



OUTPOST

The North West Region Newsletter

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DECEMBER 2018

b	BRITISH
r	RALLY
m	MARSHALS
c	CLUB

OULTON PARK CHORAL SOCIETY?



TRAINING 2019

The North West Region training weekend at Oulton Park will be held on Saturday 9th and Sunday 10th March.

The details of the timetable are still being finalised and all members will be emailed later in December, this will include the volunteering form and a link to the on-line training request.

JOTTINGS FROM THE CHAIRS

A CHRISTMAS CRITIQUE

Well, well, well, I don't remember having to pen a festive note for Outpost. Eric must have rigged the publication dates this year!

So (everybody who's anybody starts sentences with "So" these days!), Merry Christmas everyone. May health, wealth and happiness go with you throughout the Festive Season and into 2019. We'd be lucky to enjoy all three, so let's hope for at least two goodies.

Bill will be publishing Spring Training details shortly. I just want to make sure you are all primed and ready to attend. "Training and Experience" is the mantra you'll remember. "No surprises" is my new one. Training, even if you think you're already good to go, will help to ensure that nothing that happens out there will surprise you. That makes a crucial difference when the sh*t hits the fan. So (again), be there or be surprised!

You've also got to come along to gander at our new "Don Hall Trophy" for Flag Marshal of the Year. I won't tell you who the inaugural winner will be, but I will say that it is a marvellous tribute to our much loved and much missed colleague. In fact, it is so fab that I'm keeping it on my desk until the very day when I have to take it to Training. I'm calling it the "Chairman of the Year" award, and have stuck an "MCC" on - just temporary, like! [Eric says it is ok for me to do this, provided that I hand it over in March.]

So (yet again!), please remember that we are marshals, even over the Festive Season. We are always alert, watching the traffic, looking after our friends and colleagues. We are looking forward to donning [sic] our oranges again in 2019. So (!), please be very careful when out and about.

Merry Christmas and a Happy New Year.

Mike Cadwallader

North West Region Chair

2019 CHAIRMANS MESSAGE

Some of you may be aware that after serving for 15 years as BMMC North West Chairman, Mike Cadwallader has decided to step down from his position to spend more time doing other activities. (No doubt his wife - Linda will have a long list of jobs to be done!)

I am humbled and honoured to be nominated as the incoming chairman as from January 2019. I have some big shoes to fill and I am grateful that there is an experienced, knowledgeable and enthusiastic committee that are there to help me, point me in the right direction, and keep me on track!

Over the coming months, I intend to launch several initiatives that will help the North West region maintain its status as the premier region. This will include the three pillars I intend to be measured by: recruitment, retention and training.

On top of this, I will be looking at how the committee can best serve its membership, have a sense of community and respect as well as having some fun watching and getting involved in all forms of motor sport in the region.

As we move into 2019 with all the uncertainties that face us as a nation, one thing will remain certain. Your committee will continue to serve you, to listen and support you all.

Finally, it must be noted & acknowledged that Mike C has served the North West well, he has put tremendous effort into moving the club forwards and for this, the membership should be grateful for his loyalty and diligence.

I look forward to seeing you all at the training weekend at Oulton Park next year and until then, may I wish each and everyone the compliments of the season to you all.

Mike Broadbent

C.E.R.N.

European Centre for Nuclear Research

This article is a bit different to those you would normally expect to see in the newsletter. It came about after a conversation over lunch with this Region's chairman Mike Cadwallader. He recalled I had been to CERN in Geneva during the summer of 2017 and thought an article describing my visit would be of interest. I hope so.

CERN is the European Centre for Nuclear Research and is celebrating its 60th anniversary this year. Its main purpose is to investigate the structure of the particles that make up you, me and everything we can observe in the universe. To achieve this, experimentalists design and build machines used to accelerate small particles to smash them either into each other (collisional) or into a stationary target and observe what debris results. The current machine, the Large Hadron Collider (LHC) is of the collisional type.

The LHC was designed by a Welshman from Cardiff, Lyndon Evans, who generously helped fund my first visit in 2016. My second, three week visit, was funded by CERN as part of their International Teacher Weeks program. The second visit was composed of a series of lectures, site visits and working groups with scientists from some of the experiments at CERN. What follows is a summary of what I learnt.

The particles used in the LHC are protons extracted from the centre of Hydrogen atoms. This is the simplest type of atom as it consists of a single proton

and an electron. The electron is removed and disposed of leaving behind the proton. The Hydrogen source is a simple 50litre Hydrogen gas bottle - similar to those used in motor sport for putting Nitrogen in tyres.

