

# your life

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Was it really all that wonderful in times gone by? p4

Views well worth the effort on Highland hike p18

Explore the edible outdoors on a trip to Grasmere p22

## PIONEERING SCAN MAN

How research locally could save lives worldwide p8





# PIONEERING SCAN MAN

**Alistair Heather** visits some unassuming buildings and a humble scientist to find out how research locally could save lives worldwide

**F**oresterhill is a village unto itself on the steep braes above the city.

Its population is a rich amalgam of NHS and university researchers, expert clinicians and poorly north-easters, who mingle as they bustle from departments of the hospital to the research buildings that abound.

It does not look like much: big plain buildings, car parks and busses growling slowly through.

However, the muted surface belies its central role in European science.

Out the back of a particularly humble two-storey concrete block of offices is a wood-and-breezblock outhouse.

The tin-roofed structure looks like the sort of place an amateur football team might change before a match in a public park.

However, this little building houses a fascinating new medical scanner.

It is big - its outer casing is about 14ft across and covered in shimmering copper netting. Within that is an orbit of more copper, insulated this time, around a central scanning bed.

The machine is a world-leading development and is big news for both Aberdeen University and the city as a centre for excellence in research.

The new machine, called a fast field-cycling MRI, or FFC-MRI scanner, uses a magnetic field along with pulses of radio waves to look at the way the water molecules in your tissue behave.

In contrast to conventional MRI scanners, it can switch the strength of its magnetic field during the scan, providing new information that is completely invisible to other scanners.

This new scanner promises to reveal much more subtle information about the body's soft tissues, providing rich data on medical conditions such as osteoarthritis, cancers, strokes and many others.

The story of the scanner's development is one that shows Aberdeen in a great light.

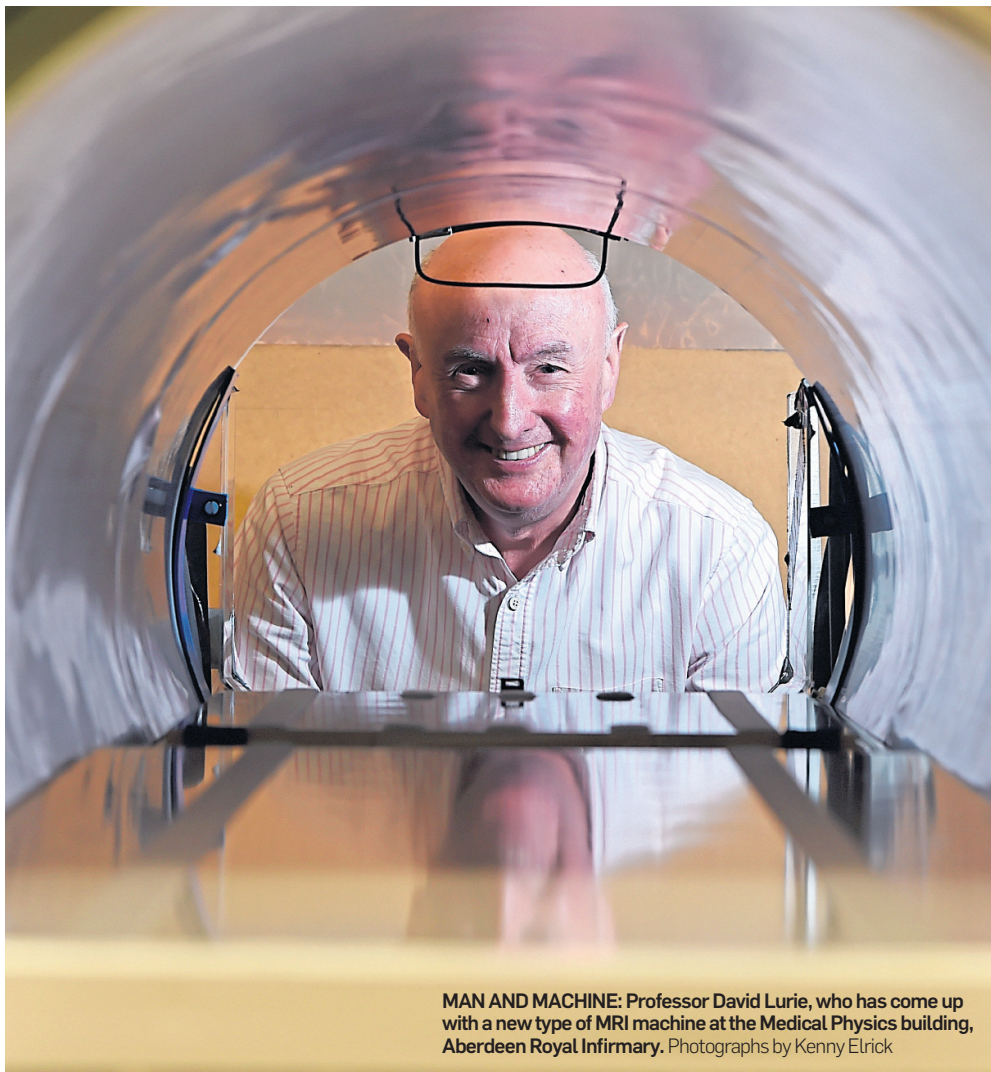
It is also the latest chapter in the largely uncelebrated story of the city's development and ongoing eminence in the field of magnetic resonance imaging, or MRI.

The leader of the team that built the scanner is a humble but very distinguished Aberdonian, Professor David Lurie.

After growing up in the city, he became a graduate of its university.

"I did my undergraduate degree here, in natural philosophy, which was the old Scottish term for physics," David explained.

