of barrier, thereby bringing the vehicle to rest in a relatively gentle way.

Have we now reached the limit for the F1 safety? Unfortunately we have not. The cars, and the safety infrastructure surrounding them, have developed immeasurably over the years, but there is no getting away from the fact that a fully fuelled Formula 1 car travelling at 190mph contains nearly 5MJ of kinetic energy, which has a massive destructive force when dissipated in the short time in which an impact occurs. Motor racing will always be a dangerous endeavour and it is the job of engineers to keep striving to minimise that danger. \Box

NEXT MONTH CONTROL SYSTEMS

The HANS device means the neck no longer bears the full G-force of both head and helmet in an impact





Authority, wit and intelligence from the voice of *F1 Racing*

hristian Horner's turn of phrase when demoting Daniil Kvyat, was intriguing: "Dany will be able to continue his development at Toro Rosso," he said, "in a team that he is familiar with, giving him the chance to regain his form and show his potential."

It's the 'form' thing that made me think. What is 'form' when it's at home? Is it, 'Wow. I've just made a big mistake. Must try harder'? Or is it, 'Ah. At last. Back home at STR. Life's good. I'll surely regain my form'?

It is, of course, neither. 'Form', in reality, is an excuse for not making the effort to understand the fine, grey line between getting-it-right and getting-it-wrong — and for not understanding the reasons behind the balance.

Kvyat is but one example. A racing driver in China; a condemned man in Russia. There is no excuse for running into the back of another car, particularly under braking at the first corner – but this sort of mistake is nothing to do with 'form', or how it can evaporate in the space of 14 days.

Daniil's error in Russia was undoubtedly a function of two key elements: one, the adrenalin that builds from being a high-midfield (and thus traffic-exposed) local hero with a podium finish just behind him. And, two, his inherently spiky brake application.

Why it's never too late to go back to school

You don't have to be a psychologist to know that Daniil would want to be pushy into the first corner in Russia. I presume Red Bull would have spent most of Saturday night reminding him that it would be a long race and that, above all, he should leave lots of room around him on lap 1. He got away with it in China; it wasn't going to happen again in Russia. If Daniil didn't have those thoughts echoing in his brain on Sunday morning, when the flags were flying and the fans were cheering, then someone at Red Bull wasn't doing their job. And by that I mean the driver-management people.

Then there's the spiky telemetry. These sorts of errors can be alleviated by lots of hard, repetitive work at Bruntingthorpe with Rob Wilson. So why wasn't Daniil spending time there over the winter, eradicating the jolts that have been obvious since his Formula Renault days, let alone since he hit the wall at Suzuka last year? You can't blame Daniil: he's now an F1 driver (albeit a demoted one) with F1 driver's privileges, one of which is to believe that he's bulletproof and has nothing to learn other than new tracks and telemetry software updates. Hard work between races? Puh-lease. That's for the gym, not an airfield circuit where your faults might be exposed in front of a middleaged ex-driver who is annoyingly able to lap a Vauxhall Astra 0.3s quicker than you over a two-minute lap.

I'm not being cynical: in today's world, it's up to the teams to ensure their drivers put in the hard work that gives them the fundamentals around which they can operate. The job doesn't end when the aircraft leave for home. The drivers, left to their own devices, will go into default mode: gym, debrief at the factory/over the phone, simulator, sponsor day, cycle ride, gym, next race. It's the teams who need to book the cheap flights to Luton and the rental car for

the drive up to Bruntingthorpe. It's the teams who need to appreciate the importance of not blaming something as abstract as 'form' when at the same time they are analysing the car's performance down to the last byte.

The problem with motor racing, of course, is that there are too many elements to take the blame. The hardest thing of all is to be self-critical. Less difficult is the psychology: it's easy to read a character like Nigel Mansell's or Lewis Hamilton's or Fernando Alonso's. And yet the teams keep getting it wrong. They fail to adapt. They fail to get the best from the driver in whom they theoretically still believe.

When Nigel Mansell encountered tech problem after tech problem in 1991, key members of the Williams team were quick to elevate Riccardo Patrese to effective Number One status, caring little about Nigel's ultracompetitive nature. The swing sent Nigel into a thunderous mood, doing little for team morale. Patrick Head's response was that drivers should be mature enough not to sulk; my experience is that racing drivers need more care and attention than the average baby.

Fernando Alonso's situation is similar. Why did McLaren and Ferrari choose to release him when Renault had treated him like a demi-god? The answer is simple: something in Fernando's post-Renault brain told him he wasn't getting the treatment he deserved – itself a function of either being slower than a team-mate (Hamilton at McLaren) or falling out with management, as was the case at Ferrari.

The reasons are irrelevant: the point is that when employing a driver like Alonso you know what you're buying before he zips up his overalls. You pre-empt the surprise of Lewis being slightly more supple under high-speed braking by letting Fernando run Hitcos or Brembos before he asks for them, not when the damage is done. You make the team work around his foibles; you create a stage upon which he will act comfortably. It's not difficult and it's not magic: it's just good business sense.

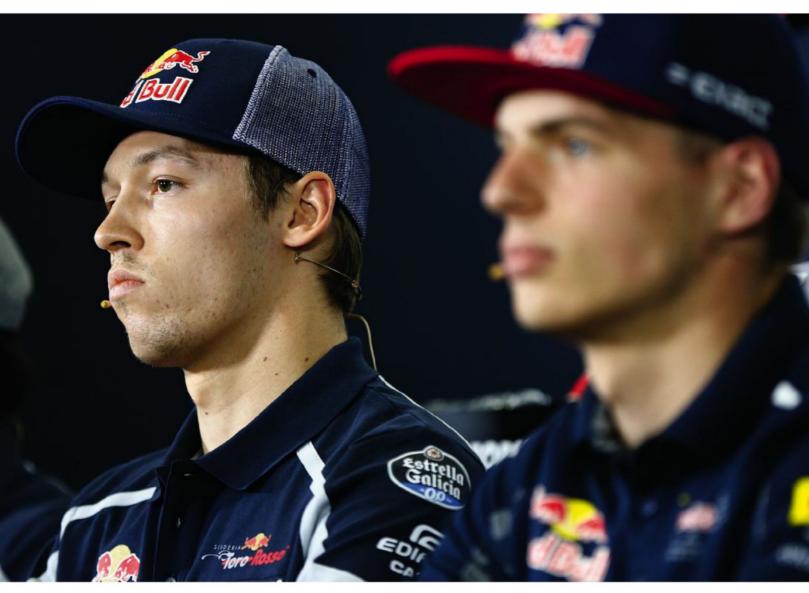
At the other end of the spectrum are the drivers who need ramping-up. Listening to Brian Redman at a Brooklands event to promote his new book, I was struck by his

"Daniil is an F1 driver with F1 driver's privileges, one of which is to believe that he has nothing to learn"





Daniil Kvyat went from hero to zero in the space of just two races. His podium in China (far left) was forgotten in the aftermath of his Turn 1 error in Sochi (left), which led to Red Bull swapping him with Toro Rosso's Max Verstappen (below)



description of his fifth place for McLaren in the 1972 German GP. "I was very confident going into that race," he said, "because I knew the circuit well and the McLaren M19 was a nice car. But I made a big mistake. I thought I had enough temperature in the rear tyres after the warm-up on the short loop behind the pits and gunned the rear to begin a proper practice lap of the big circuit. I was wrong. I hadn't warmed up the tyres enough and I put the car into the guard-rail. After they rebuilt it I was very cautious in the race and only finished fifth."

Cautious? From 19th on the grid to fifth? On the big, old, 14-mile-lap Nürburgring? Brian, by his own standards, had an off-form day – yet his was a dazzling drive. Brian wasn't off-form that day. All he needed was more support from the team. Employing a driver isn't just about strapping him in and awaiting a lap time: it's about understanding his character and giving him the confidence to dig deep. In Brian's case, it was obvious: his humility was going to oblige him to blame himself for the shunt and so the right team play was to shrug

it off and to encourage him to drive ten-tenths in the race. The long faces in the garage had the opposite effect. Fifth place could have been fourth... could have been third, maybe, ahead of Ronnie Peterson's March.

So I'm interested to see how Daniil regains his form. I hope Red Bull have the sense to send him to Bruntingthorpe, where the work on the ground fills the gaps between the numbers. But I fear it'll be left to the digital data. The grey area in between? They'll just call it 'form' and hope that he regains it. 3





Cockpit savvy from the 1996 world champ, exclusively in F1R

ne of the most interesting and divisive issues in F1 right now is the proposed introduction - or not - of cockpit 'halos' or 'riot shield' screens. There are two camps: one sees it as a moral impossibility to deny protection once it has been shown to be viable; the other resists the inexorable cosseting of the driver from his/her own life choices, or should that read, 'death or serious injury choices'?

Who should decide? The driver? After all, it's their neck. Or the FIA, which has a responsibility to protect their safety? Or should we ask the fans? There is a track on an album by a couple of long-gone comedians who went by the pseudonyms of Derek and Clive. The song describes a person in a burning building being convinced to jump into a blanket by the crowd below. The punchline is that there is no blanket. This would be funny were it not for the fact that people have been known to shout "Jump!" to people attempting suicide. So I have my doubts about asking total strangers what they would like to see. No offence.

Thomas Hobbes declared the need for societal rules if life was not to be 'solitary, poor, nasty, brutish, and short'. Our state of nature, he implied, was such that we could not be civil to one another without policing. The blanket

Whose life is it anyway?

story supports his theory. Someone has to apply limits if we can't do it ourselves. The seat-belt law is a case in point. People didn't like being told what to do with their lives, but they have no idea of what really happens in an accident. They would undoubtedly change their view if they, or one of their loved ones, were to go through the windscreen.

Formula 1 used to be a blood sport. Drivers regularly died horribly violent deaths. This had to stop. I'd like to think it had to stop because we all felt it was morally untenable. not because we feared losing business through government regulation to restrict our freedom to kill ourselves in front of millions of people. But let's suppose for a second that F1

was 100 per cent safe. Would it be worth watching? As someone who can't watch those home videos of old ladies falling off swings without wincing, I happen to believe it would. But would it be as exciting to watch? That's another question.

My father raced in the most bloody period of motorsport. It was grim. Not pretty at all. I also experienced the Imola tragedy first-hand. If there was any way of bringing back those drivers, we would do it in a heartbeat. There is no benefit to premature death. The pain it inflicted and the shock to all involved in our sport, and indeed to the fans,

was massive. I was a pallbearer at Ayrton's funeral. When I see shots of this generation of drivers carrying Jules' coffin I know how powerful that experience can be.

But here is the crux of the problem. The argument against losing risk says that if you take danger out of motorsport you change its fundamental nature, and in doing so you change its appeal. You get a different audience and you get different types of drivers, not daredevils, not free-spirits who want to spend their life living the way they want. The

emphasis shifts to skill over bravery. And there is no issue in that. Most other sports involve skill only. But isn't bravery also a kind of skill?

We marvel at those who can control fear. It is one of the greatest tests we can face as vulnerable mortal creatures. Do we not think that it is also part of our sport to let drivers show this skill of theirs? I think so. But anyone who thinks that sitting in a racing car, no matter how well protected, will not involve huge courage and skill does not understand what these guvs do for their money. Even with protection, the risks will still be significant.

The only important thing for me is that every driver getting into a racing car has understood and accepted the risks involved. Implicitly they



Is it morally wrong to deny protection once it has been shown to be viable, or is it up to the drivers to make their own choices?

do this by getting into their car at every race. But what might be better is if they make it clear to everyone that they have willingly chosen to do this thing, come what may, and that they fully understand the risks. This used to be a regular part of a driver's weekend, explaining to journalists why they thought the risks were worth it. We should respect and admire them for choosing to race, but the audience should also be left in no doubt about what they are watching. Maybe our sport should carry a warning to viewers: 'What you are about to see could involve injury or death. These drivers are extreme professionals who understand the consequences. Don't try this yourself.' It might even put a few more bums on seats. •

• For more on the safety debate, turn to our feature about halos and canopies on 70

"We marvel at those who can control fear. It is one of the greatest tests we can face"





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POWER PLAY

The stories F1's bigwigs would rather you didn't know...

ranslated literally from German to
English, the word 'sauber' means 'clean'. Thus
the increasingly muddy situation surrounding
Peter Sauber's team is poignant, especially to
those who know and respect the man voted
2005 Swiss of the Year, an accolade previously
bestowed upon such as Roger Federer and the
founder of an Aids hospice.

Ten years ago, the team's future looked bright. BMW had acquired an 80 per cent stake in the team, with options to ramp up their shareholding. Expansion of headcount and facilities duly transformed Sauber into a race-winning top-three operation by 2008.

But by the end of 2009 BMW had given in their notice, lining up a consortium as the buyer. The frontman of that consortium turned out to be Russell King, so Peter intervened – preferring to re-take control of the team despite having planned his retirement. He banked on involvement from former sponsor Petronas, whom he had brought into F1.

Mercedes, who purchased the Brawn team at the same time, poached Petronas. This was not the end of Sauber's struggles, either: no grid slot existed after BMW failed to confirm an entry, while the global economy went into a tailspin from which it has yet to recover. The

Are Sauber F1's unluckiest team?

2010 car was hurriedly converted to take Ferrari power, and Sauber prevailed upon peer teams to permit a late entry – eventually made possible only by Toyota's sudden exit.

So the Sauber of today is a totally different entity to what went before, with only the team title and address remaining unchanged. Vast corridors constructed to accommodate armies of BMW personnel stand empty, while the massive windtunnel – once F1's best, and still right up there – is used mainly by third parties owing to F1's increasingly restrictive regulations. Meanwhile, Albert, F1's first CFD supercomputer, loafs in a corner.

In real terms, Sauber should be viewed as the 'fourth' of the three new teams to hit the 2010 grid, of which number only Manor survive – albeit in a very different form to their original entry. If anything, Sauber suffered a later start, compromised by uncertainty over entry and engines. That they scored points in 2010 attests to the determination of Peter and his long-time deputy, Monisha Kaltenborn, whom he promoted to team boss in 2011.

Despite this catalogue of setbacks, by the end of 2012 Sauber trailed mighty Mercedes by just 16 points, to hold a solid sixth place and, on the surface, all once again looked bright.

This was, though, an illusion, for earlier in 2012 the grandee teams had secured a favourable ongoing commercial settlement with Formula One Management, leaving

Felipe Nasr at Barcelona in March: a month when the Sauber payroll had to be paid in instalments



"Last year Sauber earned \$54m for finishing eighth; McLaren took home \$82m for ninth"

Sauber and the other independents with the take-it-or-leave-it scraps. From then on, these independents could not hope to take on the likes of Ferrari, McLaren, Red Bull and Mercedes on equal terms.

To illustrate the disadvantage, last year Sauber earned \$54m in FOM revenues for eighth in the constructors' championship; McLaren took home \$82m for ninth. While others cut their cloth accordingly, Force India being a prime example, Sauber could not, in the main owing to the eye-watering overheads incurred by their facility. Imagine what they could have done with an extra \$30m.

Concurrently the Swiss franc hardened: despite being pegged artificially low, it remained frightfully expensive. The result was that income from sponsors and FOM, earned in F1's universal currency, US dollars, was worth 30 per cent less before it hit the bank.

Simultaneously Sauber's costs rose due to F1's switch to hybrid engines and the allied rule changes. Switzerland tightened its immigration laws, complicating staff recruitment. The calendar expanded as budgets reduced; F1's TV ratings plummeted, impacting on commercial appeal; and controversies surrounding the sport alienated big-buck spenders.

These issues affected all teams, but Sauber, located in conservative Switzerland, were hit harder than most – forcing them to enter into marginal deals, first with a Russian entity, then signing four drivers for two cockpits.

Clearly they need strong investment, but who would stump up for an operation not even in the EU, in a country with no domestic motor industry, particularly when so much uncertainty surrounds F1? Throw in a pending EU investigation over the regulation of the sport and their future appears far from rosy.

Now that was a car

No. 51: The Lotus 98T

Senna's qualifying flier proved too thirsty to be a regular winner



WORDS STUART CODLING PICTURES JAMES MANN

Even before Colin Chapman's death in 1982, Lotus had ceased to be F1's most *effectively* innovative team. As rivals such as McLaren (with the first carbon-fibre-monocoque chassis) and Brabham (with a number of Gordon Murray inventions that pushed the rules to their limits) executed big ideas simply and practically, Lotus got lost in a morass of complexity as they chased downforce above all else.

Team manager Peter Warr steadied the ship after Chapman's fatal heart attack, and had to make some tough decisions, chiefly to back away from innovation for innovation's sake. When active suspension, one of Chapman's pet projects, failed to deliver straight away, Warr sent it and engineer Peter Wright off to the road-car division.

Despite a switch to Renault turbo power in 1983, Lotus continued to flounder. Warr recruited former Matra and Ligier man Gerard Ducarouge mid-season to head up the technical department, and he immediately knuckled down, producing a new car in just a few weeks, albeit based on the essentials of its predecessor. Ducarouge's first clean-sheet design, the 95T, proved more competitive and scored five podiums in the hands of Elio de Angelis and Nigel Mansell in 1984, but it lacked reliability. Mansell retired from 11 races, although his spin while leading the Monaco GP was self-inflicted.

Ayrton Senna replaced Mansell for 1985, and while the 97T-a development of the 95T chassis with revised aerodynamics – was less than totally reliable, in the wet at Estoril Senna returned Lotus to the winners' circle for the first time since De Angelis's narrow victory in

Austria 1982. Cautious, iterative development was paying off, but even if Lotus could cure their reliability woes, a bigger problem lay ahead: Renault were losing the engine development war. McLaren's TAG-Porsche unit was more frugal; Honda's V6 increasingly more powerful.

The FIA trimmed turbo power outputs by mandating smaller fuel tanks for 1986, so Ducarouge designed a completely new tub for the new 98T, while carrying over the suspension (albeit with revised geometry) and most of the existing aero. Renault had closed their own works team but ploughed on with engines, adding pneumatic valves to allow a higher rev limit and more power, though the EF15 V6 was still neither the most powerful nor the most economical unit in F1.

Senna, now partnered by Johnny Dumfries, demonstrated the 98T's potential by putting it on pole for the first race of 1986 in front of his home crowd in Brazil. But not for the last time that year he would have to back off in the closing stages to save fuel, ultimately finishing second. In all, Senna claimed eight poles that season but converted only two – Jarama and Detroit – into victories. On both those occasions he was driving chassis number three, the car photographed here, which now belongs to F1 marketing guru Zak Brown.

McLaren and Williams continued to dominate, and as 1987 beckoned, Warr and Ducarouge felt the next competitive step was to secure Honda engines and explore active suspension once again...