Once the protons have been obtained they enter the CERN accelerator complex. This initially consists of a Linear Accelerator (LINAC) which straddles the border between Switzerland and France. This accelerator is 50 meters long and accelerates protons from about 320 meters per second to 224,000,000 miles per hour. Read that again, a virtual standing start to 224 million miles per hour in 50 meters. Puts Formula 1 into perspective!

If this isn't fast enough, the protons are accelerated further by the Proton Synchrotron (PS) upto a speed of 2 Billion miles per hour. To do this with a linear accelerator would need a very long accelerator, so to save costs, the PS is a circular accelerator with a circumference of 628m and is the original circular accelerator at CERN dating from 1959. From here the protons enter the Super Proton Synchrotron where protons are further accelerated to 5.1 Billion Miles per hour. This is now getting very close to the speed of light which is the speed limit of the universe.

From here, the beam of protons is split in two and each half beam is ready to enter the Large Hadron Collider moving in opposite directions. The LHC is another circular machine, this time with a circumference of 53 miles. This machine

is buried about 100m underground on average and straddles the border between Geneva and France. If you have ever been to Geneva airport, part of the machine is directly beneath the runway. The LHC is the largest machine ever built and hence is the most complex, needing 2000 full time engineers and scientists to operate and up to 14,000 research scientists to analyse the data worldwide. At the speeds of the protons in the LHC, they can travel around the machine 11,275 times a second, in which time they cover just over half a million miles.

CERN Accelerator Complex

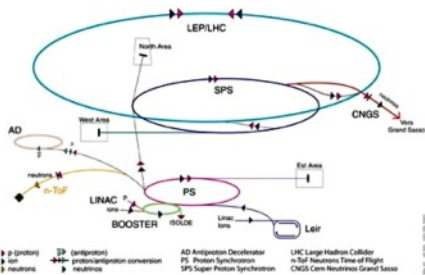


Fig. 1 The CERN Accelerator Complex - protons enter the LINAC, then proceed through the Proton Synchrotron (PS), Super Proton Synchrotron (SPS) and finally entering the Large Hadron Collider (LHC)

Having got the protons to these speeds, Einstein's famous equation (the one we all know) becomes relevant. This equation essentially says that it is possible to convert energy into matter and matter into energy. So the LHC keeps adding energy to the protons, even though their speed stops increasing. Once at the design energy of the LHC, the counter rotating beams are focused and collide at

four places around the ring. There are 600 million collisions each second between the protons. It is the resulting particles of these collisions that interests the scientists.

The machine being circular needs electromagnets to bend the path of the protons. There are 1232 of these magnets, each 14.3 m long, weighing 35 tonnes and operating at a current of 11,850 A, compare this to your circuit breakers or fuses at home.



Magnets in the LHC tunnel

To carry such large currents would require immense amount of copper cable, so to keep the magnets a reasonable size, superconducting cables are used. These operate at -270C and are cooled by 120 tonnes of liquid Helium. This allows the cables to be made much thinner as shown below. In all, the total mass of cooled equipment in the machine is 36,000 tonnes.



Comparison of the copper cabling needed for 11,000 A current (below) to the equivalent superconducting cable (above).

These 600 million collisions between protons are observed at the four crossing points by four experiments, CMS, ATLAS, ALICE and LHCb. CMS and ATLAS are the two detectors which independently discovered the Higgs Boson particle in 2012. In the centre of each detector, the beams collide, converting their original energy and mass into other particles at temperatures 100,000 times that of the centre of the Sun. This sounds dangerous, but because the colliding particles are so small, the energy dissipates more or less instantly - no Black Holes are formed in the LHC! The detectors however, need to be large and I had the opportunity to visit CMS during a machine maintenance period. Normally, once the magnets are cold and bathed in liquid Helium, no-one is allowed down in case of a Helium leak. I was very lucky.



The CMS Detector Hall

This detector is 15m in diameter and weighs in at 12,000 tonnes and is the size of a cathedral but contains detectors which are as precise as a Swiss watch. In

the picture above, the silver pipe through the middle is the LHC itself and the detector was split in two for servicing this day. Surprisingly, each half of the detector isn't on wheels, but is lifted on compressed air.

The 600 million collisions at four detectors generate unimaginable amounts of data. This needs sifting and sorting before analysis. The CERN data centre processes the equivalent of 210,000 DVD's per day with 100,000 processors. This is too much to analyse on one site, so CERN distribute the data worldwide via the CERN Data Grid to 170 processing centers in 41 countries, giving 8,000 scientists access to data more or less as soon as the collision has happened.

