The Building of the State

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Science and Engineering with Government on Merrion Street

www.ucd.ie/merrionstreet

Introduction

Although the Government Buildings complex on Merrion Street is one of most important and most widely recognised buildings in Ireland, relatively few are aware of its role in the history of science and technology in the country. At the start of 2011, in preparation for the centenary of the opening of the building, UCD initiated a project seeking to research and record that role.

As the work progressed, it became apparent that the story of science and engineering in the building from 1911 to 1989 mirrored in many ways the story of the country over that time, reflecting and supporting national priorities through world wars, the creation of an independent state and the development of a technology sector known and respected throughout the world.

All those who worked or studied in the Royal College of Science for Ireland or UCD in Merrion Street – faculty and administrators, students and porters, technicians and librarians – played a part in this story. All those interviewed as part of this project recalled their days in the building with affection and pride. As chair of the committee that oversaw this project, and as a former Merrion Street student, I am delighted to present this publication as a record of UCD's association with this great building.

Professor Orla Feely
University College Dublin

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Foreword

For most of its hundred-year life, the Government Buildings complex on Upper Merrion Street housed science and engineering research and education alongside the exercise of government. The complex was originally designed to accommodate the Royal College of Science for Ireland as well as government activities transferred from London to Dublin. By the mid-1920s the College had been absorbed into University College Dublin (UCD), and the complex housed the headquarters of government of an independent Ireland.

As the emerging State asserted its independence, the engineers and scientists of UCD in Merrion Street were to the forefront in the practical expression of that independence. This commemorative publication records some examples of their research, such as the development of replacements for imported coal in the 1930s and of penicillin from sea moss in the 1940s. As the country's industrial ambitions grew, so too did the scale and scope of the research in Merrion Street, and the scientists and engineers educated there played a vital role in creating a technologically-advanced Irish economy.

At the same time, and within the same complex of buildings, politicians and administrators worked to develop and build the mechanisms of government. The Departments of the Taoiseach and Finance and the Attorney General's Office maintain their institutional presence in the complex to this day, with other Departments, such as Justice and Agriculture, having also been housed there at times. All the formal decisions of the State have been taken in the council chamber in the north block, which has been the seat of government since 1922.

This connection between the State and the University has continued and thrived over the decades. The contributions made by scholars, academics, science and engineering graduates, administrators and politicians who have graced the portals of this complex in their myriad ways are many and varied. Some are well known and recorded in history; others are not yet written about. All deserve acknowledgement.

Within the Merrion Street complex, generations of scholars and students studied, created, invented and adapted while generations of political leaders and officials determined the policies that have shaped modern Ireland. This commemorative centenary publication is an acknowledgement of the contribution all have made in and to The Building of the State.

Enda Kenny TD
Taoiseach

Dr Hugh Brady
President, UCD

The Royal College of Science for Ireland

In the early years of the nineteenth century, scientific research and teaching in Ireland were conducted in a variety of institutions. These included scientific societies such as the Royal Dublin Society (RDS), Royal Irish Academy, Royal Cork Institution and the Belfast Natural History Society, the medical schools and Ireland's only university at the time, the University of Dublin. Public lectures on scientific subjects were given throughout Ireland by the leading scientists of the day, reflecting and stimulating a growing popular interest in science within the country. This interest was encouraged by regular exhibitions of Irish industry, organised by the RDS from 1834, and especially the Great Industrial Exhibition of 1853, organised by the society at its headquarters on Leinster Lawn and visited by over a million people.

Irish scientists such as Robert Kane (1809-1890), who saw science and industrial education as the best way to improve the economy of Ireland and the living standards of its people, encouraged this popular interest. Kane was director of the Museum of Irish Industry in Dublin and its associated Government School of Science (opened in 1854), intended to provide education in applied science 'such as chemistry applied to the arts, or metallurgy or geology applied to mining, or any other department of science applied to the arts'. Kane ensured that, at the Museum, 'the rivalries of creeds and parties [would] find no admission', and from the beginning women attended the courses on offer there and competed in examinations and for prizes on the same footing as men.

Above: Robert John Kane (1809-1890)

In 1867 the Museum of Irish Industry became the Royal College of Science for Ireland (RCScI) at 51 St Stephen's Green. The new college was more formal and academic than its predecessor but the Museum's

Left: Great Industrial Exhibition, Leinster Lawn, Dublin, 1853

approach to science education, linking classroom and laboratory teaching, continued in the new college. Kane was appointed as dean, with a staff consisting of professors of physics, chemistry, applied chemistry, geology, applied mathematics, botany, zoology, agriculture, engineering and mining and metallurgy. The professors of the college were eminent in their respective fields of science and, despite their heavy teaching loads and the limited facilities in the building, continued their scientific writing and research at the college. They contributed to scientific initiatives in Ireland, and many of them travelled widely in pursuit of scientific knowledge.

The qualification offered at the college, an Associateship of the Royal College of Science for Ireland (ARCScI), was awarded on completion of three years of study to successful students. Although the number of students who completed this qualification was disappointingly small, the option of taking one or more courses as occasional students proved far more popular. As in the Museum of Irish Industry, courses were open to all, and women students attended the college from the beginning. By the 1880s about one sixth of the students were women.

The twentieth century brought changes to the Ireland in which the college professors researched and taught. The political and cultural environment changed rapidly with the development of a new style of Irish nationalism. In 1900 responsibility for the college was transferred from London to a new Irish department, the Department of Agriculture and Technical Instruction (DATI), headed by Sir Horace Plunkett with a mission to promote economic and technical development. The curriculum was revised, new subjects were introduced, fellowships were established and a new building was approved. Student numbers increased, but not to the extent anticipated, possibly due to the establishment of the National University of Ireland in 1908 with University College Dublin as a constituent college.

UCD – The Early Years

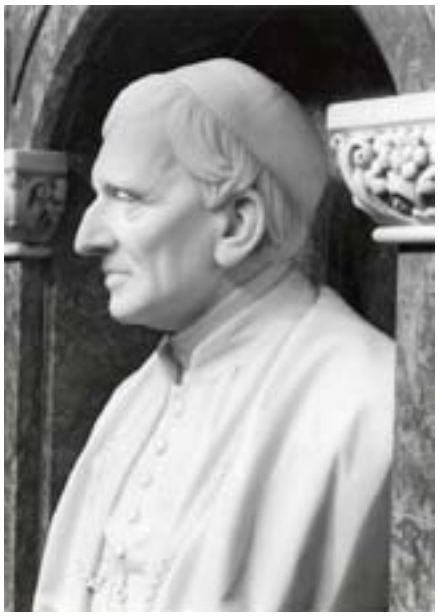
Established by the Catholic hierarchy as an alternative to the non-denominational Queen's Colleges, the Catholic University began its first academic session on 3 November 1854, with John Henry Newman as its first rector. The new university was housed in an old Georgian house, 86 St Stephen's Green, and the following year the Catholic University medical school was opened in Cecilia Street. The recognition of certificates of this school by the Royal College of Surgeons in 1856 ensured its success, and by 1900 it had become the largest medical school in Ireland. However, after the departure of Newman in 1858 the Catholic University itself struggled for survival. Its degrees were not recognised by the British government and it did not receive any state funding.

The situation changed in 1880 when the Royal University of Ireland (RUI) was established and students of the Catholic University were entitled to sit the Royal University examinations and receive its degrees. In 1883 the management of the Catholic University, apart from the medical school, was transferred to the Jesuits and its title was changed to University College. Although competing with students of the more established Queen's Colleges, its students won the majority of the prizes in the RUI examinations. Despite equipment and laboratory constraints

in the old Catholic University building, the work of professors such as Thomas Preston, John Alexander McClelland and Arthur Conway established the name of the university in the annals of scientific research. Among the humanities staff of the university were teachers of the calibre of Gerard Manley Hopkins, and its most famous graduate was James Joyce.

In 1908 the Irish Universities Act dissolved the RUI and replaced it with the National University of Ireland, with University College Dublin (UCD) as a constituent college together with University College Cork and University College Galway. The somewhat rundown Earlsfort Terrace headquarters of the RUI, together with the laboratories there, were transferred to UCD, and funding of up to £110,000 was promised for improvements.

Plans for a new building on the site, intended to accommodate 1,000 students, were drawn up in 1912. They proposed a quadrangle that would accommodate the university administration, lecture theatres for the faculties of arts, commerce and law, and lecture theatres and laboratories for the departments of physics, chemistry, anatomy, physiology and pathology. The planned building would never be completed. By 1919 the front and north blocks of the quadrangle had been built, but inflated wartime construction costs meant that funding had run out and work stopped on the remainder of the planned complex.