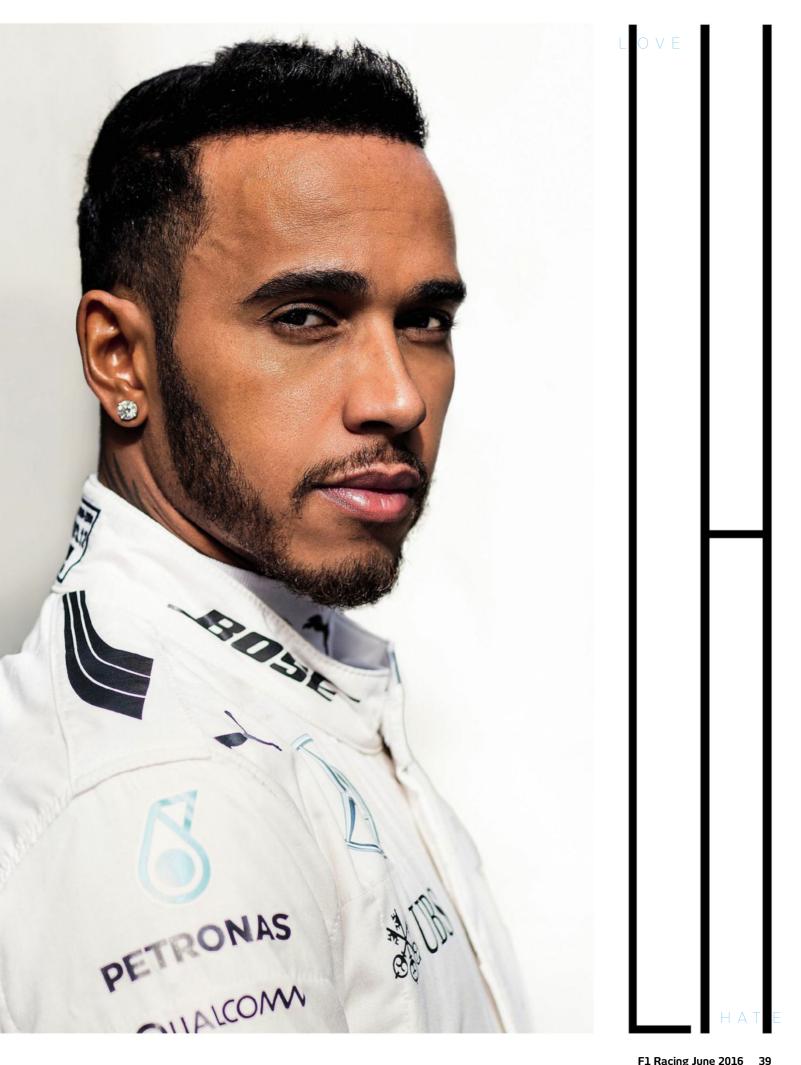
• Thanks to Zak Brown and United Autosports for the loan of 98T/3

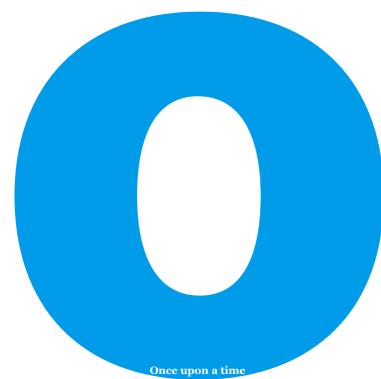
NEXT MONTH THE FERRARI 641 (











it was easy to categorise a British racing hero. Bow-tied Hawthorn; canny Jackie, dashing James with an eye for the ladies. Marauding Mansell. Damon, the valiant underdog. We understood who they were. We knew what to think.

Through shifting eras they wrote their own chapters in the book of British Sporting Greats, crystallising our opinions through their deeds on- and off-track. Be it silk-sheets Jim Clark – all classical elegance at the wheel of yet another brilliant Chapman Lotus – or Boy-Next-Door-Button, they've formed a golden thread of winners whose presence at the sharp end of Formula 1 has helped cement Britain's wider involvement in the sport. Indeed, for the British motor racing establishment, the sight of Moss, Brooks, or 'Wattie' winning for Cooper, Vanwall or McLaren could only mean that all was right with the world. God in his heaven. The sceptr'd isle green and pleasant for another day. Phew!

And now we have Lewis Hamilton: a ground-shaking, bassquaking, shape-shifting megastar whose very presence forced a reappraisal of what it meant to be a top-line British racing driver, on account of his mixed-race genes and blue-collar upbringing. And that was *before* he started winning everything.

These days, three world titles and 3.3 million devoted Twitter followers later, Lewis has gone *way* beyond merely blowing like a hurricane through the sometimes stultifyingly conservative F1 paddock. He is arguably bigger than the sport that made his name, and occupies a position among the globe-trotting glitterati – seemingly as comfortable stepping down from his cherry-red Challenger jet as he is stepping out in LA, London, Colorado, Barbados, or wherever in the world happens to take his fancy on any particular day.

Follow Lewis through Snapchat, Twitter, Instagram or Facebook and you're granted regular glimpses into a lifestyle previously the realm only of those similarly young and wealthy, or blessed with the most fantastical imaginations. He might be thwacking golf balls into the clouds from the slopes of a New Zealand mountain; taking selfies on a motorbike as he cruises down the blacktop; maybe there's the bump 'n' grind of a Miami sweatbox; or he's off to the Caribbean for a circuit demo in a 2013 Merc F1 showcar – all the while finding time to shadowbox on a clifftop overlooking the Atlantic at sunset, or to pump a set of inverted press-ups on the steps leading down to the plunge pool of this week's luxury hotel.

It renders the otherwise enviable existences of his gifted, wealthy and famous peers almost humdrum by comparison. Post-Sochi, Hamilton's team-mate, Nico Rosberg, shared a few shots of a pristine first-light cycle blast along the Côte d'Azur and some family time on the Monaco waterfront spent with his baby daughter, Alaïa. Very nice, too, if strikingly unexceptional by the standards of a thoroughly modern F1 driver. Fernando Alonso, meantime, busied himself promoting the Baku Grand Prix circuit, for which he is an ambassador. Nice work if you can get it. But 'nothing to see here'.

Hamilton, though, streaks on, like some Millennial-Generation comet, existing on what seems to be a different plane from the rest of the Formula 1 set – itself already rarefied and distant from any normal walk of life. Not for him the cosy cadre of Monte Carlo, where he owns a property. Observers say he's rarely seen in town.

Such has been his emergence into the public consciousness he was last month listed as an 'Icon' among *Time* magazine's '100 Most Influential People', alongside Usain Bolt, Nicki Minaj, Jordan Spieth, Adele and Leonardo DiCaprio. And this from a magazine based in a country where Formula 1 still struggles to gain widespread recognition.

But celebrity has its price and for Lewis Hamilton that has become manifest in the extremes of opinion – both positive and negative – directed his way. For all the warmth reflected back to Lewis via #TeamLH, social media provides the perfect, zero-jeopardy platform from which 'haters' can spew forth bile, in a manner far more brazen than any would likely dare, face to face. A recent Twitter trawl unearthed anti-Lewis hostility such as "tit" and "if one of the most influential ppl in the world drives cars in circles for money we're all fucked". Hamilton's wearing of traditional Arab dress during the Bahrain GP weekend attracted further pot-shots from several who questioned the state's human rights record.

While these comments might be dismissed as the predictable reaction of a self-selecting minority to the activities of a high-profile public figure, Lewis is aware of the hostility and from time to time feels moved to comment. "I'm used to it. I'm not surprised by it," he said at the Russian GP. "I've been doing social media for a long, long time... So, to be honest I just see the positives from it, not the negative side."

Surely more interesting though is why Lewis should be hated *at all*, for in many ways he epitomises everything that Brits love about their sporting heroes. For starters, he has succeeded largely thanks to his own talent. The evangelical guidance of his



In a sport with such serious supporters, is Lewis looked down on for his celebrity lifestyle?

championship on his way to the title, but I remember Lewis in the garage saying to us all: 'Come on guys, we can win this. We can still win the title!' His competitive spirit was always incredible."

Another aside from his McLaren years: once, on duty to take an ex-Ayrton Senna car for a track run, he was disappointed to find his hero's machine had been fitted with rain tyres, when he could see a temptingly dry track. "Why no slicks, guys?" he queried. "Too expensive," came the response. Hamilton subsequently shelled out for a few sets himself, just to have some proper fun in a proper car.

That almost childlike enthusiasm is still evident deep inside the celebrity bubble he has grown around himself in recent years. He'll respond to a paddock 'Hi Lewis' with a smile and handshake and he has time for those he's worked with – and liked – throughout his career. There remains, in fact, a direct connection with the Stevenage lad who wasn't gifted academically but found out instead during his school years that he was astonishingly brilliant at racing remote-control cars. Since then, one toy led to another and now, with multiple millions in the bank, it's F1 cars and private planes, instead of Tamiya models and a lift home from dad.

father, Anthony, was a massively powerful influence on Lewis' destiny, as Lewis himself regularly acknowledges, but those sublime wheel skills are Lewis's alone. Yes, they were nurtured within a McLaren-funded environment throughout Hamilton's teens, but he took advantage of what was offered at every opportunity: he fell just one point short of winning the world title in his rookie F1 season, 2007. No one has ever got closer to achieving that singular feat.

Lewis has succeeded, moreover, without making enemies on track: he's part of a generation of hard-but-clean racers (think Alonso, Vettel, Rosberg, Webber, Räikkönen, Ricciardo...) not given to shoving each other into walls or parking their cars on hairpins during the closing stages of a Monaco qualifying session. So no need to make excuses for his 43 (and counting) victories. He has won them by the book, with no question of foul play. Only with Rosberg has there been tension – inevitable given their remit to race each other in front-running cars

Hamilton is also utterly exceptional at the day job – by any measure right up there with the very greatest drivers ever to have raced in F1. Time and time again he has displayed every element necessary for serial success: blinding outright speed, relentless racecraft, passing ability, fighting spirit, and hunger for victory. Perhaps here, in fact, Lewis might fall short of a notional British sporting ideal – it being a country unused to serial sporting success and attitudinally more comfortable in defeat, so long as it has been a 'good game, well played.'

Meek capitulation is assuredly not Lewis's style, as one McLaren staffer recently confirmed: "We gave him a pretty shit car in 2009, but by the middle of the season, we'd got it together and he won in Hungary. By that stage he was already more than 50 points off Jenson, who was leading the

HATE

"Lewis is arguably bigger than the sport that made his name and occupies a position among the globe-trotting glitterati"

WHAT'S NOT TO LIKE?

Love him or hate him, the stats show that Lewis's F1 record makes him best of British and puts him right up there with the greats

Wins

VVIIIS	
Michael Schumacher	91
Alain Prost	51
Lewis Hamilton	43
Sebastian Vettel	42
Ayrton Senna	41
Fernando Alonso	32
Nigel Mansell	31
Jackie Stewart	27
 Jim Clark	25
Titles	
Michael Schumacher	7
Juan Manuel Fangio	5
Alain Prost	4
 Sebastian Vettel	4
Lewis Hamilton	3
Jack Brabham	3
Jackie Stewart	3
 Niki Lauda	3
Nelson Piquet	3
Ayrton Senna	3
Poles	
Michael Schumacher	68
 Ayrton Senna	65
Lewis Hamilton	52
 Sebastian Vettel	46
Jim Clark	33
Alain Prost	33
Nigel Mansell	32
Races led	
Michael Schumacher	142
Lewis Hamilton	86
Ayrton Senna	86
Alain Prost	84
Fernando Alonso	84
Sebastian Vettel	72
Kimi Räikkönen	68

(All statistics correct as of the 2016 Spanish Grand Prix) An object of envy, then, assuredly. But hatred? Not in the view of, say, Paul Di Resta, who has raced against Lewis in various categories since the age of eight. He describes Hamilton as "a world ambassador for the F1 brand".

And not in the view of Mercedes team boss Toto Wolff, whose tricky task it is to channel Hamilton's phenomenal talent, while allowing his prodigy the ever-increasing slack he needs to accommodate a life beyond F1: "He was a superstar already after his first world title," says Toto. "Actually he was a superstar from the beginning when he first came into Formula 1. He was the real deal."

Wolff's insights run deeper, as might be expected of a man who has worked with Hamilton extremely closely since 2013: "Lewis was always a personality that polarised – which is an ingredient of all the great superstars. And when he came to Mercedes he was just exceptional. The way he behaved on and off track is different to many of the others – that's why it's not something that has come from one day to the other, but has developed over the years.

"The great ones don't want to be boring. If you're of no interest to anybody you will never be a worldwide phenomenon. You need to be loved and if you're loved then some will hate you. And that balance is the pattern you can see with some of the superstars."

There's that 'hate' word again, linking itself with Hamilton, even as it's being debunked. In living memory only two F1

HATE

"If you're of no interest to anybody you will never be a worldwide phenomenon. You need to be loved and if you're loved then some will hate you" Toto Wolff



OVF





drivers have divided opinion so starkly: Senna and Michael Schumacher. One was deified after his fatal accident, with the result that some of the more questionable aspects of his career and character have been airbrushed from history; the other remains in rehabilitation from his near-fatal brain injury and has a racing legacy of near-notoriety.

Nothing in Lewis's career has come close to the extremes of car-as-weapon thuggery practised by Senna and Schumacher; a few handbag swipes were exchanged with Rosberg after T1 contact at last year's US GP and there was the 'racing incident' in Spain last month, but the slate is largely clean.

That leads to the inevitable conclusion that any invective hurled at Lewis must be truly personal, because his racing

"Love him for what he is... he's very aware and he wants people to share" Johnny Herbert

Lewis is renowned for making a huge effort for his fans – be that through social media or in person

record, and ethics, are almost beyond reproach. It must stem from a dislike, pure and simple, of someone whose life choices outside F1 are markedly different from the majority of those within it, yet whose sporting success simultaneously proclaims him as one of its greatest exponents.

"Lewis has a different view of his value," says Mark Gallagher, a respected F1 commentator. "His value to the world is in promoting himself but then – dare we mention it – in this profoundly white, European, conservative, Anglo-Saxon culture that is Formula 1, Lewis just isn't part of that.

"He has his fashion interests as well, and his music, so it doesn't add up for a majority of people who are the establishment. And it's not only the old brigade. Even some new journalists in F1 and younger people who have come into it are so passionate about the sport that they don't understand how Lewis can have a life outside it. So, actually, a lot of key opinion formers within F1 just can't abide Lewis Hamilton, because his narrative isn't that of the established style."

"Maybe it's because I'm black?" Lewis joked in Ali G-style at the 2011 Monaco GP after receiving two penalties. That's a difficult question to address, such is its sensitivity and for his part Lewis has always avoided making race any kind of issue. It's certainly true, nonetheless, that the F1 paddock abounds with casual racism of many stripes.

But is it 'because he is different?' That's nearer the mark, though for as long as Hamilton keeps delivering on-track, he has an answer for any critic. His second and third world titles were achieved while playing as hard as he raced, and he blitzed Rosberg in 2015, after a closer contest in 2014. Over the first five races of 2016, true form has been harder to establish though, since the breaks all went Nico's way, and their Spanish GP lasted less than a lap. Rosberg is good enough, however, to capitalise on even the tiniest drop in Hamilton's performance and should there be any hint that Lewis's lifestyle choices are compromising his racing, then, reckons Wolff, we'll see an immediate change: "If we were to try to put him in a box, his performance would suffer and fundamentally, the thing I care about most is performance. If he's in a good place he will perform well. If his performance doesn't work one day, he'll be the first one to adjust things."

Meantime the haters – whoever they are – might do well to look in the mirror before reaching for the keypad. Lewis Hamilton is what he is: a brilliant racing driver who smashed the mould.

As Johnny Herbert commented to *F1 Racing*: "Love him for what he is, love him for being someone who is willing to go out there and show a side that we're not used to as Brits. He always makes a big effort to say 'hi' to the fans. He does it at races, he does it on social media, he does it on his Snapchat stuff. He's very aware and he wants people to share. That's the modern world we live in and good on him for doing that. Like him for that. Like him for showing you his life."

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Backroom boys and girls











In their moment of victory, Lewis and Nico are always quick to praise those "back at base". But who exactly are these unsung heroes? *F1R* headed to Mercedes HQ to meet five of them

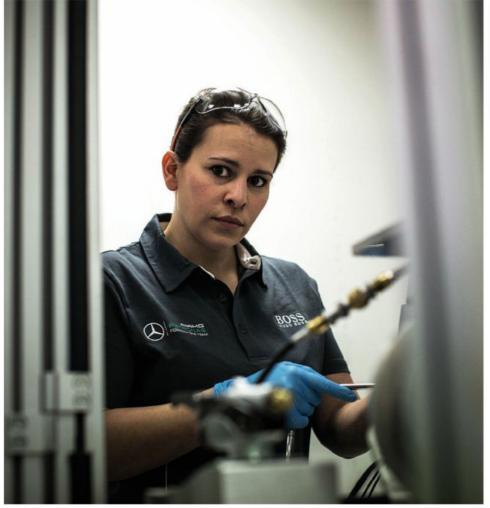
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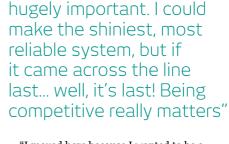
It's pretty much an F1 meme, a pattern of speech so embedded in the cultural consciousness of the paddock, and beyond, that its routine insertion into almost every podium interview and press conference has become, well, pretty much routine.

We're talking, of course, about the thanks meted out by winning drivers to team members trackside and in the factory, without whom their achievement would not have been possible. So who are 'the girls and guys back at factory', the 'brilliant crew', the 'fantastic engineers' who, months ahead of on-track battle, begin to plot a driver's course to victory? There's no better place to answer the question than at Mercedes' Brixworth and Brackley facilities, where the 'guys in the garage and back at the factory' reveal how they play their part...









"Competitive reward is

"I moved here because I wanted to be a technician only," she says. "At Williams I had to do some design work and that wasn't really what I was interested in. I associate being a technician with Lego. When you lay all those little bits out and build it into something that works and does a good job, there's a great sense of achievement."

Although she admits that the majority of the components on which she works have only had "minor tweaks" this season, Potts insists that once she and her colleagues are past the frenzy of the early races, the regularity of the 'deconstruct, service, rebuild' regime that defines her department never becomes dispiritingly routine.

"There is always something new to address, something new to achieve every day," she says. "There is routine – a part goes to race, gets used, comes back – but along with that cycle there are always new parts being put on the car, there are always new things to learn. There's always the next race."

And as that cycle reaches its fortnightly peak, there comes the possibility of victory, which Potts says is essential to her working life.

"Competitive reward is hugely important," she explains. "I could make the shiniest, most reliable system, but if it came across the line last... well, it's last! Being competitive really matters. We are here, we are pushing on and we want to be first – all the time."

Ask Lauren Potts about her career path

into F1, and her first response is a wry chuckle.

"My route here was a little unconventional," she says with a smile. "I finished my engineering degree, but it's hard to get the job you want in Formula 1 straight off the bat, so I started out as a receptionist for the Williams team. I was working in the HR department, which was pretty handy. They knew the skills I had and they knew what I wanted to do. Within three months I got a role in production."

After five years with Williams, she made the switch to Mercedes in 2012, taking a job in the build department, where she took on responsibility for the assembly of the car's hydraulic systems.







John Owen Chief designer

As someone largely responsible for the team's hybrid-era dominance, John Owen is one of the more publicly celebrated of Mercedes' 'backroom boys'. But the softly spoken designer is quick to quash any notion of a place in the spotlight among F1's 'starchitects'.

"Seeing others who seem to want to spend their time in the spotlight is my cue to avoid it," he says firmly. "There is a job to be done, which is what people here love to do."

Owen has been getting on with that work since arriving at Brackley from Sauber during Honda's final years there. And he's remained there, throughout the upheaval of Honda's departure, the transformation into Brawn GP and the eventual arrival of Mercedes. Owen points to 2013 as a watershed, when Mercedes won three grands prix and finished second in the constructors' championship.

"I'm often asked what I'm most proud of, and probably it is 2013. We finished second – we were fifth the year before – and the difference between the two years, from my perspective, is night and day in terms of what it felt like here. We left aside all the distractions and just focused on the core performance of the car. The step change we made was really positive."

