

Pioneering graduates break through the ages

Scientific innovation has always been important in UCD, writes **Claire O'Connell**

A low-dose aspirin a day can help keep a heart attack at bay, but it was a UCD medical graduate who was central to figuring out why. And for innovations as diverse as battery-driven trains, the Shannon hydroelectric scheme and a cure for leprosy, we also have to thank pioneering UCD graduates of medicine, science and engineering; disciplines that have had a strong presence at Earlsfort Terrace.

One of the most recent high-profile breakthroughs came in the 1990s when Prof Garret FitzGerald, who studied medicine at UCD, worked out the molecular details of how low doses of

aspirin can make the clot-forming blood platelets less sticky and help protect people who are at risk of a repeat heart attack.

"His work has had a huge impact on our understanding of inflammatory processes," says Dr Patrick Felle, a senior lecturer in healthcare informatics at UCD.

Prof FitzGerald, who is now at Pennsylvania State University in Philadelphia, also pointed out the potential heart-attack risks of taking other types of non-steroidal anti-inflammatory drugs, which were eventually withdrawn from the market, adds Dr Felle.

Other pioneers of medical science include UCD chemistry graduate Dr Vincent Barry, who set about looking for a cure for tuberculosis (TB) in the 1950s. To this end the Corkman's team made and tested hundreds of chemical compounds. They discovered one that had no effect on TB but could combat the bacterium that causes leprosy instead.

At the time the compound was costly to make and difficult to work with, but today it remains an important component of multi-drug treatment of leprosy.

The most globally recognised UCD graduate is probably Tipperary-born physiologist Edward Conway, who studied medicine and later became professor of biochemistry and pharmacology at the college. He figured out how cells move ions across their membranes to generate electric potentials, a fundamental process that underpins many events in the body.

Conway is thought to have narrowly missed out on a Nobel Prize following his description in 1941 of how cells keep different levels of ions on either side of their membranes.

"Conway did the original work on calcium channels and how things get across cell membranes," says Dr Felle. "He was a pioneer."

And where Conway figured out the currents of microscopic cells, another UCD graduate had plans for generating electricity on a larger scale. Engineer Dr Thomas A McLaughlin was the brain behind the Shannon hydroelectric scheme in the 1920s, explains UCD's current dean of engineering, Prof Gerry Byrne.

Drogheda-born McLaughlin

had gone to work with Siemens in Berlin and, while there, he saw the potential of generating electricity from the Shannon. He convinced his employers and the Irish government to undertake the project, which would cost around one fifth of the national budget. A feat of engineering was born at Ardnacrusha that provided much needed employment and led to the ESB being established.

"He was the brains behind it basically, he was the innovator for the whole project," says Byrne. "At the time it was one of the largest generation systems developed internationally, it was a huge project. And for Ireland in particular it was massive. Even today it's still amazing what they were able to achieve in those years."

While electrification drove the Irish economy forward, another UCD graduate looked to power the much-needed transport system. James Drumm developed an alkaline battery to power specialised, tram-like trains that recharged at stations at the end of each run. "Drumm trains" operated between Dublin and Bray in

the 1930s, and while the second World War and the rise of diesel trains effectively scuppered the technology's growth, Drumm is still considered an important innovator, according to Byrne. "At that stage, the whole development was at the leading edge and he had an international profile in terms of his achievements," he says. "But it takes a whole lot of things for an invention to come to fruition, and the politics of the day is important."

A more recent UCD invention that did blossom internationally is a vehicle suspension system designed by the late professor of mechanical engineering Seamus Timoney. His team's independent wheel suspension approach led to the development of vehicles for the Irish army in



Dr Austin Mascal, left, presenting Prof Garret FitzGerald with the Boyle Medal by for outstanding contribution. Photograph: Eric Luke

1975, and has since been used by militaries all over the world and for specialised emergency service vehicles, including fire tenders at airports. "The main feature is the uniqueness of the suspension system they designed. Each individual wheel has its own suspension," explains Byrne, who took over Timoney's post at UCD.

He notes that compared with former decades, research at UCD has now become more team-based, with a focus on commercialisation. There's a very strong drive for innovation in UCD," he says.

"Most of the projects have an objective. The question is asked: can this be commercialised? The main thrust is much stronger now than in those days."