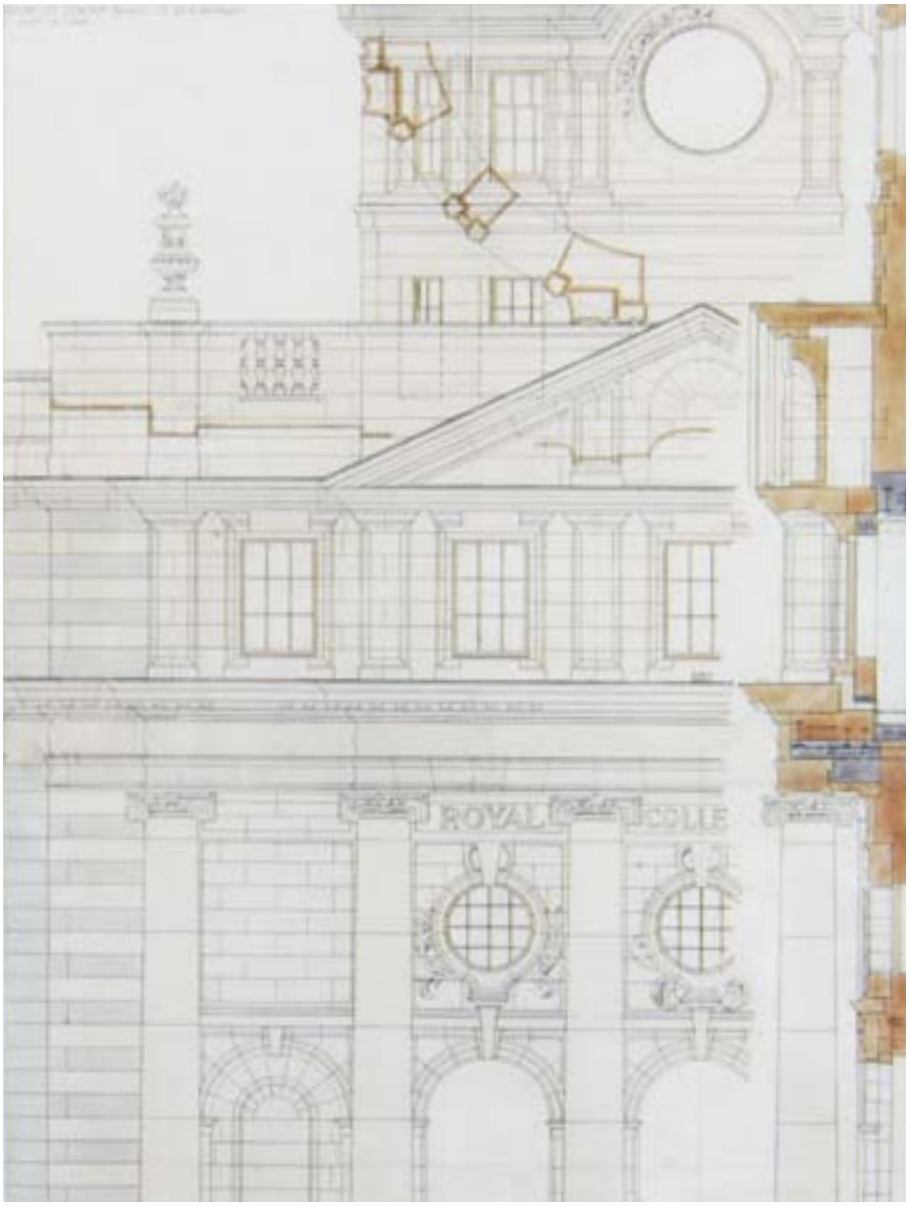
Opposite page: UCD BA class of 1902, with professors. The class includes James Joyce (standing, second from left) and Felix Hackett, later professor of physics and electrical engineering (front row, left)

Above: John Henry Newman (1801-1890)

Above right: Newman House, 85-86 St Stephen's Green, former home of the Catholic University

Right: The former UCD building on Earlsfort Terrace

The New Building

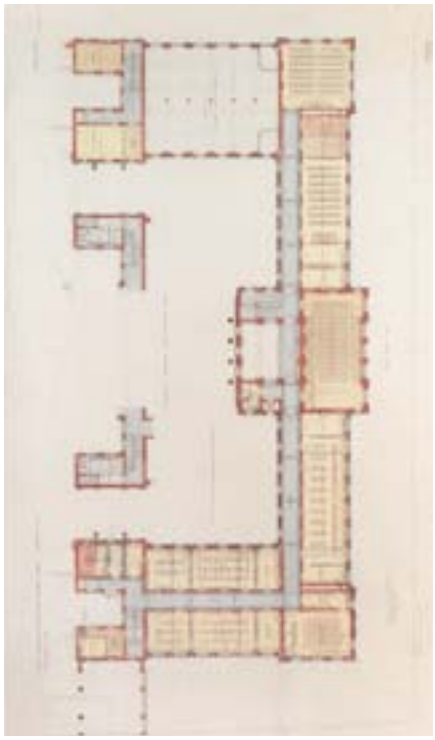


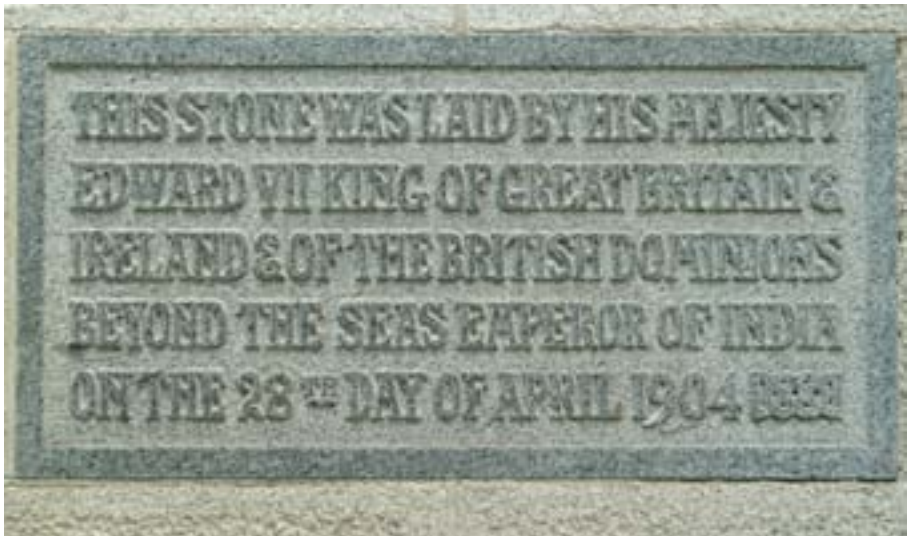
Above: Section of centre block to quadrangle

'Let us see that our buildings are beautiful, as beautiful as we can make them, and with a beauty that tells of our time.'

Aston Webb

By the end of the nineteenth century the research and teaching facilities of the Royal College of Science for Ireland (RCScI) in its St Stephen's Green premises were no longer adequate. Constant complaints from the college's council about the severe overcrowding in the building led to the establishment of a government committee to assess the accommodation requirements for the college. The committee's conclusions, published in 1899, were that the existing buildings were not suitable, that a new college building would be required and that a central Dublin site 'contiguous to the museum buildings' would be most appropriate. The site the committee suggested was one extending from Merrion Street to Kildare Street. The proposed location did not change, but by the following year the general layout had been revised to include accommodation for new government offices. The revised layout of the proposed RCScI complex had a wide frontage on Merrion Street with the college building itself set back within a quadrangle – an important consideration, as the vibration from





Left: First floor plan

Above: Foundation stone

traffic in a busy city street might interfere with the adjustment of delicate scientific instruments.