He is less forgiving, however, of the car that gave Mercedes their title breakthrough a year later. "People here were very proud of the W05, but I used to think: 'There's so much wrong with it, there's so much to fix!' It was nice to do the



2015 car and get a lot of those things sorted out. But this year the cupboards are a bit emptier."

The diminishing returns inherent in a stable rule set are the constant bugbear of designers, and Owen admits that the promise of the 2017 regulations is almost too tempting.

"People here were very proud of the W05, but I used to think: 'There's so much wrong with it, there's so much to fix!' It was nice to do the 2015 car and get a lot of those things sorted out" "Like a kid in a sweetshop, I have to force myself to look at the veg, which is the 2016 car," he adds. "But there are so many interesting things on the next one. So what you have to do is find things that are interesting on the 2016 car.

"I am the architect of the car. An architect looks at the form, the shape, the space: everything about what it will ultimately be. In terms of sizing the steel work, in my role I'm not doing that bit. What I am trying to do is ask where are the opportunities in the rules?

"For 2017 we have a simple, two-line mission statement that clearly says: 'you will focus on this and this'. These are the opportunities and if you get these two things right you are going to win... but I'm not going to say what they are!"



Alex Conway

Mechanical engineering graduate

A relative newbie at High Performance Powertrains, 24-year-old Alex Conway is in no doubt as to why he's determined to translate the second year of a graduate placement at the team into a long-term career at Brixworth.

"The engineers here are like kids with massive toy boxes," he explains. "We get to play and we're not confined in ways that the rest of the automotive industry is."

It is, however, a toy box Conway thought was beyond his reach, despite a love affair with F1 that stretches back to childhood.

"I definitely didn't think it was achievable as a career. I thought it was a pipe dream. But at university I got involved in Formula Student, which is heavily endorsed by HPP. After three years of university I did an internship here. I spent 13 months working on the beginning of the hybrid era, which was absolutely mind-blowing."

After finishing his degree Alex returned for a two-year post-graduate placement, shuttling between departments in order to gain as broad an understanding of the standard-setting PU106 power unit as possible.

"I was in performance engineering, but I've moved into mechanical design," he says. "I've been made responsible for the block and sump. The learning curve is steep but it's what I enjoy."

The curve is navigated in a vast open-plan space honeycombed with workstations that are littered with spec sheets, models and machined



parts — all of which are hastily swept away as we're guided through. The area is so large and the work so seemingly esoteric to the unschooled eye that the garages of Melbourne or Montréal seem impossibly remote. Not so, insists Conway.

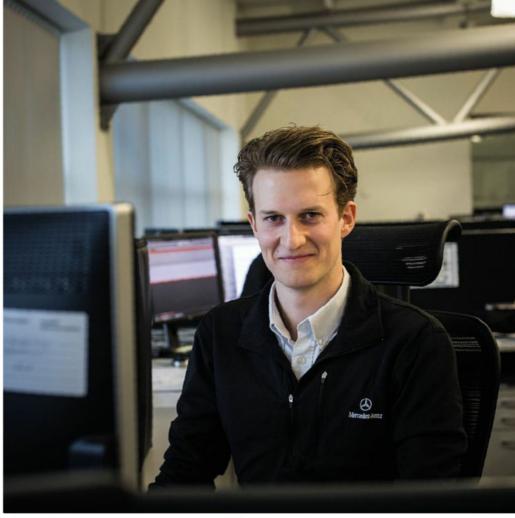
"We feel very heavily connected to the circuit. There's a huge sense of solidarity, although there are definitely moments where you're watching a grand prix from behind the sofa."

And it's the fallout from those *Dr Who*, behind-the-sofa moments that Conway says provides the irresistible lure of F1.

"It's the rate of development and the speed of reaction that are so addictive for someone who enjoys design and enjoys development. It makes other industries appear quite slow. I remember being involved in the company's response to the failure of the MGU-K on both cars in Canada 2014. The speed at which that was addressed and rectified was just incredible," he recalls.

The adrenaline rush of instant reactivity is not the only aspect of the team that has Conway pinning his hopes on a long future at HPP, however.

"Working on the hybrid technology is phenomenal," he says. "How could it not be when you're pushing the edges of internal combustion technology? That's what keeps me here – the desire to be the best. And it's just that, the raw competition."





"We feel heavily connected to the circuit. There's a huge sense of solidarity, although there are moments where you're watching a grand prix from behind the sofa"



"Our ability to compete at the front is very much based on our capabilities on site and my role is to put those capabilities in place"



Graham MillerHead of aerodynamic operations
and special projects



If there's anyone at Mercedes' Brackley HQ who can tell you exactly how far the team have come in recent years, it's their head of aero, Graham Miller.

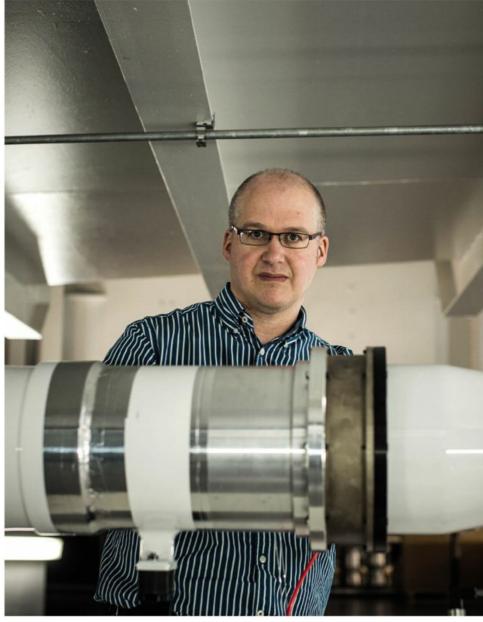
"I've been with the team for 18 years — a long time," he says of a Formula 1 career that has its origins in the demise of Tyrrell and the start of another somewhat ill-starred venture, British American Racing.

"I started in 1998 and joined to assist [original BAR partner and technical director] Adrian Reynard," he explains. "At the time this site didn't exist, so my first job was really planning out a lot of the operational functions."

Over the intervening two decades Miller has seen massive changes at Brackley – "the original business model was based around a team of 150 people" – but his current role, managing the day-to-day operation and maintenance of Mercedes' aero resources, dates back to 2006, during Honda's tenure.

"It started off with the creation of the big windtunnel here in Brackley – Windtunnel 2. My role at the time was to look after the build and the technical implementation of the tunnel. I think most project managers will tell you that the art of good project management is to implement a project, escape and move on to the next one, but I got sort of stuck with the operational management of the tunnel."

That role later expanded to include a range of other projects, leading to Miller working across



the team to build and introduce new capability. It's a process he feels is deeply connected to the improvement of car performance.

"I feel extremely connected to the racing in as much as our ability to compete at the front is very much based on our capabilities on site, and my role is to put those capabilities in place," he explains. "I feel particularly connected in respect to our reliability. Some of the systems we have put in place over the past two years are intrinsically linked to that – our ability to simulate certain things.

"There's a particular capability that we introduced – which I can't really talk about! – that directly feeds our ability to run a new car straight out of the box and to do ten race distances in testing. It's very satisfying to see that we can do that sort of thing."





Christopher Ward





Hungary 2013, and Sam Bradley is preparing for his first race on the front-left wheel gun with Mercedes' pit crew. Lewis Hamilton is starting from pole for the fourth time that season, but Bradley's fellow crew members are trying to ease his pre-race nerves.

"Everyone was saying not to worry, that the Red Bull would catch us, so there would be no stress during the pitstops," recalls Bradley. "But then Lewis was in the lead by miles and I was like: 'Oh God, please don't let me mess this up!' It was just massive pressure."

The tension was relieved when Hamilton landed his first win for a team that he, like Bradley, had joined at the start of that season's campaign. "I've always been on Lewis' car and you always want your car to do well," says Bradley, "but equally it's great when Nico

"Most people think that after the race ends, you just put the car in the back of a truck and you're off. But no, eight hours after the race you're still at work. It's tough"

does well, because you do the pitstop and winning just makes you happy."

Through a childhood school friend who works on Rosberg's car, Bradley joined Mercedes after stints in F3 with the Räikkönen-Robertson team and in GP2 with iSport.

"I'm sort of a 'floating mechanic'," he says.
"On each side of the garage you have a front-





end mechanic, a rear-end mechanic, an engine mechanic, a number-one mechanic and then me. So wherever there's work, I'm there."

The schedule can be incredibly demanding, however, and while he insists that the highs emphatically outweigh the lows, the workload can often be extreme.

"I remember the 2014 Hungarian Grand Prix, when Lewis's car caught fire in qualifying. Fridays are generally late, but you then have a late Saturday and on Sunday you have to pack everything away. Most people think that after the race ends, you just put the car in the back of a truck and you're off. But no, eight hours after the race you're still at work. It's tough."

It's a schedule that takes an inevitable toll, on wellbeing and home life. "I counted how many days I was away with races and demos and everything else last year and it was 162 days. I took 44 flights. It's crazy," he admits.

The ultimate reward though comes through on-track success, but even with back-to-back championships under his belt, Bradley baulks at the term 'unsung hero'.

"I think that every person who works in the team, everyone behind the driver can call themselves an unsung hero," he says firmly. "Every single one of us has a small job to do, and it all adds up to one massive whole. We get parts handed to us and if one of them is left loose, then it's all going to fail. Every little bit adds up. Everyone has to be on it."



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YOU ASK THE QUESTIONS

Nico Hülkenberg

The Force India F1 racer and 2015 Le Mans winner has plenty to say about sportscars and soaps and not 'doing' karaoke – or mullets

WORDS STUART CODLING PORTRAITS ANDY HONE/LAT

F1 Racing regular feature come so close to disaster. Shanghai International Circuit has been buffeted by high winds all afternoon and now,

Seldom has an episode of this venerable

as Nico Hülkenberg poses for our photographer behind Force India's paddock cabin, a stray gust tears a handful of question cards from his grasp. At any other venue this wouldn't be a problem, but here we're on stilts above a murky swamp.

Nico joins the breathless scramble to save your questions from their appointment with Hermann Tilke's water feature. "Let's go inside," he says. "It's way too cold out here."

With the precious cargo secured, we concur and head indoors, barring the door against the raging tempest without, and begin...

Who has been your favourite team-mate to race against?

Chris Lunnon, UK

Rubens Barrichello in my first year at Williams. It was a challenge to race him in his 19th year and my first year. It was a big thrill when I beat him. That was a big achievement for me. He was a fun guy and I learned a lot from him.

F1R: But not to do that silly stumble thing on the way to the podium...

NH: Heh heh. No.

Which cars are more technically advanced. F1 or LMP1, and which are more fun to drive?

Chris Bancroft, UK

Both are so advanced that there's not much between them. There are some differences in technology, but otherwise it's all state-of-the-art. They are both right at the top. More fun to drive? How do I describe it... it's like, not from a fitness point of view... it's like comparing a high heel with a sneaker. Sometimes you wear that and sometimes you like that. It's just different. Fourwheel drive [the Porsche 919's hybrid system drives the front wheels] against rear-wheel drive. They're hard to compare, but I like my F1 stuff.

Do you prefer F1's open cockpit or LMP1's closed cockpit. And what about the halo?

Michael Andrew Rosales, Philippines
I think I've made my halo opinion very clear
now. [He has said, on record: "I don't like how it

looks and for me it feels like trying to eliminate every little bit of risk."] That just stays as it is.

What is your favourite Indian meal?

Matt Lloyd, UK

That's paneer tikka, a spicy grilled cottage cheese. I always had it on trips to India.

Were you shocked to find yourself dicing with the Manors in Bahrain?

John Allen, France

Bahrain was a pretty miserable race and things went completely wrong from the first lap... having to pit on lap 1, being offset on the strategy and tyre age with everybody else. We were in a negative spiral and a lot of bad things happened to us. I firmly believe it could have been a normal race because I exited Turn 2 in P7 and without that front-wing damage I could have raced for points... for sixth or seventh place. Bahrain wasn't a true picture.

Where do you keep your Le Mans trophy?

Cheryl Wolfe, UK

That's at home, in my living room. \rightarrow



What's your guilty pleasure?

Chloe Hewitt, UK

Guilty pleasure... what does that mean? *FIR:* Guilty pleasure. It's an activity that's not cool or widely approved of but which you secretly enjoy, such as a terrible movie or TV programme. **NH:** Like eating junk food or chocolate? I like junk food and there's a soap opera I like in Germany – most people will just cross their arms and say, 'How can you watch this?' I think it's quite funny, though. It's called *Gute Zeiten, Schlechte Zeiten* or *Good Times, Bad Times*. [Lots of laughter.] Real stories!

Which achievement do you consider to be your personal favourite? Your Le Mans 24 Hours victory or your first F1 pole position with Williams?

Elton Lam, UK

Mmmm, yeah, that's difficult. A pole position is a pole position, but a Le Mans victory, I think you have to work a lot harder and longer for it, so in this case it is the Le Mans victory.

Did you expect Sergio Pérez would be so fast when he joined you at Force India?

Ondrej Sembera, Czech Republic Yes I did.

In an ideal world, what qualifying system would you like to use?

Caroline Hynds, UK

Now we are back to the 2015 qualifying system I'm happy with that. We get hired to race and we don't think day in, day out about how we could change formats. It's not my job, but anyway, I think the current format is not bad.

What is your opinion about F1 moving towards pay-per-view TV? Is it good or bad for the sport?

Gary Gardner, UK

You reach fewer people than with free TV, but again we don't run the show. The commercial rights holder does and he makes those sorts of decisions. It's sad, but that's the way it is.

If you don't join a title-contending team next season, would you look to go into another series? Full-time WEC perhaps?

Roberto Hechavarria, USA It's a bit early for that, I think.

What would your superpower be?

Andrew Pryor, UK

[Long pause.] Probably that thing to be myself in one place then another... teleportation.

Which classic circuit would you like to see revived in the near future?

Philipp Scheider, Germany

I like Zandvoort in Holland. I raced there a lot in Formula 3 and Formula BMW. It's a fun place.

Is it frustrating to see the new start-up Haas team outscore your team at the beginning of this season?

Thomas Guilfoyle, USA

Not at all. They were very lucky in Melbourne, still doing a good job, but got lucky because of the red flag. They didn't even pit under the Safety Car. Had the red flag not come out, they would have been in trouble. They have a solid package and are doing a good job, it's just we haven't had the best few races. It's early days in the season. We're coming, don't worry about that.

Which grand prix destination is the best for a party afterwards?

Alison Walpole, UK

There are a few good hot-spots for that during the year. Let me think... the top five for that, not a ranking but five of the best, would be Australia, Monaco, Barcelona, Montréal and Brazil.

F1R: Not a karaoke man? Suzuka, the Log Cabin?
NH: No, I don't do karaoke... →





Were you thinking about Ferrari when you chose number 27?

Eero Hurmerinta, Finland

No I was not!

F1R: Well, that number is traditionally associated with Ferrari – Gilles Villeneuve used it, among others.

NH: To be honest, had I known all of this history stuff with Ferrari, I wouldn't have chosen that number. I really wouldn't. I'm not good with the history. Clearly.

We weren't given much time to select our numbers. It was pretty much one night. I couldn't come up with a number, and somebody said 'just take your birthday date'. It's 19 August, 19 and 8 is 27, so I said 'Okay, I'll take it.' And that's the story of that.



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What is your favourite memory from your time at Williams?

Becky Robson, UK

It's probably when I spent a lot of time in England in 2009, around Oxford, day in, day out with the team. Being at the factory, seeing how they work and do stuff was quite cool and fun.

If you could combine three sectors from any of the circuits on the calendar to create your perfect track, which would you choose and why?

Sam Kelsall, UK

Okay... I'm a really big fan of Austin so I was going to say Sector 1, but then Sector 2 is pretty cool as well and Sector 3 also.

F1R: What about the Esses at Suzuka?

NH: Yes, but that's pretty similar to Austin as well. Sector 1 is a bit like that. I would throw in a bit of Suzuka, a bit of Spa and a bit of Monaco.

How many cars do you own and what's your favourite?

Imshun Je, Canada

I only own two and my favourite car is... that's tough, man, because there are a lot of nice cars

in the world out there and it's hard to pick one. Even now there are so many good supercars.

F1R: Would you go modern or classic?

NH: Usually I'm a bit more of a modern guy but recently I've found I like the Ferrari 599 GTO, which is not classic but it came out a little while ago in 2011. I also like the 918 Spyder Porsches. Very nice; great cars.

Would you miss the grand prix in Baku in order to start at Le Mans if your contract allowed you to do that?

Wojtek Paprota, Poland No, I wouldn't do that.

You were very good on *A Question of Sport*. Are there any you would do in the future, say *Big Brother?*

David Wiley, UK

Ah, *Big Brother*. They would have to pay me big bucks! I'm not planning to go on any – maybe in Germany. Not *Big Brother*, but maybe some TV shows. But I have no plans at the moment.

F1R: Do they have a similar show in Germany to the one where celebrities go into the jungle and are tormented by having to eat grubs and such?

NH: Yes.

F1R: How much would they have to pay you to

30 On that:

NH: Millions and millions.

What's your honest opinion of Vijay Mallya's hairstyle?

Anna Hunt, UK

I think he's pulling that one off pretty well... to be honest it fits with Vijay. He's a character and his racey hairstyle is, in a way, cool, especially the sides. The ponytail... maybe he could do without that. Obviously he likes it.

F1R: Being German, surely you should be a connoisseur of the mullet?

NH: A mullet? What's that?

F1R: Short at the sides, long at the back – a classically Germanic haircut of the 1980s.

NH: Really? [He fixes *F1 Racing* with a look and sighs disapprovingly.]

If you would make one safety change to your F1 car, what would it be?

Sue Moorcroft, UK

Again, we drivers don't think about safety and the rules and what we could do there all day. It's the FIA's job and they're doing it well, but for me I feel so safe and secure in my car, like bulletproof. And you see what happens and we walk away from it. It's pretty safe.

Are you still haunted by that ill-fated overtaking attempt on Lewis Hamilton in the 2012 Brazilian GP?

Rui Vale, Portugal

Not really, no. It could have been a big day – it could have been a victory, to be honest. It was a realistic move and the Caterham standing in our way, didn't help me either. I'm a racing driver. If I have an opportunity, I *have* to take it. I tried, and I was a bit unlucky, and we know what happened. But I'm not too haunted by it. \bigcirc

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words STUART CODLING

He's back! After being sidelined by McLaren, Kevin Magnussen has been handed a career PICTURES lifeline by Renault. And as he tells F1 Racing, he's determined to make the most of it

"Ha ha! I guess that's true, yeah..."

Kevin Magnussen chuckles as *F1 Racing* puts it to him that he is one of the very few racing drivers in history whose careers have actually *benefitted* from bad times in the oil industry. In the final months of last year, his ongoing Formula 1 career prospects looked bleak: dropped by McLaren after a season in the undesirable reserve-driver role he had few options on the table. IndyCar racing or the World Endurance Championship beckoned – challenging and worthy routes to earning a living, yes, but precious few drivers get a second chance at F1 after heading down that street.

Instead, Kevin's second chance presented itself before he had to leave. America has embraced 'fracking' and its prodigious output of shale oil has sent the price of crude tumbling over the past two years. That has brought

Magnussen on his way to tenth with McLaren at Monza 2014 in his promising debut year

"This team didn't lose their way, they didn't get lost – they just ran out of money, and now they have that again. We're not lost; we're just behind" turmoil to nations whose wealth is built on black gold — not just those in the Middle East but also in Latin America, where Brazil is on the cusp of impeaching its president and Venezuela faces shortages even of goods such as toilet roll and beer. Hardly surprising, then, that Venezuela's national oil company PDVSA could no longer subsidise Pastor Maldonado's career. When the tap ran dry Maldonado's Lotus team, themselves in a little financial difficulty, had a potential vacancy — but the issue was complicated by the protracted negotiations surrounding Renault's takeover of the team.