CERN are very aware they have to justify their existence. What is the point of all this effort and expense - a valid question. Particle Physics is a highly specialised area of science which attempts to answer questions about the origin of the universe which has little (if any) relevance to everyday life. However, the technological benefits from the design and operation are becoming more and more relevant to everyone. The World Wide Web was developed by Tim Berners Lee at CERN to allow for the distribution of large amounts of data worldwide quickly. This is perhaps the most obvious benefit. However, the accelerator technology is finding more and more applications especially in the field of medicine. Proton Beam Therapy is a relatively new technique for treating tumors (especially brain tumors in children) as this causes

less damage to nearby healthy tissue than earlier technologies. The Christie Hospital in Manchester is currently commissioning one of the first machines of this type in the UK. Other experiments which CERN are busy developing include methods for the manufacture of chemicals to treat a variety of illnesses, focusing on bone cancer.

It is still sometimes hard to believe that I have had the opportunity to visit CERN twice, and the scale of the facility is hard to understand, the science is very hard to understand (!) but it is a shining example of what mankind can do given a task and everyone works to achieve the objectives. If you are ever in Geneva, get on a half day tour and have a look for yourself. www.visit.cern.



Rob Nickson

In 2019 we welcome a new sponsor for our Overalls with the announcement at the Autosport Show 10th January 2019.

Along with this good news our National Treasurer has prised open the piggy bank to raise the subsidy for Overalls from £55 to **£60**.

If you had ideas of treating your loved one to a new romper suit for Christmas, you might want to hold off a bit.

Eric Ridler

National Regalia Officer

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**UNIPART TROPHY**

At the December Council meeting it was agreed to re-name the Unipart Trophy in honour of our dearly departed President Barrie Williams. It will now be known as the 'Barrie "Whizzo" Williams Trophy'.

It was also agreed that all the winners of the National awards will given a suitably badged Softshell Jacket from our Teamwear range of clothing.

**Eric Ridler**



**A HAPPY AND SAFE NEW YEAR TO ALL OUR MARSHALS**

## GRADING

Congratulations to the following BMMC NW members who have upgraded since June 2018.

### Trainee to Track:

Gary Dawson  
 Peter Goode  
 Nicola Goode  
 James McNeil  
 Steve Boulder  
 Andy Holmes  
 David Collier  
 Adam Rooney

### Track to Experienced:

Rob Beasley  
 Dave Smithson  
 Sam Collinson

### Experienced to Incident Officer(IO):

Robert Anthony Riley  
 Kevin Frost  
 Barry Edmonds  
 Elliott Danaher

### IO/Experienced to Post Chief:

Ashley-James Aspin

### Trainee to Specialist:

Wayne Beattie  
 Andrew Pratt

### Specialist to Experienced Specialist:

Richard Stenson

### Rob Mugurian

### BMMC NW Regional Grading Officer

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2019 DIARY DATES

- 07 Jan NW Region Committee Meeting
- 12 Jan Autosport Show - NEC Birmingham
- 13 Jan Autosport Show - NEC Birmingham
- 14 Feb BMMC Council Meeting
- 09 Mar NW Training - Oulton Park
- 10 Mar NW Training - Oulton Park

REGALIA PRICE LIST

<u>Description</u>	<u>Price</u>
BMMC CLOTH BADGES, LAPEL BADGES & STICKERS	£2.00
BMMC GRADING BADGES	£1.00
'HEROES' CLOTH BADGES, LAPEL BADGES & STICKERS	£2.00
LEATHER WELDERS GLOVES	£4.50
HI-VIS ORANGE WATERPROOF GLOVES	£4.50
WOOLLEN SKI HATS - BLACK or ORANGE	£4.50
BASEBALL CAPS - BLACK or ORANGE	£7.00
OUTBACK SUN HATS SP50	£14.00

Catalogue and Order forms can be downloaded from the club website or from Eric Ridler, BMMC NRO

New Overalls are only available from AWS RACEWEAR - Tel: [01233 638 498](tel:01233638498) quoting BMMC membership number

For all other enquiries contact the Regional Regalia Officer,
 or:
 The National Regalia Officer - Eric Ridler
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NEXT NEWSLETTER

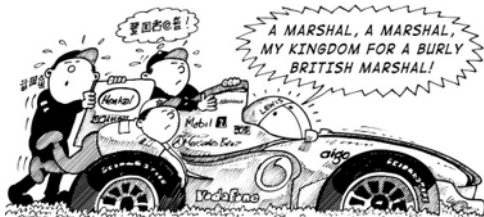
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Publishing Date - 21st January 2019

WELCOME - NEW MEMBERS

We would like to extend a warm welcome to the new members below. We sincerely wish you a happy and safe future.

- | | |
|-----------------|---------------|
| Tim Couchman | Hawkshaw |
| Alan Welsh | Llangwstennin |
| Peter Liggett | Liverpool |
| Karl Young | Timperley |
| Alan Pendlebury | Morecambe |
| Sharon Milburn | Carlisle |
| Peter Johnson | Brampton |



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