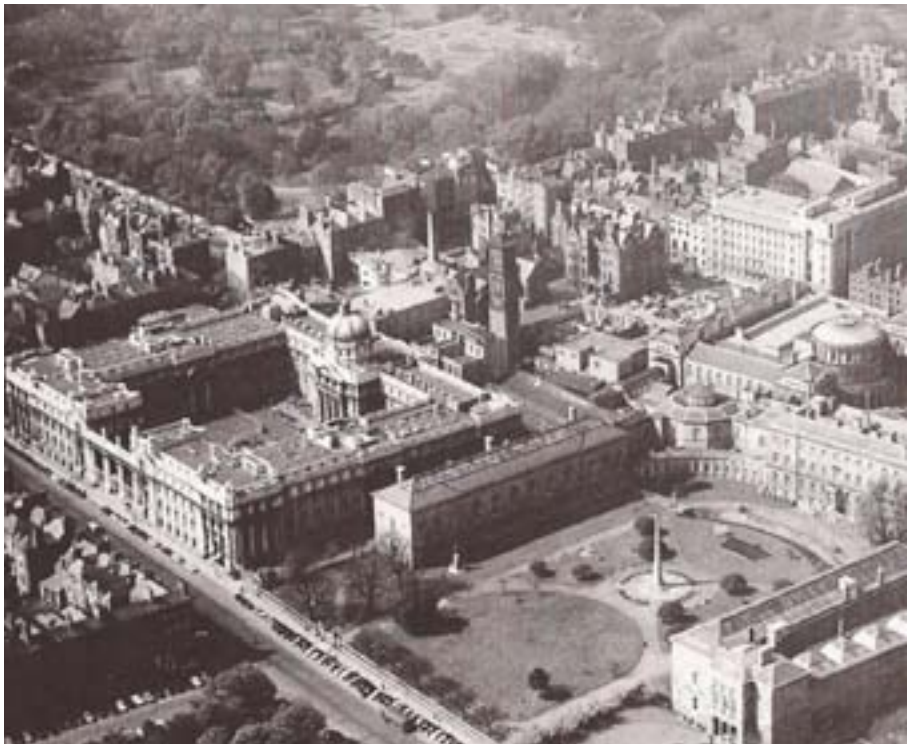
£225,000 was allocated for the new college, and in March 1904 the London architect Aston Webb and the Irishman Thomas Manly Deane were appointed joint architects. Both men had experience in designing public buildings. Webb had designed the Royal College of Science and the Victoria and Albert Museum in London (and was later to re-design the principal facade of Buckingham Palace) and Deane had partnered his father as architect for the National Library and National Museum in Dublin.

There were some local objections to the proposed demolition of a row of Georgian houses in Merrion Street, but even more public concern that the architects, surveyors and builders should be Irish and that the materials used for the building should be sourced in Ireland. Representations were made to the administration in Dublin Castle, to government departments and by the Irish MPs in the Westminster parliament. The Belfast building firm of McLaughlin and Harvey successfully tendered for the construction contract. Two surveying firms, one based in London and one in Dublin, were appointed as joint surveyors for the building, and one London and one Dublin firm were employed as electrical consultants. With the exception of the Portland stone used for the facade and the Sicilian marble paving for the corridors, Irish brick and stone were used for the building.

King Edward VII laid the foundation stone for the new college building on 28 April 1904, at a cost to the building project of £1,176-5-1, and Webb and Deane submitted their plans for the new complex in 1906. Five years later, at a final cost of more than £250,000, the new RCScI building was completed

and ready for occupation. It occupied the western and part of the northern and southern sides of a quadrangle, the remaining sides of which were to be government offices. The exterior of the college was in the 'Edwardian baroque' style; the intention of the architects was to continue the classical tradition of Dublin's eighteenth-century public buildings. The imposing front facade was surmounted by a dome, under which was a clock 'the four faces of which can be seen from distant parts of the city'. Oliver Sheppard and Albert Power provided the sculptures, with the main entrance flanked by statues of the great Irish scientists Robert Boyle and William Rowan Hamilton and overlooked by a figure representing Science. Within the building there were four storeys of lecture theatres and laboratories with all the most up-to-date apparatus for scientific experiments (at an estimated cost of £15,000). Electricity was to be used for light, there were elevators, and although many of the rooms were furnished with fireplaces there was also a central heating system.

Behind the main entrance hall was a large lecture theatre with seating for 200 people. On the south side of the building a chemistry laboratory extended through two storeys. There were other laboratories for electrical engineering, chemistry, botany, zoology, geology, agricultural chemistry, agricultural botany and bacteriology and various engineering workshops. Behind the new building an additional block included a laboratory for mechanical engineering. Under the dome were the students' common room and smoking room and the library, intended not only for the staff and students of the college, but also for members of the public with an interest in science.



Above: Aerial view of the complex on Merrion Street and its surroundings

With great pomp and ceremony the new home of the Royal College of Science for Ireland was opened on the afternoon of Saturday 8 July 1911 before an audience of over 1,000 people. King George V, who with his wife, Queen Mary, was on a state visit to Ireland following his coronation as King of the United Kingdom and the British Dominions and Emperor of India, performed the opening ceremony.

Under the direction of the Ulster King of Arms, Nevile Wilkinson, the ceremony was arranged with great care and detail. A reception pavilion capable of seating over 1,000 guests was erected in front of the new college building. When the royal party arrived they were met by the Chief Secretary for Ireland, Augustine Birrell, while the band of the Irish Guards played 'God Save the King'. Government officials and professors of the college were then presented to the king and queen.

BLOCK **B**

Row **P**

Seat No. **337**

CEREMONY

AT THE

OPENING OF THE NEW ROYAL COLLEGE OF SCIENCE, DUBLIN,

BY

His Majesty King George the Fifth,

Accompanied by Her Majesty The Queen,

ON SATURDAY, the 8th JULY, 1911,

at the hour of 2.55 o'clock, p.m.

Admit Mr Michl Moynihan

This Ticket is available for one person only, and is not transferable. No one will be admitted before 2 p.m. or after 2.40 o'clock, p.m. Carriages will set down at No. 5, Upper Merrion Street. Morning Dress.

Ceremony

TO BE OBSERVED

AT THE OPENING OF THE ROYAL COLLEGE OF SCIENCE BY HIS MAJESTY THE KING, ACCOMPANIED BY HER MAJESTY THE QUEEN, ON SATURDAY, JULY 8TH, 1911.

The Ceremony will take place on a Dais in the Quadrangle surrounded by seats for invited Guests.

The Officials and Guests invited to the Ceremony will arrive at the Merrion Place Entrance at 2.0 p.m., and will be shown to seats specially reserved for them.

The King and Queen will leave The Castle at 2.45 p.m., attended by the Household in Waiting and escorted by a Captain's Escort of the 5th Dragoon Guards, under the Command of Captain M. A. Black.

FIRST CARRIAGE (Four Horses).

THE KING. Two Equerries Riding.

THE QUEEN.

SECOND CARRIAGE (Pair).

The Suite in Waiting.

One of the architects, Thomas Deane, was presented to the king, who 'conferred on him the honour of Knighthood'. George V then announced his intention to confer a similar honour on Professor Walter Hartley, dean of faculty, who was unable to be present owing to illness. A bouquet of roses and a frame containing photographs of the foundation stone were presented to the queen by daughters of the builders. A builder's mallet made of Irish bog oak mounted on gold was presented to the king on behalf of the contractor and of the workmen who had been employed on the building.

To a flourish of trumpets the king formally declared the Royal College of Science for Ireland open, the gold key used for the purpose being presented to him by the Board of Works. The royal party then made a tour of the ground floor of the building, and on their departure were 'enthusiastically cheered by the crowds on the roof of the College'. The formal grand opening lasted just over thirty minutes and cost £1,080-16-2. The Irish Board of Works tried to avoid footing the bill of £555 for the reception pavilion – eventually the British Treasury paid this part of the cost.

Left: Invitation to the opening ceremony, addressed to Michael Moynihan. Moynihan joined the British army in 1914, and was killed in France in 1918. His brothers Séan and Maurice both later served as secretary to the Executive Council and secretary to the Government / Department of the Taoiseach.

Above: Programme for the opening ceremony

1910–1920

The commencement of studies at the Royal College of Science for Ireland in its new home in Merrion Street in October 1911 reflected the ambition of its fellows to 'fulfil a wider usefulness for the country'. The commencement was attended by officials from the Department of Agriculture and Technical Instruction along with the professors, lecturers and the cohort of 141 students. Among the faculty were a number of Fellows of the Royal Society, the UK's most distinguished scientific society, including Walter Hartley, dean of faculty, William McFadden Orr, professor of mathematics, and Grenville Cole, professor of geology and mineralogy. In addition to formal courses in chemistry, electro-technology, physics, mathematics, agriculture, geology and mineralogy, botany, zoology and engineering, the RCScI offered summer courses in physics, geography 'on modern lines', chemistry and rural science.