"It was a late call, really," says Kevin. "I'd heard in the middle of 2015 that there might be an opening, back when Renault were first looking at taking over the Lotus team. And then it stalled – I think they realised it

would be difficult because Pastor had a valid contract – so I didn't hear anything for a couple of months.

"At the beginning of January there was some contact once again, because there were problems with payments or whatever, and the possibility was there again. We agreed a contract and then waited to see what happened with Venezuela – and it turned out my way."

Lotus had been running on a proverbial shoestring for months. Development had stalled for lack of investment, the team were running low on spares, and they were struggling to pay the bills (a recent edition of the Channel 5 TV show Can't Pay? We'll Take It Away featured bailiffs arriving at the team's Enstone base to collect £30,000 owed to a former supplier). The Renault buy-out faltered as Bernie Ecclestone and Renault CEO Carlos Ghosn haggled over commercial terms. When the deal finally came together over the 2015 Abu Dhabi weekend, the team were just days away from closure.

It's a testament to the fortitude of this hardy group of racers that the energy seems undiminished. As *F1 Racing* speaks to Kevin amid the hubbub of the team's operations centre during the Chinese Grand Prix weekend, there's a palpable feeling of keenness and purpose. The car might be fundamentally compromised – most of the hard points were designed for a Mercedes engine – but 'Team Enstone' are going about their business as sharply as when they used to win titles.

"Definitely," agrees Kevin. "There's a very good atmosphere. It's a proper team – they stick together, you know? And they work well together. There's not much competition within the team. F1 is a tough environment for everyone, not just the drivers, and there has to be some level of competition within the teams, but there can't be so much that it compromises the performance.

"This team has a really good balance; people have fun but it's still very focused. These guys have been struggling for a couple of years and they were sticking

together then – now the team is funded well and they have a bright future, the bond is still there. It's making them even stronger."

As recently as 2013 this team were frontrunners, but as purse strings tightened and development slowed, other teams came shopping for the engineering staff who had been doing so much with so little. Technical director James Allison and head of aerodynamics Dirk de Beer moved to Ferrari, principal aerodynamicist Guillaume Cattelani took a more senior role at McLaren, and others followed. Core figures remained, including

Alan Permane, head of track operations, Nick Chester (who stepped up to the tech director role) and team manager Paul Seaby, but the tuning-fork nose of the 2014 E22 chassis was the last piece of tech swagger from a team once famed for innovation. Last year's E23 played it safe to no great effect, and in launch spec the new RS16 was some way short of state-of-the-art.

We direct Kevin's attention to this because he'll have seen it before, at McLaren, where he finished third on his F1 debut (Daniel Ricciardo's disqualification moved him up to second), only for later outings to demonstrate that the truculent and aero-peaky MP4-29 wasn't even a podium contender. And that was with a lot more resource behind it. Renault are hiring, but the results may not be seen for some time.

"The regulations are limiting these ideas a lot," says Kevin. "It's getting tight. Maybe with the new rules for 2017 we'll see something, but we're not there yet. But you're right - things will expand at Enstone and it'll be interesting to see. I'm sure it's going to grow into something good. They've had some struggles; they've lost a few people, some departments had been shut down completely and part of the factory had been rented out to another company, but now they've taken it all back. Things are being dusted off and getting back on track.

"But, yeah, when you get out of the winning habit, it's quite tough to catch up again. This team didn't lose their way, they didn't get lost - they just ran out of money, and now they have that again. We're not lost; we're just behind, while some teams are lost and they have enough money! So it's a really exciting prospect for the future."

Being around for that future is Kevin's next task. Timing can make or break a career in F1; he had one full season with McLaren, where he regularly matched the more experienced Jenson Button, then found himself in the reserve role when Jenson secured a contract extension and Ron Dennis decided to hire Fernando Alonso. With Honda not only providing an engine but also plugging a gap in Woking's finances caused by two weak seasons, Ron had to show willing by fielding two world champions. When Jenson stayed on for 2016, Kevin would have been looking at another year on the sidelines, even if McLaren's other young protégé, Stoffel Vandoorne, hadn't supplanted him.

Kevin is highly rated by those who worked with him at McLaren, but the more clean-cut Vandoorne doubtless fits the Ronster's vision of the brand better. Kevin, whose tattoos surely set Ron's nose wrinkling with disdain, is more rock 'n' roll when out of the media spotlight. He laughs off a recent news furore about McLaren not issuing him with a company car during his time there - a rumbling classic Corvette is more his thing anyway.

Kevin's contract with Renault is for just this season, with an option to extend on the team's side. It got off to a troubled start: a first-lap puncture consigned him to 12th in Melbourne, then he started from the pitlane in Bahrain after missing a call to the weighbridge in practice. Our conversation in China comes after his suspension collapsed in first practice; the following day, he'll outqualify team-mate Jolyon Palmer by 0.9s.

What the race in China demonstrates amply, as Kevin crosses the line in 17th and Palmer finishes last of all, is that success in 2016 hinges on

developing a strong understanding of the way the latest Pirelli tyres behave at each circuit. Track time lost in practice can't be clawed back. If the driver and the car can't make best use of their tyre allocation - a balancing act of mechanical and aerodynamic set-up and compound choice – they simply get shuffled backwards as the race pans out. That's going to make things especially tough for Kevin if, as at Sochi, the team elect to park him for FP1 so that a pay driver (in the case of the Russian Grand Prix weekend Sergey Sirotkin, Russia being a growth market for Renault) can have a go. Fortunately, the Sochi track isn't hard on tyres and the race becomes a onestopper, letting Kevin bag the team's first points of the year and earn FOM's new fan-vote 'Driver of the Day' award in the process.

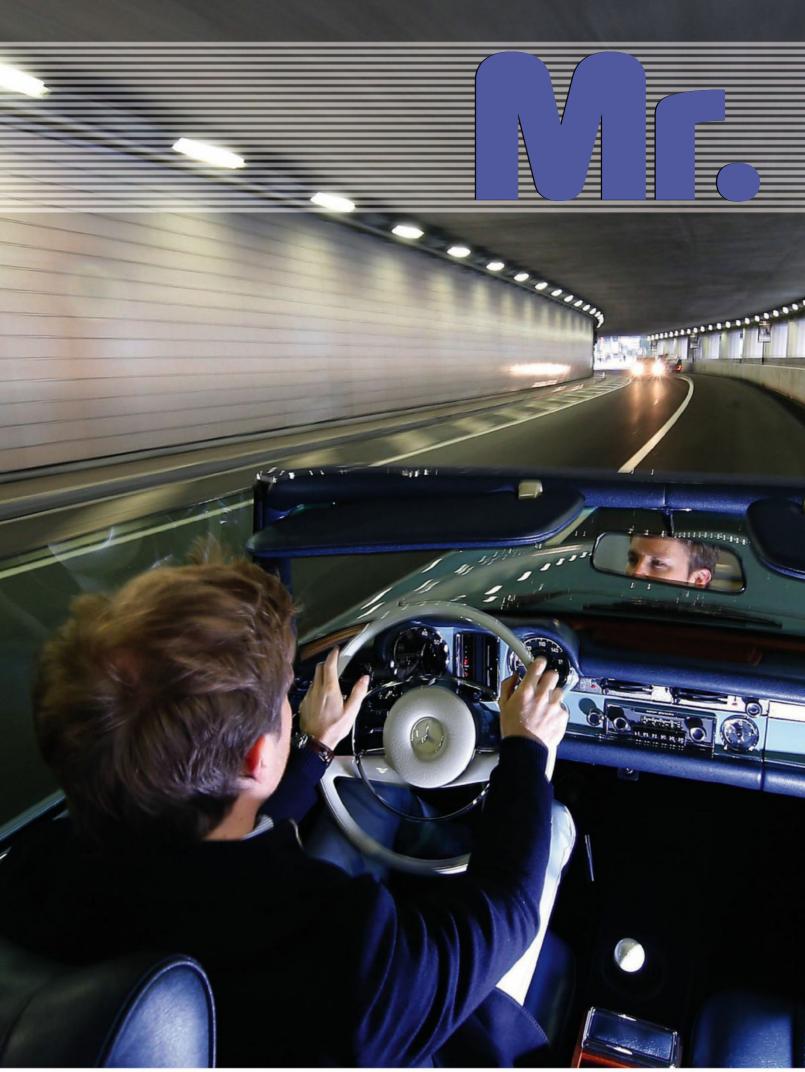


Even so, this is no way to run a frontline F1 team, and it shows that Renault F1 aren't a money-no-object organisation. Perhaps that's why Kevin isn't looking to 2017 just yet; he's simply maximising each weekend as it comes and making the most of his second chance.

"It'd be great to have fast, loud cars with wide tyres," he says, scratching his chin-stubble ruminatively. "But I'm just so happy to be in F1 that the next generation of cars is not at the top of my list of things to worry about.

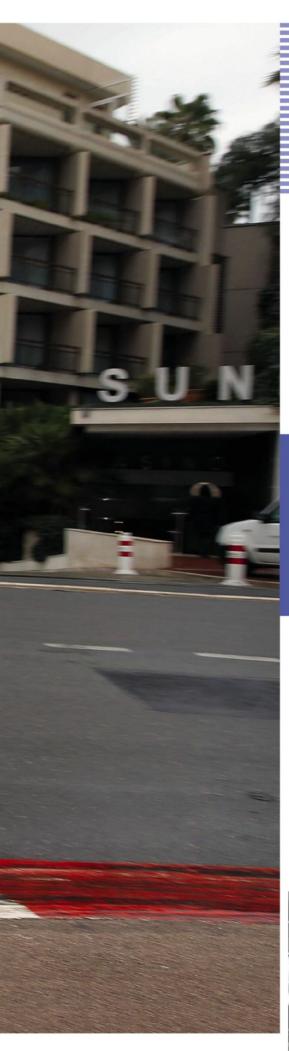
"It's so nice, every time I travel to a race right now it's a dream."

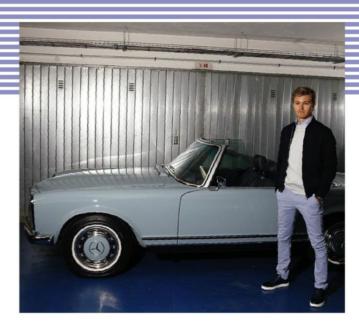












onaco is my home - it's where I always want to live, for the rest of my life. All my friends and family are here and I love the area.

I'm very lucky and privileged to have been able to grow up in such a unique place. Obviously the - what's the English expression? - the quality of life is exceptionally high.

There's a big difference between visiting Monaco, as F1 people do, and living here, growing up here, raising your children here. I don't think you can know it properly without living here. When you're just visiting for the grand prix weekend it's a mess - albeit a good mess. You see a different side of it when you live in Monaco.

So, for instance, because I live here and I know it, I think it's one of the safest places in the world. My wife and daughter can go out when it's pitch black outside without me having to worry about them at all. And that's worth a lot to me.

It's very clean, although, strangely, when people clean up after their dogs they tend to put it in the bag and then leave it in the road. It's the weirdest thing, but everybody does it - even when it would only mean walking another five metres to put it in the bin, and they've gone to the effort of picking it up already. It's one of those things I just don't understand!

I sometimes go out with Alex Wurz's cycling group, but not that often. I go running and cycling up on the Tête de Chien, above the

village of La Turbie, where you get

Nico takes care of his Mercedes Pagoda 280 SL – it's a bit more than just the family car...



a beautiful view down over Monaco.

Because I've grown up here, racing around these streets is something special. Winning the grand prix here three times, at one of the toughest motor races in the world, has been really special. The grand prix is one of my earliest memories - my old school is above the starting grid, and I remember I'd look out and see the cars being worked on. From my maths class, I could see Mika Häkkinen and Michael Schumacher's cars being pushed out onto the track. ->

Wherever I lay my hat...

Nico moved to Monaco when he was just two weeks old, but it's not the only country with which he's closely associated...

GERMANY

Wiesbaden, Germany, is the birthplace both of Nico Rosberg, and his

mother, Sina. Translated into English, Wiesbaden means 'meadow baths'. It's one of the oldest Spa towns in Europe and is also sometimes known as the 'Nice of the North'. It has an approximate population of just over 270,000, although at any one time, up to 19,000 are US citizens, who are associated with the local army base.

Nico races under a German licence, speaks fluent German, holds German nationality and considers himself German, having sported a German football shirt on a number of occasions in the paddock. And his wife, Vivian, is a native of Hamburg.

FINLAND

Although he holds dual German and Finnish nationality and briefly raced under a Finnish flag at the start of his career, Finnish is not one of the five languages Nico speaks. However, he is famously the son of the first Finn to win the F1 world championship. Ironically, though, father Keke wasn't even born in Finland, but in Solna, a municipality in Stockholm, Sweden – although he was brought up in Oulu and lisalmi in Finland.

For sure, growing up with lots of racing drivers around me was definitely a big influence on my choice of career, and my dad was the biggest influence of all, of course. He has been a guiding hand all the way through my life,

not just through my career, and I'm massively thankful to him for that — and to my mother for all the love that she has given me. I'm only here because of them.

As a father myself now, I still see Monaco as a fantastic place to live. We're in the process of signing our daughter, Alaïa, up for

NICO ON HIS MONACO HAT TRICK

FIRST WIN: 2013

Watching this race when I was young, my childhood dream was always to win it. My first memories were of Ayrton Senna with his yellow helmet and red-and-white McLaren winning here. I wanted to one day win the Monaco Grand Prix because it is my home race and that's what makes it the most special one for me to win. So when I did it, the feeling was incredible; it was unreal. That's what's so special about this sport: these emotions you experience. They make up for all the difficult moments that have gone before, those great moments of joy and winning. This felt amazing.

SECOND WIN: 2014

This was a very, very special day, for sure. Lewis drove really well and pushed me massively hard, so the pressure was on me all the way. But I kept it cool and was able to win, in the end managing to pull a bit of a gap because I had the fresher tyres.

THIRD WIN: 2015

I was very happy to have won the race. On the other side, though, of course, Lewis was stronger this weekend. He deserved it for sure, but I got lucky in the end.

It was quite treacherous out there with those hard tyres because they were stone cold. The team were telling me the temperatures – we've never ever had those temperatures before in those tyres – but I did the best I could and managed to bring them back up and push, so it worked out well in the end.



NICO'S MONACO RECORD

Year	Grid	Race
Williams		
2006	8th	DNF
2007	5th	12th
2008	6th	DNF
2009	6th	6th
Mercedes		
2010	6th	7th
2011	7th	11th
2012	2nd	2nd
2013	lst	lst
2014	lst	lst
2015	2nd	1st

school already – to my old school, actually! That's so cool. I'll be very happy to do the school run – my Mum used to drive me through the tunnel on the way to school, and maybe in a year or so I'll be driving my daughter through there, one of the most iconic places in Formula 1, every day.





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Halos or Canopies (...or something else entirely?)

The FIA has committed to introducing greater cockpit protection in Formula 1 – but will either of these two rival philosophies get the nod for 2017?

WORDS JAMES ROBERTS
PICTURES LAT







hen Daniel Ricciardo completed his installation lap at last month's Russian GP, it offered a glimpse into the future. And it also divided opinion. His Red Bull was fitted with a cockpit-protecting 'aeroscreen', designed to prevent objects such as wheels or debris from striking a driver's helmet.

The open canopy follows on from Ferrari's pre-season test of the 'halo', which drew widespread criticism for its ugly appearance. By adopting one of these devices, it's hoped that the sport will avoid a repeat of the tragic

consequences of the accidents that befell IndyCar driver Justin Wilson and Formula 2 racer Henry Surtees – and the incident that nearly killed Felipe Massa at the 2009 Hungarian GP.

If cockpit protection is introduced into F1 from 2017, the plan is for similar devices to trickle down through the junior formulae, thereby changing the face of single-seater racing forever.

The deadline for a decision to run either the halo, the canopy – or neither – for next year is 1 July 2016. "Chassis design is normally fixed by this time," said FIA race director Charlie Whiting in Sochi, "and while it's only a small part of the chassis and it's not going to affect things like fuel volume, it's still part of a complex design."

If either the halo or canopy becomes mandatory next year, then every car will run a standard device. But that *will* have a big impact on car design, since it will affect aerodynamics, particularly over the top of the bodywork and the rear wing.

"It will affect cooling, too," said Williams head of vehicle performance Rob Smedley. "Not only down into the sidepods, but it will also affect the airflow going into the airbox – and drivers' helmets as well."

Some concerns about the canopy relate to poor visibility, due to oil or rain, and whether the screen needs a wiper. Further practice outings will be made to experiment with both anti-glare and rain-repellent coatings. But there is still concern over either device's value in the event of an accident.

"We have something called 'the free head volume'," says Charlie Whiting. "That is the space that has to be free to give movement for the driver's head in order that it doesn't make contact with the safety device. At the moment this area is quite big and is causing a few problems, so what we are doing is some sled work with a dummy to simulate more precisely just how much room you need to make sure that the driver's head doesn't make contact with either the screen or halo – since they are both substantial structures."

But while the aeroscreen tested in Sochi was more aesthetically pleasing than the halo – despite Lewis Hamilton describing it as a "riot shield" – for many it brought the fundamental essence of grand prix racing into question. F1 has always been an open-cockpit formula and at the heart of

the sport's appeal is the risk the drivers take in wheel-to-wheel combat.

Figuratively wrapping them in cotton wool further erodes that thrill.

For some, there is no question that a solution must be found to save lives. Smedley was Felipe's Massa's race engineer at Ferrari, when Massa was seriously injured after being hit on the helmet by a loose spring at the Hungaroring in 2009. He was resolute in his views: "The driver's safety is the most important thing here and everything else is superfluous. Having their heads exposed is the one thing that is still killing drivers. Having an argument that we always had open cockpits, or that the fans want to see the drivers, is not a strong enough argument."

But a contrary view from the older guard of racers has been led by 1997 F1 champion Jacques Villeneuve, who is adamant the sport needs to retain an element of risk to ensure its enduring appeal. And he's had first-hand experience of living with the consequences of the sport's inherent dangers; his father, Gilles, was killed in a Formula 1 car 34 years ago.

"I completely disagree with it; you need risk to keep F1 special," he says. "This sport built its fanbase through the respect of watching drivers pushing the limits and risking their lives. Safety is great, but there's a limit and the aeroscreen is going beyond that limit. When you watch a rock

climber, if he has a net it isn't impressive. It's the same with F1. If you're not willing to take the risk, then why should drivers be paid millions?"

Another driver to be badly injured in a racing car is Johnny Herbert, but he also agrees the sport needs an element of danger. "When I had my shunt, I didn't come back and say, 'Right, it's absolutely out of order what's happened. Things should be done differently. I continued to race just as it was before. I knew a similar shunt could happen again but my mindset was that it wouldn't happen to me. That was the thrill."

A large group of former racers, current racers and many fans don't want to see *any* sort of cockpit protection. They would like F1 to retain that element of risk. But as one driver who went

to Justin Wilson's funeral said on the day of the Red Bull aeroscreen test: "We'd be stupid not to act now to save more lives in the future."