A Masters and PhD in Medical Physics from the University of London quickly followed. And hard upon that, the usual job search.



**MAN AND MACHINE:** Professor David Lurie, who has come up with a new type of MRI machine at the Medical Physics building, Aberdeen Royal Infirmary. Photographs by Kenny Elrick

However, there was a light in the north: “I knew that the university’s Medical Physics department, headed by Professor John Mallard, had an excellent, worldwide reputation.

“I was offered a job on the MRI project, working with Jim Hutchieson. This was in the very early days of MRI research, with Aberdeen at the forefront and I was very excited to become involved.”

The first-ever MRI machine had been developed during the 1970s, with the first patient – a man from Fraserburgh – successfully scanned in 1980, just three years before David arrived.

Since that first breakthrough 39 years ago, the technology has emanated out from the Granite City and MRI machines have become a vital diagnostic tool in every major hospital. MRI has come a long way since then. Generally it has been gradual progress towards bigger, more powerful, more reliable machines.

David’s team has now taken magnetic resonance imaging in a radically new direction – a direction many thought a blind alley – and is coming up with great results.

Under his guidance, a team led from Aberdeen and spanning nine European locations has brought the machine and the requisite theory on in leaps and bounds.

In 2016, the EU provided nearly 7 million euros for a four-year research project called Identify.

David said: “We currently have a second prototype scanner that has been built up over the last decade.

“During the Identify project we’ve been perfecting various parts of it. The project has allowed us to bring in the best experts from

around Europe and achieve things that no single group could ever have done alone.

“A theoretical group in Poland helps us understand the signals, using data from labs in Germany and Italy. Electronics experts in Helsinki, Italy and France developed the improved power supply and magnet control.

“Academic partners in France, who initiated the project with us, work with us to improve the scanner software and control its magnetic field.”

Tremendous results have been achieved already from scanning stroke patients and a study on patients with brain cancer has recently begun. Plans are progressing to begin to scan patients with breast cancer.

The Identify part of the development is coming to an end this year, but the next stage is to build a scanner within the hospital buildings.

A large private donation has come in, a demonstration of the team’s eminence in global science.

This money will “facilitate the installation of the new machine and will also fund the employment of a new lecturer in Medical Physics, who will be integrated into the team”.

David said: “Having spent more than 35 years working with my colleagues and research collaborators on the development of new scanning technology, it is very gratifying and incredibly exciting for me to see the work finally coming to fruition, with our FFC-MRI scanner being used to scan patients in Aberdeen.”

Professor Lurie and his colleagues are now seeking funding to allow them to complete a fully-functioning, patient-friendly scanner within Aberdeen Royal Infirmary itself, maximising the impact of their research both locally and on the international stage.

“**THE PROJECT HAS ALLOWED US TO BRING IN THE BEST EXPERTS FROM AROUND EUROPE AND ACHIEVE THINGS THAT NO SINGLE GROUP COULD EVER HAVE DONE ALONE**”



## MY LIFE KRIS DREVER

Musician Kris Drever performs with the Kris Drever Trio in the HebCelt main arena on Friday July 19 and is at An Lanntair, Stornoway, with Willie Campbell and Arthur Nicolson in the Between Islands concert on Saturday July 20

### First record bought?

I remember being given a Spike Jones and his City Slickers album when I was about eight by my gran. I also remember buying a single when I was very young: Ice Ice Baby by Vanilla Ice. Ironically not that cool.

### Book that changed your life?

Maybe the most thrilling was Lanark by Alasdair Gray, such sophisticated, mysterious Scottishness.

### Most expensive purchase?

Ach, a guitar or a car probably.

### First job?

A dogsbody in a bakery. It was a part-time job when I was at school. I had a few before I went full-time at music.

### Favourite time of day?

Whenever everything’s going OK.

### Last time you cried?

The birth of my daughter which, at the time of writing, was nine days ago.

### Worst fashion faux pas?

I’ve never been stylish so I’ll go with my teens, 20s and 30s.

### Favourite holiday destination?

New York.

### Idea of holiday hell?

I don’t think I’d ever look askance at a holiday, but I’ve never fancied a cruise.

### Biggest phobia?

I don’t like fascists. They scare me. They make me feel like my natural feelings for other people are unfounded. I’m a sociable guy but those folk have weaponised some of the most negative emotions around and feed off them.

### What are you watching on TV?

I just watched the Netflix film about Christopher Jeffries.

### Favourite movie?

Fargo by the Cohen Brothers. I always think it’s what a whodunnit would be like if it was set in Orkney.

### How do you relax?

By playing music or reading. I like games too and have recently revisited chess after a three-year absence.

### Best advice you’ve been given?

Pay attention.

### Who you last spoke to on the phone?

My mother-in-law.

### First thing you did this morning?

Played with Lego.

### Worst mistake?

I don’t know if I think there are mistakes.

### Your inspiration?

People whose enthusiasm never seems to flicker.

### Would most like to meet...?

I’d like to have met Bob Dylan in the early 60s.

### Childhood crush?

Tanita Tikaram.

### Wierdest fan gift?

I once had a birthday while on tour in Japan. I must have been given 10 bottles of good Champagne and I was only there a couple more days. I ended up standing out on the street in Tokyo outside my hotel giving it away in plastic cups.

### Quirky habits?

How would I know, they’re not likely to appear quirky to me...

### Worst meal?

I once had macaroni and cheese at a place with pretensions that was so bad I was genuinely angry.

### What makes you laugh?

Lots.

### Sean Connery or Daniel Craig?

Sean Connery.

### Beauty is?

Good design.