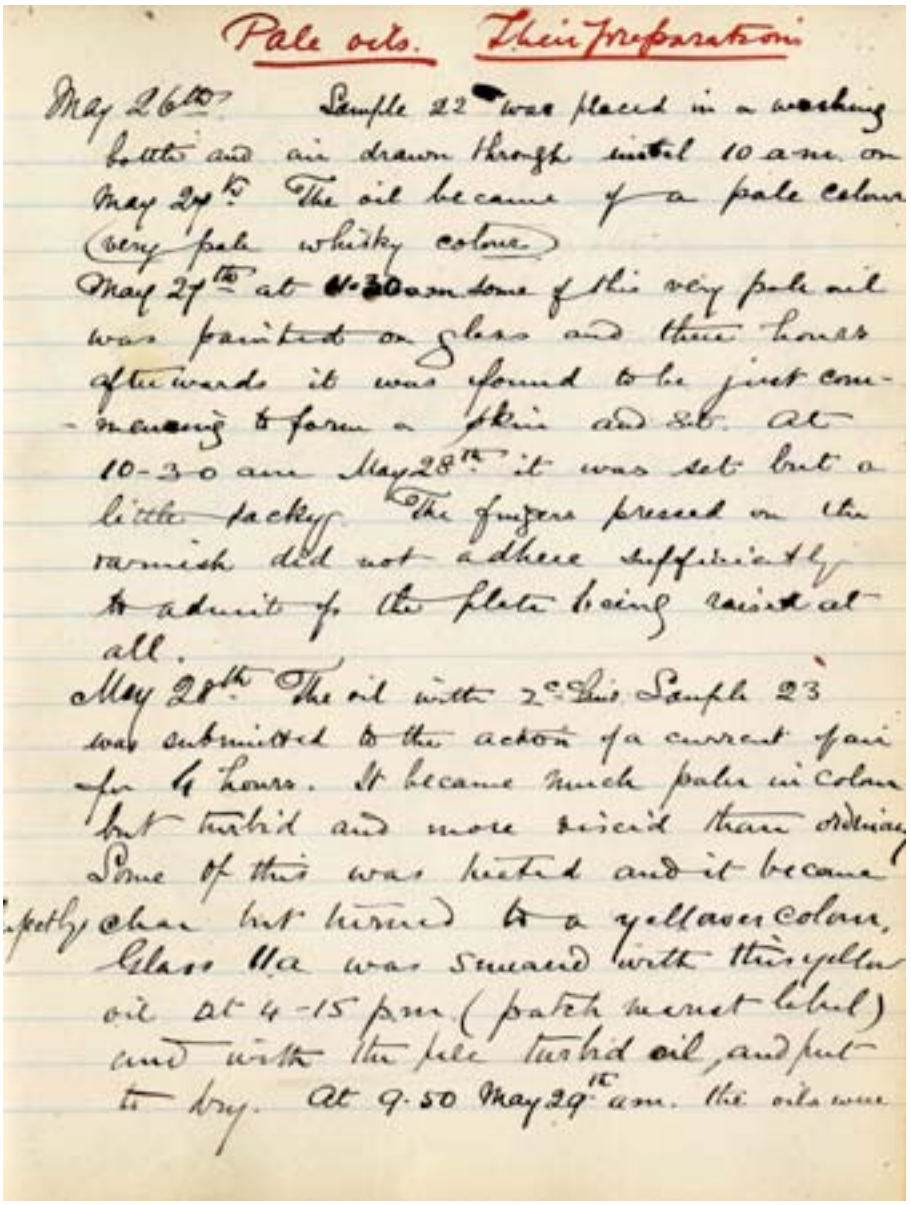
Within three years, world events overtook the plans of the RCScI for its role in Ireland's scientific, educational and national development. Although teaching and research continued, many students and staff enlisted when war was declared in 1914. The main business of the college council for late 1914 was to discuss and support applications of students for temporary commissions. In subsequent years, annual reports of the RCScI noted with regret the names of seventeen students and staff killed in action and also noted significant military awards, such as the Victoria Cross awarded to former student F.M.W. Harvey.

1918 and the end of the first world war saw the return of former students anxious to complete their studies as well as concern about the flu epidemic, which resulted in the suspension of lectures. The college council had anticipated a return to normal education and scientific research after 1918, but the political climate in Ireland after the 1916 Easter Rising was reflected in changes within the college as it entered the next decade.

Sir Walter Hartley

Walter Hartley (1846-1913) was appointed professor of chemistry at the Royal College of Science for Ireland in 1879 and was dean of faculty at the time of the opening of the new building in 1911. A pioneer in the area of spectroscopy, Hartley was the recipient of many international honours. Among his most significant investigations are his work on the relationship between molecular structure and absorption spectra, and his discovery of the absorption of ultraviolet radiation by ozone. Many of his studies addressed practical applications of scientific research, covering subjects such as dyes for the Irish textile industry, studies for the brewing and distilling industries and chemicals for the prevention of potato blight.

Hartley was knighted in 1911. The conferral was to have taken place at the opening of the new college building, but he was unable to attend due to ill health. He retired that year for health reasons and died two years later. Hartley and his wife, the then popular novelist Mary (May) Laffan, had one son, Walter John, a former RCScI student who died at Gallipoli in 1915.



Pale oils. Their Preparation

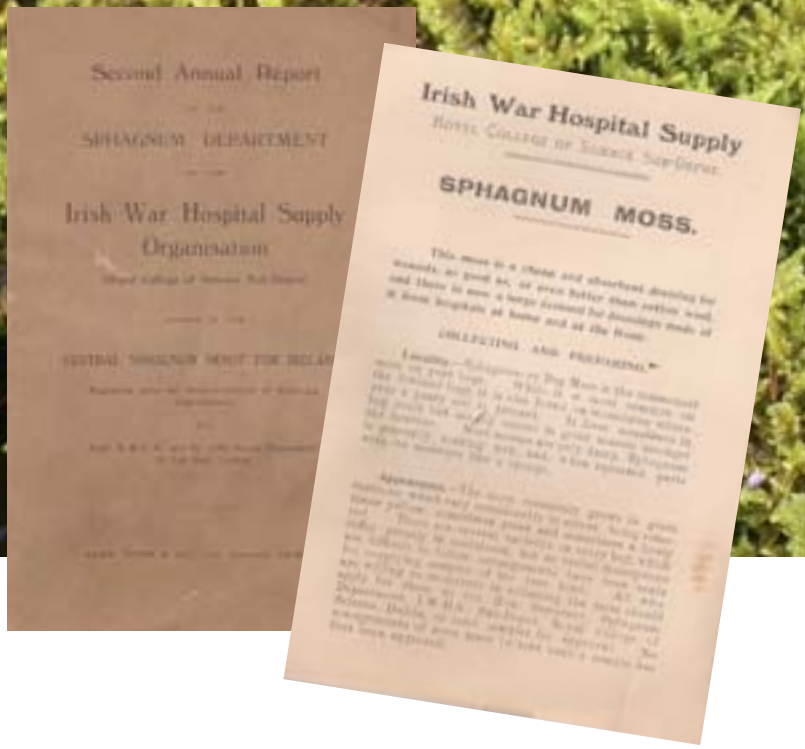
May 26th Sample 22 was placed in a washing bottle and air drawn through until 10 am on May 29th. The oil became of a pale colour (very pale whisky colour)

May 27th at 10.30 am some of this very pale oil was painted on glass and three hours afterwards it was found to be just commencing to form a skin and at 10-30 am May 28th it was set but a little tacky. The fingers pressed on the varnish did not adhere sufficiently to admit of the plate being raised at all.

May 28th The oil with 2cc this Sample 23 was submitted to the action of a current of air for 6 hours. It became much pale in colour but turbid and more viscid than ordinary. Some of this was heated and it became pethy clear but turned to a yellower colour. Glass 11a was smeared with this yellow oil at 4-15 pm (patch nearest label) and with the pale turbid oil, and put to dry. At 9.50 May 29th am. the oils were

Above left: Walter Hartley (1846-1913)

Above right: Page from Hartley's scientific notebook



War effort

Immediately after the declaration of war in August 1914, emergency classes were organised in the college in various branches of military operations and also in first aid. By 1915 the college had two Voluntary Aid Detachment (VAD) Red Cross groups (one for men and one for women), who met hospital ships from the Western Front at Dublin's North Wall and were active in giving aid to casualties of Easter Week 1916. The college building housed the central sphagnum moss collection depot for Ireland, organised and managed by the women's VAD. This moss had been used for centuries as a safe and reliable dressing for wounds. As war casualties mounted, the demand for field dressings increased. By the time the centre closed in 1919 over 900,000 sphagnum moss dressings had been sent to hospitals in various theatres of war.

The RCScI laboratories were employed in research for the war effort, and staff were also involved in various wartime committees for food and fuel. The resources of the college were used for the testing and manufacture of fuse caps and adapters for use with high explosive shells, and airplane turnbuckles were manufactured for the air force. Others were employed in this work in addition to college staff. A significant number of voluntary workers came in at night and at weekends, including barristers, solicitors and court officials from the Four Courts Munitions Association.