Massa's wrecked Ferrari is removed after his 2009 accident at the Hungaroring. He recovered from his injuries, but a helmet protection device could have prevented them



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Fast food -Grosjean-style

Having embarked upon a promising adventure with Haas F1 after several turbulent seasons, Romain Grosjean finds calm in the kitchen away from his all-consuming sport

WORDS

GIANLUCA GASPARINI

PORTRAITS

STEEVE IUNCKER/ AGENCE VU/ CAMERA PRESS We meet at 9.30am on Monday, at the Geneva Country Club. This is Romain Grosjean's home town and he arrives early – although he's very sleepy.

"I woke up at seven with the kids," he confides.

Romain Grosjean, 30, is a father, husband, F1 driver... and aspiring chef. But not necessarily in that order. Priorities are decided according to which day of the week it is. On any given grand prix weekend this year he'll be an F1 driver, of course, competing

for the Haas team. But around those grand prix commitments, he lives a life less blinkered, as we're about to learn when he dons chef's whites to cook up something rather special for F1R. As he cooks and chats, Romain's drowsiness soon passes, and a sensitive, interesting personality emerges from the fog of sleep.

F1 Racing: So this is your home town?

Romain Grosjean: I was born and raised in Geneva, yes. Then I moved to Paris, London and finally back to Geneva. I have a sister two-and-a-half years younger than me. My father is a lawyer and my mother is an artist.

 $\textit{F1R}\xspace{0.05\textwidth}{\text{F1R}}\xspace{0.05\textwidth}{\text{The real sportsman in the family was your grandfather, Fernand, right?}$

RG: He was a skier, yes. He competed in two Winter Olympics for Switzerland in 1948 and 1952 and took second place in the giant slalom at the 1950 Alpine World Championships in Aspen. I could have followed in his footsteps: I started out skiing, too. He died last year, but he passed his love for competition and sport on to me. \rightarrow

"For once I'm the winner! Ha ha ha! I've even beaten Vettel! And it's made me better as a man. There is nothing in the world better than kids"

F1R: So were you a sports-mad kid?

RG: Ha! Yes, I was full of energy, not easy to control. I did a whole lot of crazy stuff: either on skis or on a BMX. I've always loved speed, adrenaline and danger. I don't dare think what I put my mother through, but I'm starting to understand how she must have felt now I have two sons of my own.

F1R: When did your love for cars start? RG: My father was the lawyer for a rally team. They raced the Lancia Delta, which is still the car closest to my heart. Then he bought himself an Osella to do hillclimbs. I went to watch and that was what kindled my passion. I asked for a kart, and when I was 11 I began lapping like a maniac. I pestered Dad: "Can I race?" He replied: "Sure, you just need to get good grades at school." I had just started at senior school and I really knuckled down. When I passed my exams he let me race.

F1R: How did you meet your wife, Marion Jolles? **RG**: It's a long story. She's a TV reporter in France. We met in Paris in 2005 at a prize giving when I was a Formula Renault driver. The following year I saw her again at a charity kart race, a friend of mine had her phone number and I was very jealous of this! I had to wait until 2008, then there was six months of courtship, but in the end we got together. Marion still works for French TV, presenting the lottery and the football: she travels back and forth to Paris, and on those days I take care of the daily routine. We have a big calendar that we fill in to make sure someone is at home. We share out the jobs and live as a family like everyone else. Today I'm here with a cold I picked up at the nursery. But it's normal everyday life and I like it.

F1R: You were the first of the current F1 drivers to have two children...

RG: For once I'm the winner! Ha ha ha! I've even beaten Vettel! And it's made me better as a man. There is nothing in the world better than kids: when they're half an hour old you love them already, even before they've opened their mouths. So just imagine what it's like as they grow up. They give you strength and console you when things go badly, and you start doing things for them rather than for yourself. When I made it to the podium in Belgium last year I was proud when I thought of my family. Then there's the hard part, getting up in the middle of the night, looking after them when they're ill. But in the end, when they look at you and say "I love you Daddy" it's a huge energy boost.

F1R: Did you think you would become a father so young? RG: Absolutely not. I always thought I'd be the last of my group of friends to do all this - marriage and kids and so on. Instead it happened to me first. When we got married we told each other it would be nice to be parents and hey presto, it happened. Marion is also a few years older than me, so she was already ready. Like all fathers I didn't truly believe I was one for real until I saw my son start to grow up.

F1R: What are your days like away from grands prix? RG: I get up early. I take the children to nursery, I do a bit of physical training and then I work at home. I want to prepare for the future because the career of a racing driver is soon over. In life I've met sponsors, managers, politicians, people who do all kinds of work. I like bringing people and ideas together and I'd like to do that as a job. I will soon be opening a restaurant in Paris with a chef friend who has two Michelin stars. It's a place where you can happily stay with your friends from, say, Sunday brunch all the way through to the evening while you watch sport - Formula 1 included. The food will be simple and high-quality.

F1R: Where did your passion for cooking begin? RG: When I arrived in F1 in 2009, with the introduction of KERS the drivers had to lose a lot of weight. I spent a week eating chicken and peas then I said: "Screw this, I have to find something better." I started reading up on the work of nutritionists on calories and how to make dishes special. Initially there were a few experiments that didn't go too well but now I have a nice full menu. Desserts are still the biggest challenge, though. I like fish best but also cheese and mushrooms, depending on whatever is in season.

F1R: And what does your wife have to say about your culinary skills?

RG: That Romain the chef is much more useful than Romain the F1 driver! [He laughs heartily at this.]

F1R: You've had hard times in F1: you were left without a drive at the end of 2009. You were banned for triggering the accident at the start of the 2012 Belgian GP. Then last year you were at a penniless Lotus... RG: All this has taught me a lot. In 2009 I didn't know how to behave and no one gave me a slap to wake me up. My shyness was mistaken for arrogance. I was concentrating only on going fast but F1 isn't just about that. You have to work with the engineers, and make sponsors happy. They took away my drive, I was \rightarrow









The Haas model could bring other new teams to F1

But rivals warn this could jeopardise the 'constructor' status of the championship

Haas's approach to F1 could encourage more new entrants, according to team principal, Guenther Steiner. "We hope this project is successful so we get more teams joining F1 which is what we need," he says.

Haas have impressed from the start, with Romain Grosjean finishing in the points in both Australia (P6) and Bahrain (P5). However, their entry has been controversial since they have taken advantage of so-called 'non-listed parts', having components supplied by Ferrari for those elements they don't have to design themselves.

Some rivals have questioned whether this rule is healthy for F1, saying it could erode 'constructor' status in the future. "The regulations are the same for everybody," says Steiner. "We didn't do anything different to what anyone else can do."

Haas also have use of Ferrari's windtunnel and access to their new-spec power unit.

James Roberts



"Haas were inundated with pay drivers. 'But we want you,' they told me – and I liked that"

23 years old and it seemed it was all over. I used my diploma and enrolled on a course to train as a cook, but I really thought my racing days were finished.

Then the desire came back. I started off again in GTs and later DAMS offered me a seat in GP2. There was also the option of DTM where they would have paid me well, but I chose to take a risk and it paid off. The 2012 mistake at Spa wasn't my worst: that came the same year in Japan [the first-lap shunt with Mark Webber prompting Webber's famous "first-lap nutcase" remark].

In Belgium, Hamilton didn't help either; there were a few guilty parties, but I took all the blame. It was hard to miss a race and have the other drivers criticising me. If it's the journalists and the fans that's one thing, but your fellow racers... It was one of the hardest times of my life.

Finally, the problem of Lotus's debts: at the start it was frustrating, but you can't do anything about it so I ended up treating it as a joke. It was harder for the guys in the team. They were working without any guarantees, but they never gave in. In Japan we didn't have a hospitality suite, I had a little room in the pits and the mechanics kept me company while I was studying for my boat licence. They wanted to help me out even though it was total chaos.

F1R: Why did you choose the Haas team?
RG: For various reasons. I would have stayed where I was, but the announcement that Renault were taking over Lotus never came. Before Monza, Guenther Steiner [Haas team principal] called me to test the waters.
They were inundated by pay drivers who were offering themselves, plus suitcases containing \$10million. "But we want you," they told me – and I liked that. At the Italian Grand Prix I met Gene Haas for half an hour,

we shook hands and after a week I had signed. We are

starting from zero but with people who know what they're doing. Ferrari are giving us the engine and other parts: suspension, gearbox and so on. I can be the leader of this new adventure, while Esteban [Gutiérrez, his new team-mate] is a great driver who knows everyone from the Prancing Horse, where he was the test driver.

F1R: The chassis is made by Dallara, the engine Ferrari, the tyres Pirelli. That's a whole lot of Italy...

RG: I like everything about the country: the food, the

Romain cooks up a little something for F1 Racing. Bon appétit!

STARTER

Vegetarian burger

This 'hamburger' is in honour of my American team. I take the heads of Parisian mushrooms, which are as big as slices of bread, plus other mushrooms, and I break them up and cook them in stock with shallots. Then I press it all together to make the 'meat'. For the sauce, I use mayonnaise.

MAIN COURSE

Chinese lobster ravioli

I boil the lobster, which in this case are the Chinese variety, and use some of the flesh to fill the ravioli. I crumble the rest of the flesh and using shallots, onions and carrots I make a sauce into which I add bread, butter and a bit of oil. I pour this over the ravioli, along with a pinch of saffron.

DESSERT

Toblerone soufflé

This is a classic soufflé recipe, made using Toblerone. It's delicious but hard to prepare because, due to the characteristics of the original ingredient, you have to take a lot of care not to let it deflate.

wine, the language.
Some of my wife's family live in Tarquinia [north of Rome] and I was there recently. The love for motoring is enormous and when you go to Ferrari for the first time you feel like a kid in a dream world.

FIR: What are
the your strengths and
I weaknesses, both as a
I. man and as a driver?
RG: I like to be as close
as I possibly can be to
perfection but that can
also be a weakness because
it means you are never
happy. I try to be generous,
too, both as a person and on
the track. As for weaknesses,
I know I'm not perfect at

managing certain problems. For example, if the brakes aren't working well I lose confidence. My big strength is probably my own 'story', as I've had to find my way back up. From that I've learned what success is about. But this is another double-edged sword: the flipside is that I sometimes go over the limit.

F1R: Do you feel ready for a top team?

RG: In 2013 I had a good season. I needed 2014 and also perhaps 2015 to get stronger, but now I'm ready. I'm not in F1 for money, glory or any of that — I'm only here to win and to be the best.

THE STORY BEHIND THE LEGEND

- AS TOLD BY THOSE WHO KNEW HIM BEST

Exclusive interviews with...

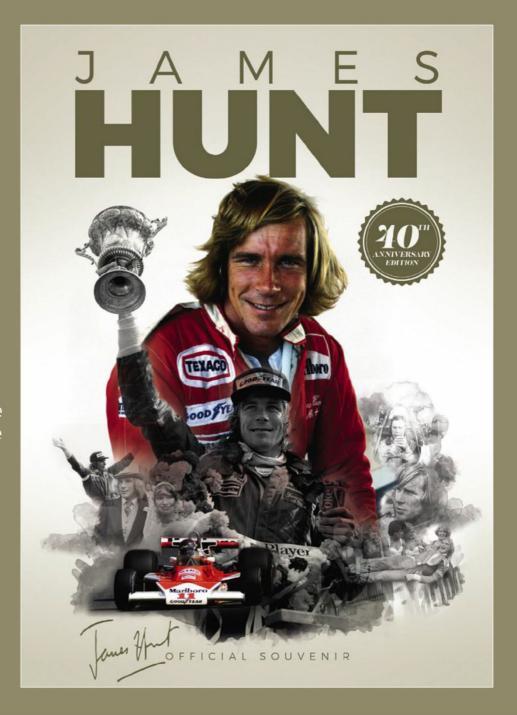
Murray Walker Alastair Caldwell Lord Hesketh and sons Tom & Freddie



Featuring rare archive images and a look at his thrilling private collection of memorabilia, this fully authorised collector's edition reveals the unforgettable story of a legend who put his life on the line in pursuit of glory.

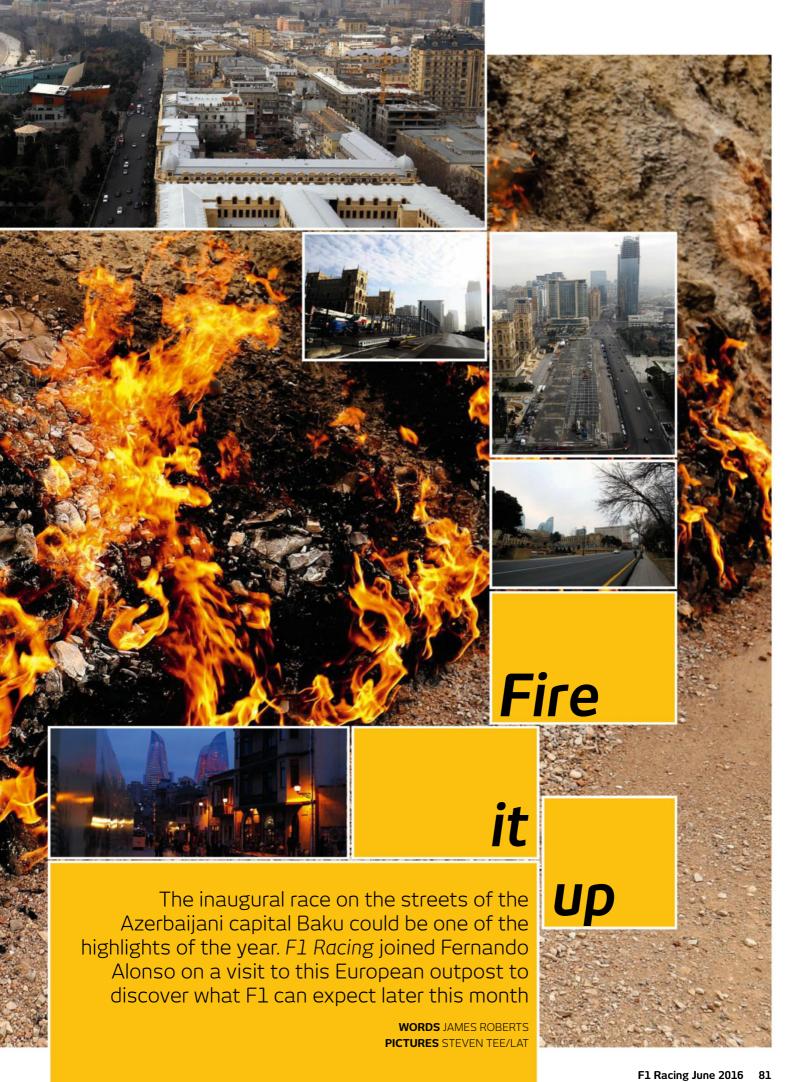


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When Azerbaijan joins the Formula 1

calendar in mid-June, it will become the 32nd country to have hosted a grand prix in the 66-year history of the world championship.

Thanks to a 3.7-mile street circuit laid out around the capital, Baku will experience a rush hour the like of which this medieval outpost has never known. And having recently paid a visit, *F1 Racing* can confirm that the race will be a fast, spectacular and popular addition to the calendar.

Some might decry a further drift from Formula 1's so-called 'European heartland'. Except that in this case, that's not quite true. Baku rests on the furthest reaches of the European continent, and you could easily mistake its sophisticated boulevards for the streets of Paris or Budapest.

Our trip coincides with a visit by Fernando Alonso, who is here as the circuit's official ambassador. As he looks up at the old city wall, parts of which date back to the 12th century, he is surely trying to imagine what it will be like sitting just a few centimetres off the ground, shooting past the stonework at over 200mph.

Under his feet, the billiard-table-smooth asphalt has barely dried. The cobbles below have been deemed historically significant, so when June's race is over, the Tarmac will be scraped off and the cobbles – located at the ultra-tight,

uphill Turns 8, 9 and 10 – returned to their former glory. Of course, that means they'll have to be re-paved again for the 2017 edition. But as we're about to find out, funding isn't too much of an issue around these parts.

This narrow sector next to the old city turrets will be the track's signature corner in an extremely quick lap that returns via a flat-out long blast along the harbour front.

"It will be different to the other street circuits we race on," Alonso remarks as he walks around the lap. "The main straight is very long and if we take Turns 16 and 17 flat-out, then we run a total of 1.2 miles at full throttle, which is similar in length to Turn 1 [La Source] to Turn 5 [Les Combes] at Spa." In other words: very fast.







Fernando Alonso, official ambassador to the Baku City Circuit, walks the section of track that runs close to the walls in the old-town area



This is a land of fire-worship. And, more recently, the worship of oil.

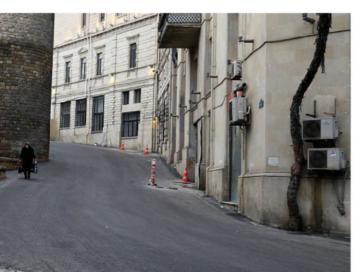
Half an hour north of Baku are the oil fields of Azerbaijan. The land here is littered with pumpjacks and pipes sucking over threequarters-of-a-million barrels of high-quality crude oil out of the ground every single day.

The terrain is so rich in fossil fuels that gas seeps out of the rock to create spontaneous fires, which were worshipped by the ancient Zoroastrians. At Yanar Dag on the Absheron Peninsula, a small group of bewildered tourists stand back from the heat as the flames from this natural gas fire leap four metres into the air. Here, the fires rage for all eternity. Or until the natural reserves run dry.

Azerbaijan perches on the very edge of eastern Europe, and the natural resource value of this Turkic-speaking country was not lost on the Soviets, who took control of Azerbaijan in 1920, using the oil for their own needs. Those of you who remember the James Bond film *The World is Not Enough* will know what happens next.

After the fall of the Soviet Union, Azerbaijan needed to attract foreign investment and started building a 1,000-mile long crude oil pipeline via Turkey. As soon as the taps were turned on in the middle of 2005 – boom! – the money from the west flowed just as quickly back into Baku.

A million barrels of oil a day are now pumped into ships queuing up in the Mediterranean and despite the recent oil market crash, in which the price of a barrel plummeted from £77 to £31, it's \Rightarrow





still cheap to produce. The black stuff continues to grease the wheels of capitalism in Azerbaijan.

Over the past ten years oil has transformed this capital. No longer is it a run-down outpost on a promontory in the Caspian Sea. From the moment you arrive at the newly rebuilt airport, you're confronted by a city in growth. Skyscrapers, cultural buildings, sports stadiums... and only one in 30 cars is a Lada. The rest are Mercedes, BMWs and Audis. But Baku is no Bahrain or Abu Dhabi. The new high-rise hasn't sprouted from desert sands; it has grown up amid ancient medieval architecture.

For this is a city steeped in history. The old town is a labyrinth of homes, markets and restaurants with some buildings – including the Maiden Tower – over 700 years old. The other half of downtown Baku is Paris-like, with wide boulevards lined with trees and upmarket stores, such as Stella McCartney, Tom Ford, Armani, and there's an expansive harbour-front.