Above: Extracts from report of the Sphagnum Department of the Irish War Hospital Supply Organisation, 1916-17

Left: Sophie (now Lady Heath) on arriving in Croydon following her flight from South Africa

Above: Sophie in uniform during her wartime service

Sophie Peirce

Women had attended the RCScI from the college's beginnings, but one of the most colourful of them must have been Sophie Peirce (1896-1939) from County Limerick, who enrolled in 1914. In 1916 she married an army officer, William Eliott-Lynn, and the following year abandoned her studies to join the Women's Army Auxiliary Corps, serving as a motor-cycle dispatch rider in France. She returned to the RCScI in 1920 and was awarded her diploma in agriculture in July 1921.

An enthusiastic and successful sportswoman, in the 1920s Sophie Eliott-Lynn successfully campaigned for the inclusion of women's track and field events in the Olympics. Her fascination with flying also led to her qualifying for a pilot's licence in 1925, successfully campaigning against the ban on women obtaining commercial flying licences. Qualifying as a commercial pilot herself, she later flew as second pilot on KLM's European routes. In February 1928, Sophie (by now Lady Heath) embarked on the flight that made her internationally famous, the first solo flight by a woman from South Africa to England. She arrived in Croyden on 17 May 'dressed as for an afternoon call', having carried with her on her journey a Bible, a few novels, a shotgun, a tennis racquet, some tea dresses and a fur coat.

This was the apex of her career. Surviving a bad air crash in 1929 she continued to fly, but her personal life deteriorated and she died in London in relative poverty in 1939.

Left: The first year physics laboratory

Top right: The electro-technical laboratory

Bottom right: The zoology laboratory

Department of Agriculture and Technical Instruction

With the completion of the new college building, work began on the two wings on either side, intended to provide accommodation for the Department of Agriculture and Technical Instruction for Ireland (DATI) on the south side and the Irish Local Government Board on the north. Temporary accommodation in the college building was given to some of the DATI offices, such as the seed testing station, and from 1914 DATI requisitioned space in the college for food production research.

Construction work on the two wings was delayed by a number of factors. There were disputes over the purchase of buildings on Merrion Street, the 1913 strike in Dublin delayed building work and the outbreak of war in 1914 introduced new concerns and responsibilities for the department. It was 1917 before DATI moved into the south block of the complex. By 1918 the political climate in Ireland had changed radically, and when the north block of the complex was completed in 1922 it became the headquarters of the provisional government of the Irish Free State.

Top right: The old offices of DATI, 1-5 Merrion Street

Bottom right: The new offices of DATI, Upper Merrion Street, July 1917


WE MUST
GET BACK TO THE
COLLEGE OF
SCIENCE
WE WAN
MERRION

1920–1930

The disruption of scholarly life in the Royal College of Science for Ireland that began with the outbreak of war in 1914 continued for almost a decade. Frank Flood, a UCD engineering student who was registered for courses in the RCScI in the 1920-1921 academic year, was executed in March 1921 for leading an attempted ambush of Auxiliaries in Drumcondra in January of that year. He was nineteen years old.

The signing of the Anglo-Irish Treaty in December 1921 promised an end to political conflict and a return to peace in Ireland. The college, by now commonly referred to as the 'College of Science', found itself at the heart of the new state when the provisional government selected Merrion Street for its headquarters in preference to Dublin Castle.

Political events in Ireland were reflected in changes within the college. A number of staff took up the option of retirement as a consequence of the change of government. Many students left the college, including eighteen final-year students who transferred to engineering courses in England. In September 1922, as the college council was planning the new academic year, the provisional government ordered the closing of the college to students 'in consequence of the disturbed state of the country'.

Determined to carry on as much of the college work as was possible, the RCScI accepted UCD's offer of accommodation. For the following two academic years, science and engineering lectures took place in the old Catholic University building on St Stephen's Green. Special arrangements were needed for the admission of students to the electrical engineering laboratories in Merrion Street – approval was conditional on the student obtaining 'a guarantee of loyalty to the Free State from a Senator, T.D., or other responsible person'. Both students and staff protested at the interruption to the normal work of the college, especially at the delay in allowing the college to return to Merrion Street in 1923 following the effective end of the Civil War in Ireland.

However, UCD authorities were already in negotiation with the government about the future of the college and its assets. In 1925 Dáil Éireann took the first steps in transferring the RCScI to UCD, a decision embodied in the 1926 University Education (Agriculture and Dairy Science) Act. The last council meeting of the Royal College of Science for Ireland was held in the council chambers of UCD on 4 May 1926, and the majority of the college staff were appointed as professors and lecturers of UCD from October 1926.

Augustine Henry

Augustine Henry (1857-1930), having qualified in medicine, joined the Chinese Imperial Maritime Customs Service in 1881. During his time in China he became interested in botany and collected specimens of native plants, many of which he sent to the Botanic Gardens in Kew, London. His research, together with his published correspondence and reports, gained him an international reputation as an expert on Chinese flora. However, by the time he left China in 1900, shocked by the rate at which that country was being deforested, his interests had turned to the study of forestry.

In 1907 he gave expert evidence about forestry to an Irish departmental committee, recommending that Irish forestry policy should concentrate on conifer cultivation in commercially viable plantations of more than 500 acres. Following his appointment as the first professor of forestry at the RCScI in 1913, Henry and his wife Alice (Elsie) moved to Dublin, where their home in Ranelagh became a meeting place for a wide circle of friends including the Yeats family, George Russell (AE), Erskine Childers and Evelyn Gleeson.

Henry continued his teaching and research during the war years while Elsie worked with the sphagnum moss detachment at the RCScI, earning an OBE for her efforts. He remained as professor after the RCScI became part of UCD in 1926, retiring the following year. Augustine Henry continued his advocacy of a national plan for forestry to the government of independent Ireland. He was involved in developing the national Forestry Service and is regarded as the father of Irish commercial forestry.

Above: Augustine Henry (1857-1930), painting by Anna O'Leary

Above left: Title page of volume 7 of *The Trees of Britain and Ireland* by H.J. Elwes and Augustine Henry (1913)

Seed testing laboratory

In 1901 the first official seed testing and plant diseases laboratory in Britain and Ireland was established in the Royal College of Science for Ireland. The professor of botany at the college, Thomas Johnson, had since his appointment in 1890 been a strong advocate for the establishment of a seed testing station that would establish standards of purity, pedigree and germinating energy for agricultural seed. Johnson was appointed as the first director of the laboratory, assisted in the early years by a lecturer, George Pethybridge, and an analyst, Rebecca Hensman. In its first year 486 samples of seed were tested. As the station's responsibilities expanded the number of staff increased, and the station transferred to new and better equipped accommodation in Merrion Street in 1911.

By 1918 Pethybridge was director, with two assistants, Henry Lafferty and Paul Murphy, and twenty-three staff who between them tested 12,487 samples. Pethybridge received the 1921 Boyle Medal, the highest scientific honour of the Royal Dublin Society, in recognition of his research into potato diseases. When Pethybridge resigned in 1922 with the change of government he was succeeded by Lafferty as head of seed testing. Murphy took over the plant disease division, and was appointed professor of plant pathology when this activity transferred to UCD in 1927. He received the Boyle Medal in 1933 for his research into plant viruses.

Over the years the role of the seed testing laboratory was to undergo fundamental change, especially when Ireland joined the EEC in 1973, but it maintained its links with the university and remained in Merrion Street until it transferred to Abbotstown in 1990.

Above: Seed testing laboratory, Merrion Street

Left: *Upstream of Powerhouse with Drilling Gang and Wagon Train*, Seán Keating

Above: Shannon scheme

The Shannon scheme

Thomas McLaughlin (1896-1971) was a graduate of UCD and UCG, and also attended courses in practical engineering subjects in the RCScI in Merrion Street. As a young engineer in the 1920s he promoted and led the Shannon scheme for the electrification of the Irish Free State, then one of the largest civil and electrical engineering projects in the world. He also served as the first managing director of the Electricity Supply Board.

While working for Siemens-Schuckert in Germany, McLaughlin had studied the electricity networks there and had investigated the potential application of these technologies in an Irish context. On his return to Ireland he devised a hydro-electric scheme based on the River Shannon, and persuaded the Minister for Industry and Commerce, Patrick McGilligan, of the potential national benefits of the undertaking. Despite opposition, the government voted £5.2 million for the scheme and Siemens were awarded the contract. Work on the Shannon scheme began in August 1925 and was completed, nearly on schedule, in July 1929. At its peak the scheme employed 4,000 Irish and 1,000 German workers. Eighty-seven steamers carried some 30,000 tons of equipment into Limerick for the project and sixty miles of temporary railway carried the equipment to the construction site.

This huge engineering scheme quickly assumed major symbolic significance for the government, demonstrating to the world that the new Irish state could stand on its own feet. The Shannon scheme was a major success. Electricity consumption in Ireland expanded dramatically in the decades after its completion, just as McLaughlin had envisaged, and it provided the essential framework for the social, economic and industrial development of the country.

The government in Merrion Street

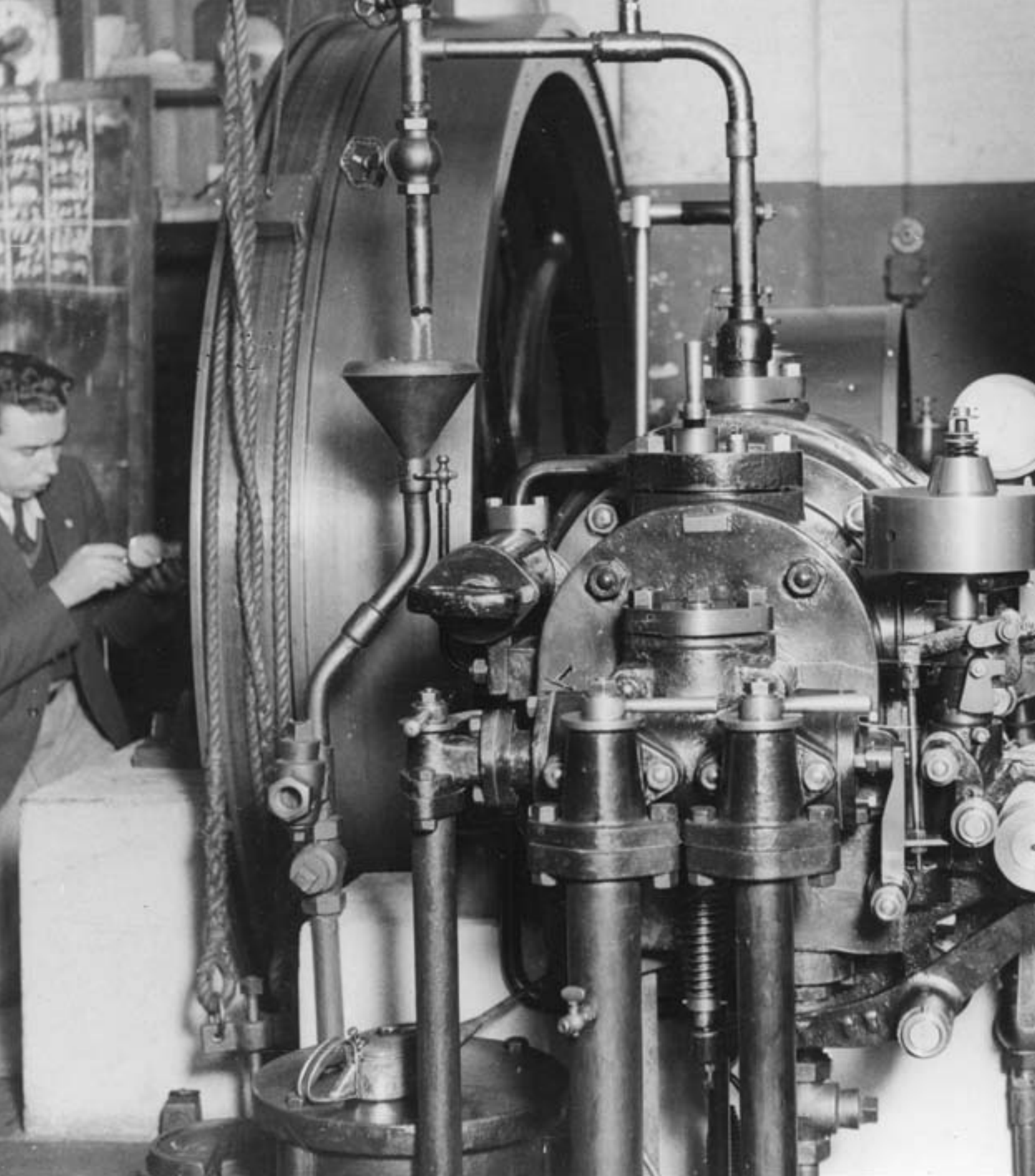
The complex of buildings in Merrion Street was finally completed in 1922 when the north block, originally planned to accommodate the Local Government Board, was ready for occupancy. In March 1922 the provisional government of the new Irish state moved its headquarters from City Hall into the newly completed complex. The decision not to locate government headquarters in Dublin Castle, the seat of British rule in Ireland, signalled a break with the past. The choice of Merrion Street/Kildare Street as the centre of Ireland's government was confirmed in September 1922, when the first meeting of the third Dáil took place in Leinster House, headquarters of the Royal Dublin Society. While this was a temporary arrangement – there were plans to move to the Royal Hospital at Kilmainham – in 1924 the government decided that Leinster House would become the permanent home of the Oireachtas.

The early months in the new government offices in Merrion Street were exceptionally difficult; ministers and officials worked long into the night. The provisional government had to set up an administrative and financial system for the new state and oversee the drafting of a constitution, at a time when opponents of the 1921 treaty threatened the existence of the state. As civil war waged in the streets of Dublin during the summer of 1922, ministers took up residence in their new offices. The Department of Finance later sent them bills for the cost of food. Enforced residence in Merrion Street was essential for security and because of the need for constant meetings of the government: 42 meetings were held between 23 June and the end of July. The most poignant emergency meeting was probably that held at 3 a.m. on 23 August, when the government met to consider the consequences of the death of Michael Collins, chairman of the provisional government.

Despite the turbulent nature of the times, a functioning state was formed. Diarmuid O'Hegarty was secretary to the executive council, which met in the council chamber in the north wing, and principal private secretary to its president, W. T. Cosgrave. Joseph Brennan was secretary of the Department of Finance, located in the south wing, and head of the Irish civil service from 1923 to 1927. Together with his successor as secretary, J. J. McElligott, Brennan set up the Irish exchequer, introduced a system of parliamentary control over public finances and established the office of comptroller and auditor general. He served as chairman of the currency commission from 1927 to 1943, and when that body was superseded by the Central Bank he became its first governor.

Top: The executive council under W. T. Cosgrave meets in the council chamber

Bottom: Detail of 1922 gate to the Merrion Street complex



1930–1940

The 1930s were a time of international economic depression. The Irish Free State experienced its first change of government in 1932 when Fianna Fáil took office, implementing a programme of agricultural and industrial self-sufficiency which set challenges for Irish engineering and science.

By 1930 the engineering school and most of the experimental science departments of UCD had moved to Merrion Street. In the 1926 transfer of all of the 'fittings, furniture, scientific apparatus and other chattels' of the Royal College of Science for Ireland to UCD, the government had retained the accommodation in the building occupied by the state chemist and his staff, as well as the seed testing station. When UCD's department of chemistry moved to Merrion Street, stronger and continuing links were established with the state laboratory, especially as the professor of chemistry, Hugh Ryan, had accepted the position of state chemist two years earlier.

Despite financial constraints and economic difficulties, the range of courses offered to students in Merrion Street increased. Many graduates found employment in new state enterprises such as the Irish Sugar Company, Ceimici Teoranta, the Turf Development Board, the ESB, Radio Éireann and Aer Lingus.

Research in the sciences and technologies continued throughout the decade, often related to the development of Irish industry and Ireland's natural resources. This included experimental work on James Drumm's electric traction battery, research into liver fluke and tests on the possible exploitation and utilisation of one of Ireland's important natural resources – peat. Many of the professors and other staff were involved in initiatives to develop a national scientific and technical infrastructure. They also participated in the activities of Irish and international scientific societies and professional bodies.

UCD's student numbers increased from 1,684 to 2,398 over the decade. In 1933 the university took the first step in acquiring what would become its permanent campus, buying Belfield House on 44 acres 5 km south of Dublin city centre for £8,000.

Left: A turf burning stove under test in a laboratory in Merrion Street

Top right: Fuel committee of 1917, including Hugh Ryan (left) and Pierce Purcell (right)

Bottom right: Peat bog

Peat

The self-sufficiency drive of the 1930s led to renewed focus on the use of Ireland's bog lands as a source of fuel. Two decades earlier Thomas Johnson, professor of botany at the RCScI/UCD, and Hugh Ryan, professor of chemistry at UCD, had pioneered research into the possibility of establishing a peat industry in Ireland. In 1917 Ryan and Pierce Purcell, professor of civil engineering at UCD, were members of a committee charged with making recommendations to the British government on the best method of winning, preparing and using peat as fuel in Ireland. The report was completed at a turbulent time in Ireland's history, but in 1919 a peat committee was established, chaired by Hugh Ryan with Pierce Purcell as an advisor.