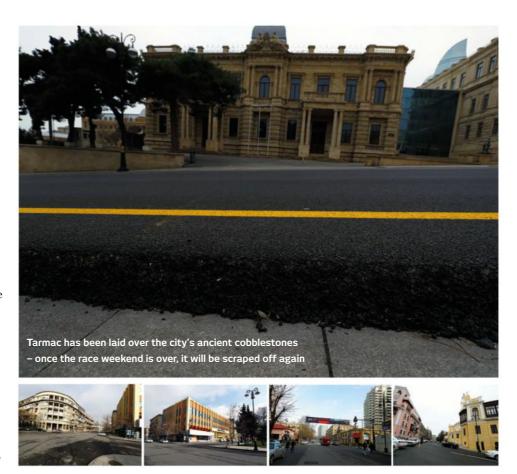
Friendly, liberal-minded Bakuvians predominantly worship Islam, but under Soviet rule, grew up in a secular society. As a result alcohol-serving bars and restaurants create a European, rather than a Middle-Eastern, feel.

Australian Tom Butcher is standing in the lobby of the Hilton Baku,

wearing a large pair of steel toe-capped boots.

Outside the rain is sweeping in from the Caspian Sea and Tom remarks on how windy it can get here. Hot, too. He has spent more than a decade working in Azerbaijan. Two years ago he was a project manager for construction of the Aquatic Centre for the European Games, and it's now his job to oversee the construction of the Baku City Circuit. Today, Tom is our guide.

He points upwards to the second floor of the Hilton, which he explains will serve as the media centre. The hotel is opposite a large parliament building known as Government House. This imposing, baroque-style edifice was built around the time of the Second World War with the help



of German prisoners of war. Formerly known as the House of the Soviets, with a statue of Lenin positioned in front of it, it was renamed when the country became independent in 1991, and Lenin has been replaced with a flag of Azerbaijan. Tom walks us over to the building works now taking place at the renamed Azadliq (Freedom) Square – the site of the pit and paddock buildings.

During our visit in March, the track is 50 per cent complete. The base layer of the asphalt has been laid around the whole of the lap, with the top layer due to be put down by April. Nearly half of the concrete barriers that will line the circuit had been built locally in Azerbaijan – and they will be topped with debris fences manufactured in neighbouring Turkey.

Only ten per cent of the pit building had been erected, "But like a big Meccano set," says Butcher, "all the elements are made – it just has to be put together." In total there are roughly 7.5 miles of concrete blocks that will line the city's streets – about 3,500 in total. "The biggest problem we have is that it's a living city," says Butcher. "We can't close it down, as people are still going about their daily lives, so a lot of work will happen at night for minimum disruption."

At the time of our visit, 60 people were busy constructing the pit building and Race Control tower, with assembly work set to be finished in early June. After that date, the FOM riggers are scheduled to come in to wire up their timing,

data and TV kit. "Their biggest problem is that this race is back-to-back with Canada," explains Butcher. "So it'll be a huge push for them logistically. Those last few days will be chaos.

"We have a warehouse that's being refurbished so that we can keep everything in it – concrete blocks, safety fences, the pit garages that will be disassembled – all for next year. Then we start the building process all over again."

Despite logistical headaches, running the race along a temporary street circuit, rather than building a multi-million pound facility, is a wise decision. Think of the tracks collecting dust in Turkey, India and South Korea. And this way, there isn't a comparably exorbitant start-up fee.

"One of the main reasons to have an F1 race is that we wanted to showcase our city. We want to develop it as a tourist destination and it's easier to do that as a street race, rather than to race on a separate track," says Arif Rahimov, CEO of Baku City Circuit and the race's promoter — who also happens to be the son of the sports minister.

We meet Arif in his office behind Government House. The former post office was the HQ for the European Games – and now, with architects' drawings covering the walls, it's the logistics hub for the forthcoming grand prix.

Arif spent the previous evening entertaining Fernando Alonso, showing off the nightspots of the city and then taking the McLaren racer for a recce lap of the track. While the Azerbaijanis are



Fernando Alonso Baku City Circuit ambassador

F1R: Are you surprised by what you've seen on your first visit here?

FA: I'm definitely surprised by the circuit, facilities and the layout. All the preparations are ahead of what I thought they would be. There's always a question mark when you come to a new circuit, a new country and you wonder what the reaction of the people will be. So far they have been very enthusiastic and very passionate about the event, and that will grow when the race comes here in June.

I didn't come with any idea of what the city would be like, but it has a very European style, a little like Budapest. The city is extremely safe – it's quite developed and is growing very quickly.

F1R: The track looks pretty quick...

FA: If the final preparations are right, the track should be quite fun to drive. Right now, there are no concrete walls, so it looks very wide and fast. We'll have to see how it looks once it's finished and how fast we can go. The main straight is very long and full

F1R: What do you make of Turn 9, which runs past the old city wall and the Maiden Tower?

FA: It's uphill and the final part is a completely blind corner, so there's no room for any mistakes. All street circuits have these types of characteristics, though, and being so close to a historic wall and tower, it will look even more dangerous when you see it on television.

F1R: Do you like having a mix of different types of circuits and countries to visit?

FA: New countries are important to Formula 1 as you open the sport to new cultures and new people. And street circuits give you the chance to be close to the people and this provides a better show.

Some of the events that are no longer on the calendar, were fantastic circuits in new countries, but then we stopped racing at them because they were inconvenient or too far from the city. So having street circuits in new





happy to pay the estimated £50million annual race-hosting fee to Formula One Management (as part of a wider seven-year deal) the number of grandstand seats - approximately 28,000 - is evidence enough that a return on the combined government-private investment won't come from ticket sales alone. Less that ten per cent of them had been sold at the time of writing.

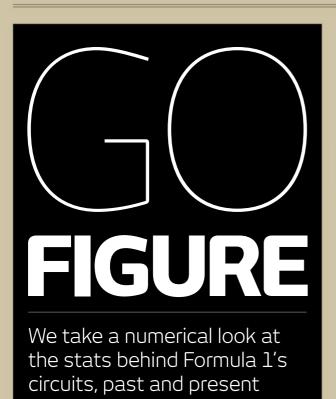
"In Azerbaijan, there is a goal to bring non-oil profits into the country, so it's important to extend into the tourist sector," says Rahimov. "We're a country with ambition. We've had the European Games, we'll have the UEFA championships and now we have F1. The profits will be generated by bringing in more people and money with tourism in the longer term."

The best way to capture the imagination of the local population is to field home-grown talent. While that goal might be some way off, there is one Azerbaijani racer competing with DAMS in the Euro Formula Open Series: 18-year-old Gulhuseyn Abdullayev. The plan is to develop him through the GP3 and GP2 route to F1 and - should the stars align - use his profile for the long-term benefit of the grand prix

"We think this race will increase the local interest in motorsports," Rahimov adds. "It's not at the top of their list at the moment, but once we bring F1 to town, they'll see the excitement and hopefully more people will want to visit."

They'll be getting all fired up, indeed.





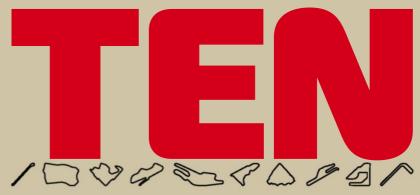


7.5 times around the earth

is the distance equal to driving every lap of all 935 GPs from 1950-2015 (188,067 miles)



The narrowest point of any circuit on the calendar: Aziz Aliyev Street on the Baku City Circuit



circuits have only ever held one race: Avus, Ain Diab, Dallas, Donington Park, Le Mans (Bugatti), Monsanto, Pescara, Riverside, Sebring and Zeltweg



The record for the number of races won in one country, set by Michael Schumacher in Italy, with seven victories at Imola and five at Monza



1.980 miles

The shortest circuit ever used – the Aspern Aerodrome at Zeltweg



16.031 miles

The length of the longest circuit ever used – Pescara in Italy



The combined distance in miles of a lap of each of the 21 circuits on this year's calendar



The latitudes of the most northerly (Silverstone) and southerly (Melbourne) tracks on the 2016 calendar



GPs have been held in the USA across ten different circuits: Watkins Glen, Riverside, Sebring, Indianapolis, CoTA, Dallas, Detroit, Las Vegas, Long **Beach and Phoenix**

The difference in number of corners of Avus and Zeltweg (4 apiece) and the Nürburging Nordschleife (174)



between Sepang in 1999 and Bahrain in 2004 is the longest F1 has gone without adding a new circuit

Baku City Circuit will become the 73rd circuit to host an F1 GP





The game-changing Lotus 72 suffered a brake failure on its first outing in Jarama 1970 (right), prompting a less than complimentary response from driver Jochen Rindt; by the fifth race in Zandvoort (below right), Colin Chapman had transformed it into a winner

ormula 1 will never be a level playing field, no matter how tight the regulatory boxes. Close off one avenue and the sport's talented brains will focus on finding an 'unfair advantage' elsewhere – and in the process there will be winners and losers.

The arrival of Ford's affordable, powerful and reliable Cosworth-built 3-litre V8 DFV engine in the late 1960s changed the course of F1 development over the following decade. It democratised power, but at a cost. Far from ushering in more egalitarian competition, it became just another part of the game.

Lotus gave up exclusivity on the Cosworth in 1968. By the following year it had become virtually ubiquitous: of the 17 entries for the 1969 Italian Grand Prix, for instance, only four were powered by something other than a DFV. Only five cars finished on the lead lap, all of them motivated by Cosworths. Ferrari's Pedro Rodrìguez was classified sixth, two laps down. The first four cars home, led by Sir Jackie Stewart in his Tyrrell-run Matra MS80, were separated by 0.19s. Stewart attributed his win to running taller gear ratios in third and fourth, avoiding the need to change up to fifth and lose impetus in the sprint to the line.

In effect, the Cosworth displaced the majority of development energy into car and tyre technology. Ferrari and BRM ploughed on with their own in-house designs, engines being the singular passion of Enzo Ferrari (who had more resources at his disposal after Fiat took a 50 per cent stake in Maranello in 1969). French manufacturer Matra, having won the '69 world championship with Stewart, tried and failed to make the engine a successful performance differentiator. Stewart sampled their sonorous V12, was unimpressed with its power output, and insisted on sticking with the DFV. The resulting schism led to Ken Tyrrell successfully becoming a constructor in his own right, winning the 1971 constructors' title, and the 1971 and '73 drivers'

titles with Stewart, while Matra faded from the scene in 1972 and never won another grand prix.

The most successful teams of the early 1970s focused on superior engineering or clever innovation – sometimes both. Colin Chapman's Lotus epitomised the inventive approach, if not always for the best. The 49 changed the face of F1 car construction forever, making the engine and gearbox fully stressed elements of the chassis rather than drop-in components, and everyone awaited the next development.

But Chapman, restlessly seeking the next big idea, entered several blind alleys on his way to creating the definitive early-70s F1 car. Taking engine power from the DFV as a constant, where could you obtain an edge? Slippery aero, perhaps? Better grip? Better primary balance? A different kind of engine entirely?

Early attempts to find downforce by using high-mounted wings had been rejected by the governing body on safety grounds. Engineers began to fixate on traction, to which four-wheel drive seemed an obvious answer. It had worked well for Chapman at Indianapolis (enough for Indy's governing body to ban it), but in F1 the additional weight, combined with knife-edge balance for the driver, made his 1969 Type 63 a flop. Graham Hill called it "a deathtrap".

Jochen Rindt flat-out refused to race it in grands prix. When he arrived at Silverstone to discover that Chapman had sold the team's 49Bs to a pair of private entrants and planned to run only the 63s, he declared: "This is like a Barnum and Bailey circus — in two different rings." Chapman had to borrow back one of the ex-works 49s to placate his star driver.

"Hill and Rindt hated the front-axle tube because of the safety implications," explained Lotus test driver John Miles. "It looked as if it would either chop your feet off or pin you in the car following an accident."

In fact, bigger and stickier tyres – thanks to the war between suppliers – and aerodynamic





"In the Lotus 72, Chapman and chief designer Maurice Philippe had conjured yet another car from the Lotus stable that would set the F1 template for years to come"

gains elsewhere would render this quest for all-wheel traction moot. For the first couple of seasons in the 1970s, shifting the car's weight to the rear would prove a more effective solution. Chapman placed 4WD, alongside gas-turbine engine technology (another Indy 500 dead end), temporarily on the back burner. Cosworth and McLaren also binned experimental all-wheel-drive chassis that didn't live up to expectations.

The wedge-shaped Lotus 72 of 1970 moved the game on in a way the 63 hadn't, but as with so many Chapman cars, it tried to push too far, too soon in several areas. The sharply creased body and stacked rear wing looked purposeful, and relocating the radiators from the nose to the flanks moved weight rearwards as well as making for a lower, flatter nose profile. To keep the unsprung weight low, the brakes were mounted inside the car rather than as part of the hub assembly. The chassis was sprung with torsion bars, rather than coil-over-shocks, to give anti-dive geometry at the front and anti-squat at the rear. The torsion bars, meanwhile, were mounted inboard to give a clean airflow between the wheels and the bodywork. Chapman and his chief designer Maurice Philippe had conjured something genuinely revolutionary - yet another car from the Lotus stable that would set the F1 template for years to come.

Unfortunately it didn't work at first. The antidive and anti-squat geometry transmitted little feel to the drivers, robbing them of confidence. Rindt, who had been persuaded to stay at Lotus rather than return to Brabham, spent the opening races some way behind Black Jack in his entirely conventional BT33-Cosworth. After a brake failure in practice at Jarama, the 72's first outing, Rindt stalked back to the pits and told Chapman "I'll never sit in that fucking car again."

He soon changed his mind. Over the following months the 72 was redesigned from the inside out at breakneck speed and began to deliver on its promise. Rindt took four consecutive \Rightarrow





Gordon Murray's trapezoid chassis Brabham (far left) and the Indy-inspired McLaren M23 (near left), with a cockpit so tight that a detachable steering wheel had to be used, were two of 1973's most innovative designs. But innovation is no guarantee of instant success, and it was Jackie Stewart who won the drivers' championship, in a conservative and solidly engineered Tyrrell (below)



"Whenever I took a big step forward in F1 it was always to do with the fundamentals, whereas Chapman tended to say, 'Right, I want inboard brakes, so I'll do a layout that suits inboard brakes.' He focused on one or two innovations rather than the holistic thing" Gordon Murray

wins mid-season, enough to be leading the championship when he suffered his fatal accident in practice for the Italian Grand Prix at Monza. Subsequent investigations indicated the cause to be a failure of the shaft connecting one of the front wheels to its inboard brake, similar to the problem that had caused him to spin off at Jarama earlier in the year.

Where innovation failed, solid engineering could sometimes thrive. Tyrrell's first self-built car, the 001, wore its aerospace influences on its sleeve. Built stronger than it needed to be, with neat lines of pop-rivets all along its curvaceous shell, the 001 was the anti-Lotus. Stewart loved it, and its successors. The car arrived too late in 1970 to help his championship ambitions but he would do battle with Emerson Fittipaldi, Rindt's replacement, over the coming seasons.

Another innovator was about to make his mark. When Brabham retired at the end of 1970, he sold his stake in his team to co-owner Ron Tauranac, whose conservative but solid designs had delivered world titles in 1966 and 1967. A year later, worn out by frontline management duties and hoping to return to the design office, Tauranac sold out to Bernie Ecclestone for £100,000. The two men were too single-minded to get on, and Tauranac was soon on his way out, while Ecclestone eventually handed design duties to Gordon Murray, a self-taught South African engineer who had recently drawn the Duckhams Le Mans car for Alain de Cadenet.

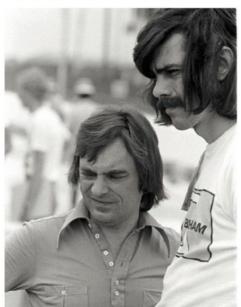
"Tauranac told me I should get rid of him and keep everyone else," Ecclestone would say later. "So I kept Gordon and got rid of everybody else."

We should add some nuance to this typically Bernie pronouncement: actually Ecclestone had poached Ralph Bellamy from McLaren over the winter of 1971, but he stayed for only a year before moving on to Lotus. Brabham raced three different chassis in 1972 without great success, as Fittipaldi roared to the title in the D-spec Lotus 72, now wearing the black-and-gold JPS livery.

Murray had grown up studying the detailed cutaway drawings of 1950s and '60s F1 cars that were a regular feature in magazines such as *Autosport*. He had attended art school before taking up practical engineering as a means to an end in support of his own racing career. Thrown in at the deep end by Ecclestone with a brief to design an all-new F1 car for the 1973 season in four months, he created the distinctive trapezoid-shaped BT42. Carlos Reutemann was running second in the car on its debut in the Spanish GP when a driveshaft broke.

In an interview with this author in 2010, Murray outlined where his design philosophy differed from that of Chapman: "Whenever I took a big step forward in F1 it was always to do with the fundamentals, such as the centre of gravity or the centre of pressure, or something with the aerodynamics, whereas Chapman

Self-taught engineer Gordon Murray (right) with Brabham team boss Bernie Ecclestone in 1973



tended to say: 'Right, I want inboard brakes,' so I'll do a layout that suits inboard brakes.' He focused on one or two innovations rather than the holistic thing. I'd look around and think, say, 'All the other cars have a weight distribution that changes by two per cent during the race, wouldn't it be great for our drivers if ours only changed by one per cent?'"

Another seminal car joined the fray in 1973: the McLaren M23. A development of McLaren's M16 IndyCar design, the M23's cockpit was so small and narrow (for aerodynamic purposes) that a detachable steering wheel had to be used so drivers could get in and out. But in spite of all this innovation, Jackie Stewart won the drivers' title in his robust and conservative Tyrrell.

Engineers at the time were just starting to get a grip on tyre management. The rocker-arm suspension layout favoured for aerodynamic reasons (since springs and dampers could be concealed inside the bodywork and out of the airflow) flexed under duress, making cars move around in the corners and chew up their tyres.

"When I started in F1, everyone used these thin top rockers, which were basically undamped leaf springs, for aerodynamic purposes," said Murray. "They were flexing, which made the cars handle badly. That's why I came up with the pull-rod suspension on the BT44, because it takes out the bending mode; everyone in F1 does that now with push-rods or pull-rods.

"It had plenty more development in it and we could have won the title. But we thought we needed a 12-cylinder engine, so Bernie did a deal with Alfa Romeo, and I had to design an entirely new car. The Alfa engines were always overweight and unreliable, but I liked the unstructured way the Alfa people worked..."

Ecclestone's move came about because in the middle of the decade, the engine became a \rightarrow

HISTORY TIMELINE

1970

The Ford-Cosworth V8 becomes almost ubiquitous. Alfa Romeo return with a sportscar-based V8 used by Andrea de Adamich and Nanni Galli in a third works McLaren.

1971

Lotus fields the gas-turbine-powered 56B, with a highest result of eighth place. Tyrrell introduce the 003 for Jackie Stewart; it wins eight of 16 races over 1971-72.

1972

Cosworth cars win ten of the 12 GPs. Jean-Pierre Beltoise takes BRM's final win, at Monaco. Bernie Ecclestone takes control of Brabham, and buys the assets of the defunct Eifelland, purely to secure their Cosworth engines.

1973

The Safety Car is used for the first time in Canada.

Cosworth cars win every race. Emerson Fittipaldi leaves

Lotus for McLaren, seeing better reliability in the new M23.

1974

The new Lotus 76 is a failure and the team revert to the 72. Carlos Reutemann takes Brabham's first win under Ecclestone ownership with the BT44. Graham Hill launches his own team with backing from Embassy cigarettes.

1975

Niki Lauda wins the title for Ferrari. A plane crash in November claims the life of Hill and five other team members including driver Tony Brise.

1976

The title boils down to a fight between Niki Lauda (Ferrari) and James Hunt (McLaren). Lotus replace the ageing 72, with the 77 and Tyrrell build the six-wheeled P34, which wins the Swedish Grand Prix in Anderstorp.