The recommendations of this committee were shelved until 1934, when the Turf Development Board was established to develop Ireland's peat lands and create a 'healthy and frugally prosperous industry'. Experiments were carried out in turf-burning stoves and furnaces, and consumers were exhorted to switch to the fuel. Thousands of workers from all over Ireland were recruited during the second world war to produce peat as an essential fuel for industry.

Bord na Móna replaced the Turf Development Board as a commercial company in 1946 and employed many UCD engineering graduates, later to include managing directors Paddy McEvilly, Lewis Rhatigan and Eddie O'Connor. One employee with a colourful background was Konrad Petersen, a native of Latvia who took part in the 1905 revolution there. Petersen graduated from the RCScI in 1913 and returned to Latvia after the first world war. He returned to Ireland after the end of World War II and finished his career in Bord na Móna's experimental research station, developing peat moss as a horticultural fertiliser.

Bord na Móna staff organised and hosted the first International Peat Symposium in UCD Merrion Street in 1954.

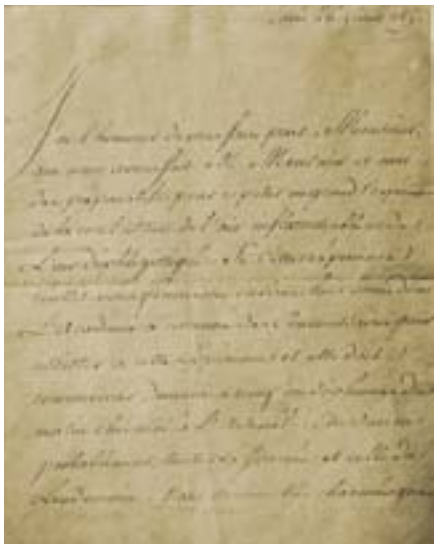
Above left: Drumm train
Above: James Drumm (right) and the Drumm battery

James Drumm

Son of an RIC constable based in Dundrum, Co Down, James Drumm (1896-1974) received a B.Sc. from UCD in 1917 and an M.Sc. the following year. He worked abroad as a research chemist before returning to UCD to conduct research under the supervision of Professor John J. Nolan.

Drumm's doctoral research, in which he developed a rechargeable alkaline battery capable of rapid and frequent charging and discharging, made him famous. With the advent of electricity from the new Shannon scheme, the use of rechargeable batteries in railway traction was particularly appealing to the government, and the Drumm Battery Company was established. Following successful testing, in 1932 the first 'Drumm train' began regular operation from Amiens Street (now Connolly) station to Bray, with charging stations at both ends of the line. The trains were highly valued by the government because they were not reliant on coal. This was important during the economic war with Britain (1932-38) and again during the second world war. The Drumm trains continued to run successfully until 1949, when replacement costs in the face of cheaper alternatives led to the decision to discontinue the service.

Throughout his career, James Drumm continued his involvement with science and industry. He was a member of the Industrial Research Council from its foundation in 1934, of the Emergency Scientific Research Bureau during the war years and a member of the NUI Senate from 1935-59.



The library

Supporting the research of the staff and the constantly expanding range of science and engineering courses offered to students in Merrion Street was the library. When the RCScI library moved into its new custom-built accommodation in 1911 its collection already contained thousands of journals, maps, reports and books in English, French and German, reflecting the diversity of scientific and engineering subjects taught in the college. Amongst the major treasures on display in the library was a letter from the great French chemist Antoine Lavoisier inviting fellow chemist Jacques Charles to attend an experiment concerning the composition of water, staged before an audience of scientific notables to win support for Lavoisier's ground-breaking new theories of chemistry. Lavoisier went to the guillotine in 1794.

Over the years the collections expanded, supporting new courses and the study needs of an increasing number of students. By the end of the 1950s the need to optimise the reading space in the Merrion Street library was so acute that the old study desks, with their green reading lamps, were replaced by utilitarian tables – despite much opposition from staff and students.

In 1989, when the last UCD staff and students moved from Merrion Street to Belfield, the library's collections were amalgamated with the other UCD library material. In recent years, the collections that once comprised the RCScI library have been identified as a significant and unique research resource for the study of the history of science and applied science in Ireland. They are one of the focused research themes of UCD's Irish Virtual Research Library and Archive.

Above left and middle: Letter from Antoine Lavoisier to Jacques Charles

Above right: Woodcut from Georg Agricola's *De re Metallica* (1621), one of the important works in the RCScI library

The state laboratory

The state laboratory was established in 1924 to provide an analytical and advisory service to the government of the new Irish state. It was accommodated in the RCScI (later UCD) building, and shared key personnel with the university.

The first state chemist was Hugh Ryan, professor of chemistry at UCD, who accepted the position in 1924 despite initial reluctance caused by his anti-treaty views. Ryan's research interests at various stages included sugar derivatives, peat and explosives. Thomas Nolan succeeded Ryan, first as state chemist and later as professor of chemistry, and was awarded the Boyle Medal by the Royal Dublin Society for his extensive work on lichens. T. S. Wheeler, Nolan's successor as professor and an influential voice in the development of the chemical industry in Ireland, served as state chemist throughout the second world war.

The state laboratory was based in Merrion Street for almost sixty years, expanding from its origins in revenue and agriculture to cover most areas of government activity that require analytical laboratory expertise. In 1984 the laboratory moved to Abbotstown, Co. Dublin.

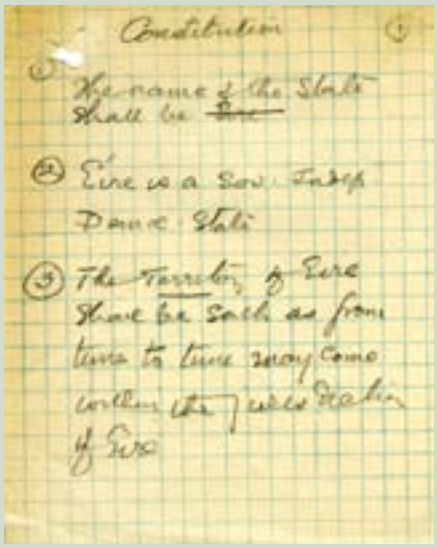
Above: Hugh Ryan (1873–1931)

The government in Merrion Street

The peaceful transfer of power to Fianna Fáil after the 1932 general election confirmed that democratic government was secure in Ireland. Despite initial apprehension on the part of members of the civil service, the transition was relatively smooth. Diarmuid O'Hegarty, secretary to the executive council, became a commissioner of public works and was replaced by John Power (Seán) Moynihan. Moynihan's brother Maurice became Eamon de Valera's private secretary and later served as chairman of the committee of civil servants responsible for drafting a new Irish constitution. This committee, which included John Hearne and Philip O'Donoghue, legal advisers to the Department of External Affairs and the attorney general respectively, conducted its deliberations in the government offices in Merrion Street.

The new government embarked on an ambitious programme of legislation, designed to dismantle the Anglo-Irish Treaty of 1921 and establish a more self-sufficient economy. De Valera's cabinet meetings had much weightier agendas than those in the later years of W. T. Cosgrave's government. Meetings were lengthy, occasionally lasting from 6 pm until the early hours of the following morning. Séan Lemass claimed that de Valera 'relied on the force of physical exhaustion to get agreement'.

In 1937 the new constitution was enacted, abolishing the title 'Irish Free State' and establishing Éire/Ireland as a 'sovereign independent democratic state'. The constitution introduced the title 'Taoiseach'; until 1937 the head of government was known as the President of the Executive Council.



Above: Eamon de Valera's handwritten notes for the 1937 Constitution

1940–1950

The government's decision to remain neutral limited the impact of the second world war on Ireland. Many UCD students enlisted in the armed forces, while UCD scientists and engineers served on the Emergency Scientific Research Bureau, which advised the government on how best to overcome shortages of fuel, raw materials and equipment. During the war years the laboratories in Merrion Street were used for research into the chemotherapy of tuberculosis, typhoid carriers and the production of penicillin, alongside other studies on the viability of substitutes for materials no longer easily available. Other research activities continued throughout the decade, and the Boyle Medal, the highest research honour of the Royal Dublin Society, was awarded in 1942 to Joseph Doyle, professor of botany, and in 1945 to Thomas J. Nolan, professor of chemistry. Another prominent professor in Merrion Street during this period was professor of zoology James Bayley Butler, whose inventions included processes for canning peas, for treating dry rot and for waterproofing maps, the latter the subject of a patent which he sold to the U.S. Army during the war.