1977

McLaren's M26 is effectively made obsolete by the arrival of ground-effect aerodynamics on the Lotus 78. Renault introduce their turbocharged RS01.

1978

The Lotus 79 takes ground effect to the next level, and Mario Andretti and Ronnie Peterson are one-two in the championship, although Peterson dies at Monza. The Brabham 'fan car' is introduced, wins and is dropped.

1979

Ferrari's ground-effect 312T4 wins the title for Jody Scheckter. Brabham ditch Alfa Romeo for Cosworth.

"Mario Andretti might have won the title in 1977 had Chapman not run the car so low on fuel that Andretti ran out before race end on several occasions. Their rivals sensed something was afoot..."



Niki Lauda took the title for Ferrari in 1975, driving a completely reworked 312T, with a transverse gearbox

performance differentiator once again. Murray's Cosworth-powered BT44 won three GPs in 1974 in the hands of Carlos Reutemann, but he retired from five other races. Lotus's 76 was a failure and the team reverted to the ageing 72. The title went to Fittipaldi, who'd swapped from Lotus to McLaren in the off-season and fettled the M23 into a winner. But Emmo entered the final round level on points with Ferrari's Clay Regazzoni.

Increased grunt from Ferrari's flat-12 engine compensated for the 1974 312B3's indifferent handling, and for 1975 the Scuderia fielded a totally reworked car with a transverse gearbox. Niki Lauda owned the world championship and would have won again in 1976, too, had he not missed several rounds after his fiery accident at the Nürburgring. James Hunt clung on to secure constructors' and drivers' championships – but the M23 was at the end of its development life and McLaren could not better it. The 1977 M26 had a troubled genesis and the team then failed to adapt to the enormous changes to come.

Lauda won again in '77 as Ferrari's rivals frantically regrouped. Cosworth customers would have to be more innovative (even conservative Tyrrell had surprised everyone the previous year, with a six-wheeled car). Renault arrived, to initial derision, with a turbocharged 1.6-litre V6. Ecclestone thought he had outmanoeuvred his rivals by securing the Alfa Romeo V12, but its



shortcomings drove Murray back to the drawing board. For 1978's BT46 he tried to get rid of radiators, using heat exchangers mounted on the exterior surfaces instead. "What happened," he rued, "was that as they heated up, they expanded and twisted the chassis out of shape."

Radiators would play a part in the next round of innovation in F1 – one in which aerodynamics would trump engine power. Engineers knew the value of minimising a car's frontal area in pursuit of speed, and the role of wings in generating downforce. But until the late 1970s, research was a mixture of guesswork combined with running cars on track with wool tufts glued to their sides. F1 now entered the era of the windtunnel.

While running models of the new Lotus 78 in Imperial College's windtunnel, engineer Peter Wright achieved confusing and not always repeatable results. Early designs featured wingshaped sidepods with tightly packaged radiators. On closer examination Wright found these parts to be sagging while the tunnel was running, but generating a spike in the theoretical downforce. Wright, Chapman and Martin Ogilvie ran with the idea, finding that if the car's sides could be sealed to channel airflow under the chassis and sidepods, it would create a low-pressure area that sucked the car to the ground.

Mario Andretti might have won the title in 1977 had Chapman not run the car so low on fuel that Andretti ran out before race end on several occasions. Their rivals sensed something was afoot; as subterfuge, Lotus mechanics would smuggle in humdrum components such as the gearbox under blankets to direct suspicion elsewhere. But Chapman knew his sidepod trickery would be found out, and chose to pursue 'ground effect' to the max for the 78's successor.

Mario Andretti strolled to the 1978 title in the Lotus 79 with team-mate Ronnie Peterson in tow, but he later confessed to preferring its predecessor – to maximise the airflow through and under the sidepods, Chapman and his draughtsmen had slimmed down the monocoque at the cost of stiffness, and moved the brakes so far inboard that they tended to overheat.

"We'd complain that the brakes had gone," said Andretti, "and after the race they'd roll the cars on to the trailer and check them later. By then the brakes had cooled down, so they worked. Chapman didn't believe us..."

Gordon Murray's innovative fan car was an instant success – but was dropped for political reasons



Ferrari couldn't emulate this use of groundeffect aero because the cylinder heads of the
flat-12 engine obstructed the airflow. To make
his BT46 competitive, Murray sealed the engine
compartment to the ground and fitted a fan on
the back via a radiator, ostensibly to cool the
engine but also to achieve ground effect. The
car won on its debut, but other teams cried foul.
The FIA announced that the loophole Murray
had exploited would be closed at season's end,
but Ecclestone pulled the car immediately for
reasons Murray would come to understand later.

A political war was brewing, for Ecclestone was operating multiple agendas. "Bernie was getting more involved with the Formula One Constructors' Association, setting himself on the path to where he is today," said Murray. "So he withdrew the BT46B. It was never banned. He asked me to redesign it. I was pissed off, but I saw later how important it was for him to maintain unity with the other FOCA teams."

Ecclestone was looking more than one move ahead. He had already mobilised his fellow team owners to push for better financial terms from race promoters. The endgame was to seize control of the sport itself.

2





FERRARI KIMI RÄIKKÖNEN OR SEBASTIAN VETTEL CAP

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ALL FORMULA ONE IN 2016











FINISHING STRAIGHT

Reports Previews Analysis Opinion



History made on dream debut

Red Bull's Max Verstappen sets a new record and justifies his promotion to the top table, by winning the Spanish Grand Prix, aged just 18 years and 277 days

DEBRIEF



100 RUSSIAN GP REPORT Rosberg's reign continues, as he snatches a seventh successive win from Lewis Hamilton



104 SPANISH GP REPORT Formula 1 celebrates its new youngest ever grand prix winner, in Red Bull's Max Verstappen

PREVIEWS



108 CANADIAN GP PREVIEW It's the changeable track surface that makes this grand prix such a challenge for drivers and teams



110 EUROPEAN GP PREVIEW The sport pays an inaugural visit to Azerbaijan, for the first ever race around the streets of Baku

OPINION



112 INBOX Formula 1's suddenly got even more exciting, thanks to that surprise result in Barcelona



114 MURRAY WALKER No one could be keener for Alfa Romeo to return to F1 than Murray... apart from Sergio Marchionne, that is

RACE DEBRIEF by James Roberts



Catch him if you can!

Rosberg collects a seventh consecutive win after Hamilton suffers yet more power-unit woes

Nico Rosberg was spotted sprinting through the paddock a few hours after the Russian GP in Sochi. In his right hand was a bottle of unopened champagne. During his spirited run, reporters tried to catch him, but for the second time this afternoon no one was able to keep up.

This was Rosberg's seventh consecutive grand prix victory, putting him level with Alberto Ascari and Michael Schumacher and two short of Sebastian Vettel's all-time record. It was a perfect weekend. Pole, fastest lap and win, and he's now racked up 100 points, opening a large gap over a troubled Lewis Hamilton, who finished second from a lowly tenth on the grid.

Hamilton's woes started in qualifying, with a repeat of the power-unit problem he'd suffered at the previous race in China. Subsequent investigation back at Brixworth uncovered a problem with the MGU-H's insulation, and the turbocharger and oil pumps were replaced after debris was found in the oil system.

According to the team, a similar problem occurred at the start of Q3 on Saturday and Hamilton was denied the chance to set a lap time. The team swiftly set in motion a midnight run to have replacement parts transported from Northamptonshire to the Black Sea resort of Sochi. Niki Lauda was able to source a plane, Paddy Lowe's Russian PA co-handled logistics and a certain Bernie Ecclestone interrupted Toto Wolff on the phone during the team boss's media briefing on Saturday afternoon, to play his part...

"Yes, we finally sorted the plane, got the replacement part on it and Bernie sorted the customs," confirmed Wolff after the race. "The plane landed at 2am with a box on it and within 90 seconds the box was in a car on the way to the track. I don't want to know how Bernie sorted that out..."

Fast forward to Sunday afternoon, and as the pack headed for the Turn 2 braking zone, Rosberg led, but behind him chaos was about to erupt. Kimi Räikkönen had managed to nab second from Bottas, but Daniil Kvyat misjudged his braking and rammed the back of Vettel's Ferrari. That pitched the scarlet machine into Daniel Ricciardo's Red Bull, causing him to slide into the back of Sergio Pérez's Force India.

As the field scrambled around Turn 2 and into T3, Pérez began to slow on account of a right-rear puncture, and as Vettel cautiously approached him he was once again hit by Kvyat. As he spun into the T3 tyre wall there followed a series of foul-mouthed expletives from within the Ferrari cockpit. Vettel had calmed down by the time he spoke to media: "In the end these things happen, but obviously it's harsh," he said. "I don't dislike him [Kvyat], but I think he made a mistake two weeks ago and a mistake today."

Not only was this a disaster for Vettel, but it destroyed Red Bull's race. Both Ricciardo and Kvyat pitted for the slower medium tyre, but were unable to drive back into contention, their progress further hampered when Kvyat had to serve a ten-second stop-go penalty.

"When people brake in front of you, unfortunately sometimes there is no time to react," said Kvyat. "I had no time to react to Seb's braking. When you are one metre behind a car at 150km/h and suddenly someone brakes, it's unavoidable. It's not great but sometimes these things happen. It's probably the not the nicest first lap in my career, but I will learn from it."

Vettel went to speak with his former team boss Christian Horner on the Red Bull pitwall during the race and Horner admitted later that all he could do was apologise to Vettel.

The Safety Car was deployed to clear up the Vettel incident and a further Turn 2 drama involving Hülkenberg and Haryanto. When the Safety Car peeled in, Bottas reclaimed second place from Räikkönen with a sweet move into Turn 2, while behind him, Hamilton, who'd avoided the opening lap mayhem, swept past Massa for fourth. From this position, it looked as though Hamilton could at least challenge his team-mate – if he could quickly dispose of the Ferrari and second Williams ahead of him.

The critical part of the race came during the one and only pitstop for the front-runners. Bottas was the first to stop on lap 16 and was stationary for just 2.7 seconds. When Hamilton stopped for soft rubber a lap later, he emerged from the pitlane after 3.2s, still behind the Williams. Two laps later, he found a way past at Turn 5.

By this stage Räikkönen was still circulating, and when he stopped on lap 20 he was able to rejoin ahead of Bottas and guarantee his podium position, the 700th for Ferrari. Behind Bottas was his team-mate Felipe Massa, and Fernando Alonso – collecting his first points of the year. Magnussen was an impressive seventh for Renault ahead of a duelling Grosjean and Pérez, and Button rounded out the top ten.

Up front, Hamilton's engine was in trouble again. On lap 37, Rosberg put in the fastest lap of the race, a 1m 40.450s, and Hamilton – just 7.6s behind – went fractionally quicker, recording a 1m 40.266s. Then Hamilton's engineer Pete Bonnington was forced to reveal the news that would end the fight for this race: "We have a water-pressure issue."

After that it was a comfortable run to the flag for Rosberg, who collected his fourth win of the season and increased his lead to 43 points. "Yeah, but it's only four races from 21 and Lewis is going to come back, of course," said a philosophical Rosberg. "He's on it and as motivated as ever. So, it's early days — we're just taking it race-by-race."

But the remaining 15 races look pretty good for Nico, with Lewis likely to be the first to succumb to a grid penalty for replacement engine parts... Can *anyone* catch Rosberg this year?



Räikkönen and

collects the trophy

from Vladimir Putin

Russian Grand Prix stats

The lowdown on everything you need to know from the weekend at Sochi...

THE GRID



1. ROSBERG **MERCEDES** 1min 35.417secs Q3



3. RÄIKKÖNEN **FERRARI** 1min 36.663secs Q3



5. RICCIARDO **RED BULL** 1min 37.125secs Q3



7. VETTEL* FFRRARI 1min 36.123secs Q3



9. VERSTAPPEN TORO ROSSO 1min 37.583secs Q3



TORO ROSSO 1min 37.652secs O2



13. HÜLKENBERG FORCE INDIA 1min 37.771secs Q2



15. GROSJEAN HAAS 1min 38.055secs Q2



17. MAGNUSSEN **RENAULT** 1min 38.914secs Q1



19. NASR SAUBER 1min 39.018secs Q1



21. HARYANTO MANOR 1min 39.463secs Q1



2. BOTTAS WILLIAMS 1min 36.536secs Q3



4. MASSA **WILLIAMS** 1min 37.016secs Q3



6. PÉREZ **FORCE INDIA** 1min 37.212secs Q3



8 KVYAT RED BULL 1min 37.459secs Q3



10. HAMILTON **MERCEDES** NO TIME IN 03



12. BUTTON **McLAREN** 1min 37.701secs Q2



14. ALONSO McLAREN 1min 37.807secs Q2



16. GUTIÉRREZ HAAS 1min 38.115secs Q2



18. PALMER RENAULT 1min 39.009secs Q1



20. WEHRLEIN **MANOR** 1min 39.399secs Q1



22. ERICSSON **SAUBER** 1min 39.519secs Q1

*Five-place grid penalty for replacement gearbo

THE RACE



THE	RESULTS (53 LAPS)		
1st	Nico Rosberg Mercedes	1h 32m 41.997s	
2nd	Lewis Hamilton Mercedes	+25.022s	
3rd	Kimi Räikkönen Ferrari	+31.998s	
4th	Valtteri Bottas Williams	+50.217s	
5th	Felipe Massa Williams	+74.427s	
6th	Fernando Alonso McLaren	+1 lap	
7th	Kevin Magnussen Renault	+1 lap	
8th	Romain Grosjean Haas	+1 lap	
9th	Sergio Pérez Force India	+1 lap	
10th	Jenson Button McLaren	+1 lap	
11th	Daniel Ricciardo Red Bull	+1 lap	
12th	Carlos Sainz Toro Rosso	+1 lap*	
13th	Jolyon Palmer Renault	+1 lap	
14th	Marcus Ericsson Sauber	+1 lap	
15th	Daniil Kvyat Red Bull	+1 lap	
16th	Felipe Nasr Sauber	+1 lap**	
17th	Esteban Gutiérrez Haas	+1 lap	
18th	Pascal Wehrlein Manor	+2 laps	
*Includes a ten-second genalty for forcing another driver off the track **Includes a five-second			

Reti	ren	nen	ts

Max Verstappen Toro Rosso	33 laps – power unit
Sebastian Vettel Ferrari	0 laps – accident
Nico Hülkenberg Force India	0 laps – accident
Rio Haryanto Manor	0 laps – accident

THROUGH SPEED TRAP (QUALIFYING)



Fastest: Rio Haryanto, 206.92mph



Slowest: Daniil Kvyat, 200.89mph

TYRE COMPOUNDS USED



Super







CLIMATE

TRACK TEMP





Nico Rosberg, lap 52, 1min 39.094secs



Felipe Massa, 29.551secs (entry to exit)

DRIVERS' STANDINGS

DI.	VERS STAILDINGS	
lst	Nico Rosberg Mercedes	100pts
2nd	Lewis Hamilton Mercedes	57pts
3rd	Kimi Räikkönen Ferrari	43pts
4th	Daniel Ricciardo Red Bull	36pts
5th	Sebastian Vettel Ferrari	33pts
6th	Felipe Massa Williams	32pts
7th	Romain Grosjean Haas	22pts
8th	Daniil Kvyat Red Bull	21pts
9th	Valtteri Bottas Williams	19pts
10th	Max Verstappen Toro Rosso	13pts
11th	Fernando Alonso McLaren	8pts
12th	Kevin Magnussen Renault	6pts
13th	Nico Hülkenberg Force India	6pts
14th	Carlos Sainz Toro Rosso	4pts
15th	Sergio Pérez Force India	2pts
16th	Jenson Button McLaren	1pt
17th	Stoffel Vandoorne McLaren	1pt
18th	Jolyon Palmer Renault	0pts
19th	Marcus Ericsson Sauber	0pts
20th	Pascal Wehrlein Manor	0pts
21st	Felipe Nasr Sauber	0pts
22nd	Esteban Gutiérrez Haas	0pts
23rd	Rio Haryanto Manor	0pts

CONSTRUCTORS' STANDINGS

1.c+	Mercedes	157pts
151	Merceues	13/br2
2nd	Ferrari	76pts
3rd	Red Bull	57pts
4th	Williams	51pts
5th	Haas	22pts
6th	Toro Rosso	17pts
7th	McLaren	10pts
8th	Force India	8pts

9th Renault	6pts
10th Sauber	0pts
11th Manor	0pts

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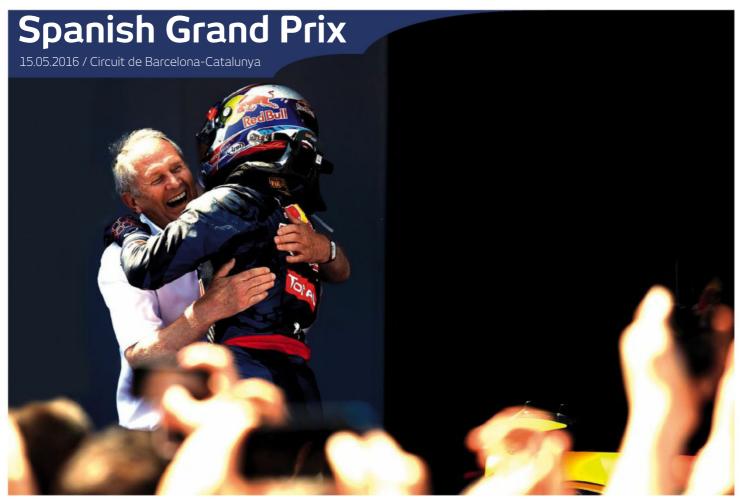








RACE DEBRIEF by Anthony Rowlinson



A star is born

An unforgettable race, in which hot shot, Max Verstappen, claimed a landmark victory for youth

Max Verstappen has Nico Rosberg's left hand to thank for making him the youngest ever winner of a Formula 1 grand prix.

For it was with this hand that Nico was attempting to make some kind of engine adjustment just as Lewis Hamilton launched an opportunist attacking move into Turn 4, on lap 1 of the Spanish Grand Prix. Quite what Rosberg was doing, whether or not he was distracted by having to make the adjustment and why his engine mode was incorrect anyway, are points explored elsewhere (see Insider, p16). But whatever the cause and effect, the resulting shunt between Rosberg and Hamilton, which wiped out both Mercedes, cleared the way for a fierce Ferrari-Red Bull clash that was ultimately resolved in Max Verstappen's favour.

In winning the 2016 edition of the race, he lowered the 'youngest ever winner' mark to an almost unfeasible level. Aged just 18 years

and 227 days, he blitzed the previous record of Sebastian Vettel who famously won the 2008 Italian Grand Prix for Toro Rosso, aged 21 and 73 days. A ten-year old Verstappen was likely watching that grand prix, confidently expecting to one day be doing something similar. Maybe not *quite* so soon, however.

This win, like his stunning qualifying performance a day earlier, has now been etched into the F1 annals, as a reference point for all future reporting of what must surely become an epochal career. In 20 years, aged 38, Verstappen could easily still be fit enough to be a front-line racer. Who knows how many wins, titles and millions he'll have earned by then?

There was a degree of good fortune about Verstappen's victory, although that should not detract from the scale of his achievement; nor is it a comment on the flawless, utterly composed manner of his performance. He benefitted, as already noted, from the retirement of two faster Mercedes. He also had the advantage of being left on a two-stop strategy (soft-medium-medium), while his marginally quicker team-mate Daniel Ricciardo ran a nominal three stopper: soft-medium-soft-medium (there was an additional lap 65 stop after a late-race tyre failure, but this had nothing to do with race strategy).

Verstappen, though, was always in the mix and proved himself adept at resisting heavy late-race pressure from Kimi Räikkönen, whose SF16-H was quicker 'down the chute' and let him close to within a car length of Verstappen's RB12 at T1 for most of the last third of the race. Max was too smart for that: he used the RB12's better traction and balance from Turns 2-16 to draw away around the lap and prevent Räikkönen from leaving the last corner close enough to mount a successful main straight pass. Had Kimi been able to get ahead, he would likely have

pulled away, but unable to pass, he remained bottled up. It was a classic chassis-versus-power confrontation, rather neatly being played out between the grid's oldest and youngest drivers. "I raced against his dad in F1," joked Kimi later.

So much speed and composure in one so young: phenomenal, in the truest sense of the word. And Verstappen made it all seem so *easy*, so matter-of-fact. Facing the press post race, there were wide smiles, of course, and talk of "surprise". Yet the overwhelming impression was of a young man who was simply fulfilling the destiny that had been charted since his F1 driver dad met his karting champ mum. "On the last laps I got a bit of cramp," he said. "I was getting very excited with ten laps to go, when I started to watch the pit board. But then I stopped so that I could just focus on the tyres and bring it home. A great feeling. I absolutely didn't expect this."

The noise and fuss surrounding his elevation to the senior Red Bull team, at the expense of the demoted Daniil Kvyat – himself a podium finisher only a few weeks ago, and setter of the fastest lap in Spain – had forever been erased.

Only marginally less compelling than the tussle up front was the furious battle that raged almost all race long between Daniel Ricciardo and Seb Vettel. Ricciardo led early (and would lead 30 laps in total), sprinting away at the head of a Red Bull train that included Verstappen and Carlos Sainz – up to third after the early-race yellow flags prompted by the Mercedes' self-destruction. The Ferraris were faster, though, and by lap 10 a clear Red Bull-Ferrari running order had been established that looked likely to parlay into a top-four result of Ricciardo, Verstappen, Vettel, Räikkönen.

That changed when Ferrari rolled the dice on lap 37 and brought Vettel in for a second set of mediums. This third stop was intended to undercut Ricciardo (which it did) and put Vettel in position for victory (which it didn't). Why not? Because when Ricciardo came in on lap 43 to cover Vettel's strategy, both nominal 'team leaders' were doomed to slug it out for third and fourth. The mediums fitted to Verstappen and Räikkönen at their second and final stops on laps 34 and 35 would prove good enough to hang on till the chequered flag, more than 30 laps away.

That didn't stop Ricciardo from having an almighty go at Vettel though and on lap 59 he managed to spear his way past into T1, although he overran and Vettel immediately regained the position. Vettel was unhappy about the move, feeling he'd been the victim of 'negative optioning': "If I don't play according to his move then I crash," he noted. Both could feel aggrieved that their duel wasn't for the lead.

Neither, though, could deny Max Verstappen his moment of history. ②



Spanish Grand Prix stats

The lowdown on everything you need to know from the weekend at Barcelona...

THE GRID



1. HAMILTON **MERCEDES** 1min 22.000secs Q3



3. RICCIARDO **RED BULL** 1min 22.680secs Q3



5. RÄIKKÖNEN **FERRARI** 1min 23.113secs Q3



7. BOTTAS WILLIAMS 1min 23.522secs Q3



9. PÉREZ FORCE INDIA 1min 23.782secs Q3



11. HÜLKENBERG FORCE INDIA 1min 24.203secs Q2



13. KVYAT TORO ROSSO 1min 24.445secs Q2



15. MAGNUSSEN **RENAULT** 1min 24.625secs Q2



RENAULT 1min 24.903secs Q1



19. ERICSSON SAUBER 1min 25.202secs Q1



21. WEHRLEIN **MANOR** 1min 25.745secs Q1



2. ROSBERG **MERCEDES** 1min 22.280secs Q3



4. VERSTAPPEN **RED BULL** 1min 23.087secs Q3



6. VETTEL **FERRARI** 1min 23.334secs Q3



8. SAINZ TORO ROSSO 1min 23.643secs O3



10. ALONSO McLAREN 1min 23.981secs Q3



12. BUTTON **McLAREN** 1min 24.348secs Q2



14. GROSJEAN HAAS 1min 24.480secs Q2



16. GUTIÉRREZ HAAS 1min 24.778secs Q2



18. MASSA WILLIAMS 1min 24.941secs Q1





THE RACE



THE	RESULTS (66 LAPS)	
1st	Max Verstappen Red Bull	1h 41m 40.017s
2nd	Kimi Räikkönen Ferrari	+0.616s
3rd	Sebastian Vettel Ferrari	+5.581s
4th	Daniel Ricciardo Red Bull	+43.950s
5th	Valtteri Bottas Williams	+45.271s
6th	Carlos Sainz Toro Rosso	+61.395s
7th	Sergio Pérez Force India	+79.538s
8th	Felipe Massa Williams	+80.707s
9th	Jenson Button McLaren	+1 lap
10th	Daniil Kvyat Red Bull	+1 lap
11th	Esteban Gutiérrez Haas	+1 lap
12th	Marcus Ericsson Sauber	+1 lap
13th	Jolyon Palmer Renault	+1 lap
14th	Felipe Nasr Sauber	+1 lap
15th	Kevin Magnussen Renault	+1 lap*
16th	Pascal Wehrlein Manor	+1 lap
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17th Rio Haryanto Manor

Romain Grosjean Haas	56 laps – brakes
Fernando Alonso McLaren	45 laps – software
Nico Hülkenberg Force India	20 laps – oil leak
Lewis Hamilton Mercedes	0 laps – accident
Nico Rosberg Mercedes	0 laps – accident

THROUGH SPEED TRAP (QUALIFYING)



Fastest: Pascal Wehrlein, 212,18,mph



Slowest: Jolyon Palmer, 203.49mph

TYRE COMPOUNDS USED











TRACK TEMP





Daniil Kvyat, lap 53, 1min 26.948secs



FASTEST PITSTOP

Felipe Massa, 21.384secs (entry to exit)

DRIVERS' STANDINGS

lst	Nico Rosberg Mercedes	100pts
2nd	Kimi Räikkönen Ferrari	61pts
3rd	Lewis Hamilton Mercedes	57pts
4th	Sebastian Vettel Ferrari	48pts
5th	Daniel Ricciardo Red Bull	48pts
6th	Max Verstappen Toro Rosso/Red Bull	38pts
7th	Felipe Massa Williams	36pts
8th	Valtteri Bottas Williams	29pts
9th	Daniil Kvyat Red Bull/Toro Rosso	22pts
10th	Romain Grosjean Haas	22pts
11th	Carlos Sainz Toro Rosso	4pts
12th	Fernando Alonso McLaren	8pts
13th	Sergio Pérez Force India	8pts
14th	Kevin Magnussen Renault	6pts
15th	Nico Hülkenberg Force India	6pts
16th	Jenson Button McLaren	3pts
17th	Stoffel Vandoorne McLaren	1pt
18th	Jolyon Palmer Renault	0pts
19th	Esteban Gutiérrez Haas	0pts
20th	Marcus Ericsson Sauber	0pts
21st	Pascal Wehrlein Manor	0pts
22nd	Felipe Nasr Sauber	0pts
23rd	Rio Haryanto Manor	0pts

CONSTRUCTORS' STANDINGS

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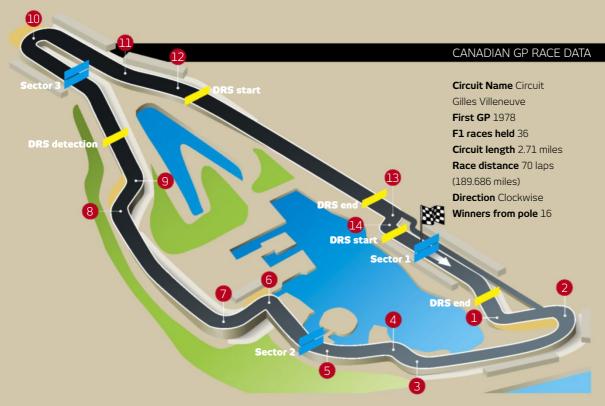


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The Canadian GP preview

Round 7 / 10-12 June 2016/ Circuit Gilles Villeneuve, Montréal



TV TIMETABLE (UK TIME)

Friday 10 June

Practice 1 15:00-16:30

Practice 2 19:00-20:30

Saturday 11 June

Practice 3 15:00-16:00

Qualifying 18:00-19:00 Sunday 12 June

Race 19:00

Live coverage Sky Sports F1

Highlights Channel 4

A CIRCUIT OF EXTREMES THAT LOOKS SO DECEPTIVELY EASY

The Circuit Gilles Villeneuve sits on the man-made Île Notre-Dame in the middle of the mighty St Lawrence River. Space is at a premium, so the circuit is narrow and hemmed in by concrete walls. Consequently, mistakes are punished and Safety Car appearances are frequent.

Two key corners are Turn 4 and the final chicane, which features the notorious 'Wall of Champions' on its exit. The closer a driver positions his car to the wall, the faster he'll be - but that comes at a risk.

The track surface here is unlike any other F1 circuit, primarily due to the extreme swings in temperature in this part of Canada. Severe frosts in the winter contrast with blistering hot weather in midsummer. This creates an unusual surface that can grain tyres easily. So despite this being a simple layout, without a single seriously quick corner, it can be a tough circuit to master.



The wall of champions collects another victim - Sebastian Vettel in 2011

WHAT GOES ON TOUR.

Montréal is one of the highlights of the year, thanks in part to the circuit's close proximity to the city. It's a curious mix of cultures. The grid layout makes it feel like any typical American city, but there are giveaways of Commonwealth ties: statues of Queen Victoria, banknotes with Queen Elizabeth II on them - yet it's a place where everyone communicates in French.

As a former host city of the Olympics, this is also a place that embraces - and loves - sport. Every year, the mid-June visit coincides with the ice hockey finals of the Stanley Cup and bars and restaurants broadcast every face-off.

Also recommended is a visit to the Stade Saputo to see football team Montréal Impact. A few years ago, the crowd erupted after a 19thminute winner against rivals Toronto FC. It was an unforgettable celebration: "Allez les blues!"

James Roberts

WHAT HAPPENED IN LAST YEAR'S RACE...?

Winner Lewis Hamilton

Margin of victory 2.285s

Pole position 1m 14.393s, L Hamilton

Fastest lap 1m 16.987s, K Räikkönen

Race leaders 2 Safety Cars 0 Pitstops 25 Overtakes 36



This was a welcome win for Lewis Hamilton after he'd lost out on a certain victory at the previous race in Monaco. He led from pole, and although he came under pressure from team-mate Nico Rosberg, after the first round of pitstops he was never in any real danger of losing out. In an uneventful race, Kimi Räikkönen's spin on lap 27 meant that Valtteri Bottas took the final podium position for Williams.

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The European GP preview

Round 8 / 17-19 June / Baku City Circuit

3

Sector 1

Sector 3

EUROPEAN GP RACE DATA

Circuit name Baku City Circuit

First GP 2016

F1 races held 0

Circuit length 3.732 miles

Race distance 51 laps (190.171 miles)

Direction Anticlockwise **Winners from pole** N/A

TV TIMETABLE (UK TIME)

Friday 17 June

Practice 1 10:00-11:30

Practice 2 14:00-15:30

Saturday 18 June

Practice 3 11:00-12:00

Qualifying 14:00-15:00

Sunday 19 June

Race 14:00

Live coverage Sky Sports F1

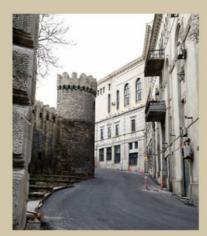
Highlights Channel 4

FORMULA 1 HAS ITS FIRST TRANSCONTINENTAL FORAY

The greatest challenge of this inaugural race around the streets of the Azerbaijani capital of Baku will be the headache of transporting all the freight and equipment from Montréal, just four days before FP1 starts. As each team transports roughly 120 crates, setting up in a new location will be a huge logistical test.

When practice on the new track finally commences, the focus for all the teams and drivers will be familiarisation. They'll have completed many laps on simulators back home, but there is no substitute for understanding the grip levels the newly-laid asphalt will offer first-hand.

Early indications are that this track will be fast for a street circuit, with a flat-out blast along the harbour front expected to stretch engines to the max. Part of the track that will surely take on iconic status, is the narrow Turns 9-10, which passes the turrets of the old city wall. •



The narrow Turns 9 and 10 weave their way past Baku's ancient city walls

WHAT GOES ON TOUR..

We were only in Baku for three days back in March, but that was enough time to suss that the Azerbaijani capital is quite a cool place.

It was after we got talking to a local that LAT photographer Steven Tee and I learnt about the fire temples situated on the outskirts of the city. We persuaded a guide to take us to Yanar Dag, where natural gas seeps out the rock, producing flames. Nearby we were also shown a large rock that sounded hollow when tapped with another rock. That was slightly less impressive...

But the highlight was arguably the Bavarianthemed restaurant we went to afterwards. If you're heading to the GP and want a recommendation, visit Paul's Baku Steakhouse on Zargapalan Street. It's quite small though, so it's best to book. And take cash – they don't accept credit cards. *Prost!*

James Roberts

THE FIRST YEAR OF THE EUROPEAN GRAND PRIX IN AZERBAIJAN.







It may have hosted the Eurovision Song Contest and the European Games in the past four years, but the inaugural European Grand Prix in Baku will be a real step up onto the global stage for Azerbaijan. The Hermann Tilke-designed street circuit layout will be a showcase for the city worldwide, and the unique mix of tight and exceedingly quick sections should provide an enthralling spectacle.

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F1 has never been better!

The coming-together of the two Mercedes at the start of the Spanish Grand Prix gave us all the chance to see racing without perceived domination and, once again, as has been the majority of racing this season, it was an absolute treat.

The decision to swap Verstappen and Kvyat was vindicated, and as the youngest ever race winner, winning on his debut with a new team, we can be sure that Verstappen has a very bright future.

Back to Mercedes, and opinions will differ as to what happened and why, but ultimately this is racing and with two drivers fighting for the title, especially given Rosberg's current advantage, it's hard to pin the blame one way or another.

But it does have clear implications for the future of both drivers, not just during this championship but also at the team. So we can only hope that racing between Rosberg and Hamilton

is not truncated, thus robbing us viewers of the true spectacle of competitive F1.

Michael Brierley Manchester, UK

Life without F1

I'm undergoing an experiment: can a 45-year-old F1 fan survive without watching even the highlights on TV?

Background to problem: time pressures from 'er indoors, work/ life balance and forgetting to press Channel 4 record.

Solutions attempted: getting lawns cut earlier, pressing record and if not possible, using Channel 4 On Demand.

Results this season: jobs piled up, forgot to press record, stayed up too late and alone to attempt to watch 40D.

Analysis of 4OD: woefully slow process where you cannot zap through adverts. Breaks took so long (seven minutes, and at least four breaks), the kettle was on,

cuppa drank and forgot where I were in the race. Fell asleep.

Contact source: 40D emailed. Response was as expected – sorry, nothing we can do.

Outcomes and upshots: use excellent F1 Racing magazine and scientifically selected websites for info. Zero option of using the Sky steamroller. Still awaiting doctor's order for pain relief...

Experiment still ongoing until November. Surviving - so far.

Andrew Miles Sheffield, UK

One rule for some

Well, that's it. After watching the Russian GP on C4 last Sunday I have decided to look for another sport to follow.

Hamilton was penalised in qualifying for doing the safest thing and not following the race director's safety rule. Kvyat was given a tensecond stop-go penalty for nothing more than a racing incident, and then for running into another driver who had lifted off the accelerator midway around the fastest corner on the track. I'm not a racing driver, but even I realise how dangerous, this manoeuvre could be, especially on the first lap.

Causing a collision is dangerous and should be punished, but it is the driver who lifted off who caused the collision. You could also say Vettel caused a collision in China when he turned into his team-mate - yet he wasn't penalised.

These rules should be evenhandedly applied, or we may as well just watch drivers draw finish

positions out of a hat. It would appear that Sebastian Vettel still has more clout at Red Bull than Christian Horner.

Kevin Miles By email

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UNLESS I'M VERY MUCH MISTAKEN...

"Sergio Marchionne wants Alfa Romeo back in F1 and so do I! Who is Sergio Marchionne, though?"

Well, he's the CEO of Fiat Chrysler, who own Alfa Romeo, and, unsurprisingly, he's a man who knows what he wants and tends to get it. Witness the turn around in Ferrari fortunes following the changes he effected when he took control from Luca di Montezemolo.

I doubt many of today's fans are fully aware of Alfa Romeo's distinguished motorsport history, which began in 1911, or of what a worthy addition to today's F1 they'd make. In the 1920s and '30s, up to the 1934 advent of the allconquering Mercedes-Benz and Auto Union

teams, the P2 and P3 Alfa Romeos were mainstays of the grand prix scene, driven by superstars such as Antonio Ascari (father of Alberto), Achille Varzi, Rudolf Caracciola and the legendary Tazio Nuvolari. Enzo Ferrari racked up some wins for Alfa Romeo, too, before he founded Ferrari as Alfa's works team.

With the P2, Alfa won the 1925 constructors' world championship, and the subsequent supercharged straight-eight P3 was the class of the field. In one of them, at the fabled Nürburgring in 1935, the great Tazio Nuvolari

beat even the supposedly superior German Mercedes-Benz and Auto Unions at one of the greatest grands prix of all time.

But it wasn't just in grand prix racing that Alfa Romeo shone. They won the Le Mans 24 Hours for four years in a row, as well as the prestigious Targa Florio, Mille Miglia and Spa 24 Hours. Then, pre- and post-WWII, came one of the greatest race cars ever: the supercharged straight-eight Alfa Romeo 158, which dominated pre-war Voiturette events and won the 1950 and 1951 F1 drivers' championships with Giuseppe Farina and Juan Manuel Fangio at the wheel. I was lucky enough to attend the first ever F1 race in 1950 at Silverstone, and I'll never forget the imperious way the 158s commanded the race to finish first, second and third.

Alfa withdrew from F1 at the end of 1951 and made a lacklustre return in the mid-1980s, but successfully continued in sportscars and touring cars. So they can be proud of their competitive past. Why then does Sergio Marchionne want them to stick their neck out and re-enter the F1 fray with all the potential grief and cost? Partly, I reckon, because Alfa Romeo road-car sales aren't exactly booming and because association with F1 would do the brand's sporty image a power of good. But maybe also because having Alfa in the F1 fold would give Marchionne's already powerful negotiating position within the sport, thanks to his Ferrari role, even more clout.

In which case, how could Alfa re-enter the sport? By buying an existing team? By creating an all new organisation that goes it alone? Or by following the successful Haas team model of buying permissible listed items from Ferrari? Marchionne has already rubbished rumours of purchasing Sauber, and of the other two alternatives the Haas route seems a no-brainer.

Whichever way they choose to go, Fiat have the resources and experience to create a new Alfa Romeo team in the shortest possible time. I would love to see it happen and for Alfa to build on their great past. They would be an exciting new manufacturer with every chance of success, which I'm sure the fans would welcome with enthusiasm and which could create great potential benefits for road-car sales.

I'm not so sure Bernie Ecclestone would be over the moon though...



"The Alfa Romeo 158 won the 1950 and 1951 F1 drivers' championships with Giuseppe Farina and Juan Manuel Fangio"

James Anderson

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