The number of students in UCD increased steadily during the war and post-war years, and government funding increased from £82,000 to £124,542 in 1948 to support this expansion. This allowed some improvements in the teaching and research facilities in the college, including the provision of new laboratories in Merrion Street, but UCD was now the largest university in Ireland and the question of accommodation became a serious subject for discussion. The possibility of building on lands adjacent to Earlsfort Terrace was explored, but it was concluded that increasing student numbers would render a city-centre site an unwise investment, and attention focused on the lands in Stillorgan around Belfield House.

Ireland in the post-war years offered new opportunities to science and engineering graduates. The Industrial Development Authority was established in 1949 to encourage industrial development, there were new construction projects, Bord na Móna was expanding its operations and in 1946 the ESB commenced its rural electrification scheme, which was to transform all aspects of Irish rural life over the next decade.

The Emergency Scientific Research Bureau

The coming of war in Europe in 1939 imposed severe restrictions on imports of essential commodities into Ireland. As the Battle of the Atlantic escalated after 1940 there were drastic reductions in the amount of space allocated to Irish cargo carried by British merchant ships. In February 1941 the government set up the Emergency Scientific Research Bureau to give technical advice on problems relating to industrial processes and to advise on the use of native or other materials to replace unavailable imports.

The scientific members of the Bureau were asked to direct or conduct special research on a number of critical issues. These included possible alternatives to petrol for transport, the substitution of wood or peat for imported coal in industry and energy plants, and the possibility of producing iron and steel, fertilisers, explosives, adhesives and medical supplies in Ireland. Of the five members of the Bureau, four were either members of UCD faculties of science and engineering or had strong links with the university. They were J. J. Dowling, professor of technical physics, James Drumm, M. A. Hogan, professor of mechanical engineering, and T. S. Wheeler, state chemist and later professor of chemistry. Much of the research work was conducted in the college's laboratories.

Although Myles na gCopaleen, in the pages of the *Irish Times*, and the Irish satirical magazine *Dublin Opinion* poked fun at the activities of the Bureau, it had some notable successes. One such success was the research undertaken in the botany laboratory in UCD Merrion Street by Drs Oliver Roberts and Diarmuid Murphy to produce an Irish penicillin. Roberts and Murphy began their research in 1943 and by the middle of 1944 had produced a penicillin based on Irish sea moss. By the end of 1944 this 'wonder drug' was available in Ireland and used to treat members of the public – unlike other countries where penicillin was strictly reserved for the armed forces.

Above: 'The Substitutes Research Branch of the Department of Supplies', *Dublin Opinion*, September 1941

Vincent Barry

Vincent Barry (1908-1975) won a scholarship to the RCScI in its last year, transferred to UCD with the merger and graduated in chemistry in 1928. Following a period in University College Galway as assistant to Professor Thomas Dillon, he returned to Dublin in 1943 with a fellowship from the Medical Research Council of Ireland to investigate the chemotherapy of tuberculosis. He set up his laboratory in UCD's chemistry department in Merrion Street and commenced his investigations. The laboratory team grew, with Barry appointed director, and moved in 1950 to larger premises in Trinity College Dublin.

Throughout the course of their work, Barry and his colleagues synthesised and tested hundreds of new compounds. His work on tuberculosis earned him an international reputation, but the contribution that would be his great legacy came when one of the compounds proved highly effective against leprosy, a disease related to tuberculosis. This compound – now known as *Clofazimine* – is one of three components of the multi-drug therapy that has transformed leprosy into a curable disease.

Vincent Barry received the Boyle Medal of the Royal Dublin Society in 1969, awarded for scientific research of 'exceptional merit'. He also served as president of the Royal Irish Academy from 1970 to 1973. In 2008, celebrating the centenary of his birth, the Leprosy Mission presented a portrait of Dr. Barry to UCD president Dr Hugh Brady in recognition of 'one of the greatest Irish humanitarian achievements in history.'

Above: Vincent Barry (1908-1975)

Engineering leaders

Throughout the history of the RCScI and UCD in Merrion Street were numerous professors of engineering who played a role not just in educating the next generation but in building a nation through their ingenuity and innovation. Three of these, Felix Hackett (1882-1970), Pierce F. Purcell (1881–1968) and Michael A. Hogan (1898-1971), made significant contributions to research, education and administration in UCD and to the development of the country's scientific and industrial base.

Felix Hackett was lecturer and later professor of physics at the RCScI. When the college was amalgamated with UCD, he became professor of physics and electrical engineering there, remaining in UCD until his retirement in 1952. One of the best known members of the staff, Hackett took an active part in the educational activities of the university and a personal interest in his students. He also served as president of the Royal Dublin Society and treasurer of the Royal Irish Academy, as a member of the council of the Dublin Institute for Advanced Studies and on committees of the Institute for Industrial Research and Standards.

Pierce Purcell was professor of civil engineering in UCD from 1909 to 1953. He urged greater involvement of engineers in policy-making for public projects in Ireland and earned national renown through his advocacy of peat fuel development. Purcell was a member of the Industrial Research Council and chairman of the Alliance and Dublin Consumers' Gas Company, and worked on the redesign of Butt Bridge in central Dublin in the early 1930s. Later in his career he was one of the key negotiators in UCD's efforts to secure a new campus. He was also one of the country's leading golf administrators.

Michael Hogan joined UCD as professor of mechanical engineering in 1939. He succeeded Pierce Purcell as professor of civil engineering in 1954 and retired in February 1970. He played an important part in the development of the engineering profession in Ireland, in the expansion of engineering courses in UCD and in the development of postgraduate research. He served as member and acting chairman of the Emergency Scientific Research Bureau, director and chairman of the state mining company Mianraí Teoranta, chairman of the Dublin Institute for Advanced Studies and member of the board of the Institute for Industrial Research and Standards.

Clockwise from top left: Felix Hackett (1882-1970), painting by Muriel Brandt; Pierce F. Purcell (1881-1968); Michael A. Hogan (1898-1971)

Rural electrification

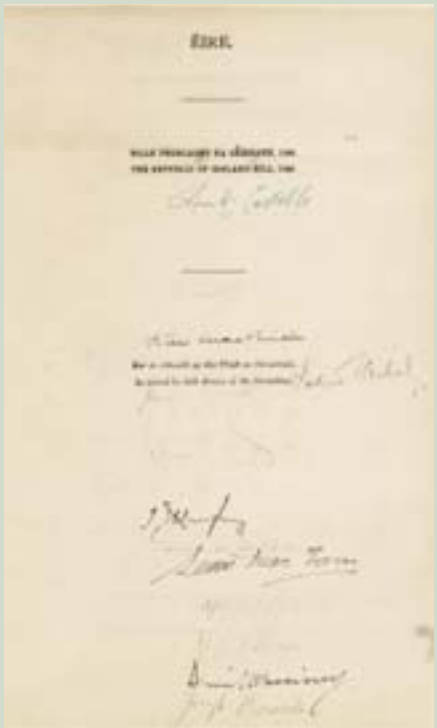
William F. Roe and Patrick J. Dowling, engineering graduates of UCD and the RCScI from the 1920s, led the ESB's rural electrification scheme, which made such a significant contribution to the modernisation of rural Ireland. Identified by the Irish government as a top post-war priority, the scheme commenced in 1946. The Shannon scheme had facilitated the supply of electricity to the cities, towns and larger villages of Ireland, but the outbreak of the second world war had deferred the extension of the network to rural communities. Overall management of the project was the responsibility of Roe and Dowling, two of the most experienced ESB engineers, and at its peak between 3,500 and 4,000 field staff were employed. In parallel with the construction programme went a comprehensive educational and promotional campaign to ensure widespread acceptance and utilisation of the new power. By the end of 1979, when the scheme was completed, over 468,000 homes, farms and businesses in rural Ireland had been connected to the national electricity network.

Above: Erecting the first pole at Kilsallaghan, Co. Dublin on 5 November 1946

The government in Merrion Street

The outbreak of World War II saw a return to heightened security in Merrion Street. The Emergency Powers Act, passed in September 1939, gave the government power to introduce by emergency order any measures necessary for the security, public safety or preservation of the state. In the summer of 1940 there were real fears that Ireland would be invaded by Germany, and an inter-departmental committee was established to draw up contingency plans for maintaining a government in the event of an invasion. Regional commissioners were appointed, and plans drawn up to evacuate many thousands of Dubliners. Happily these plans were not needed, though the threat of British forces seizing Irish ports or of an invasion by US forces based in Northern Ireland preoccupied the government later in the war.

The 1948 general election brought the first change of government since 1932, when the first inter-party (coalition) government came to power under the leadership of John A. Costello of Fine Gael. In 1948 this government broke the last links with Britain and declared Ireland to be a republic with effect from Easter Sunday 1949.



Right: The Republic of Ireland Bill 1948, signed by Taoiseach John A. Costello and members of the Cabinet

1950–1960

The decade began on an optimistic note. The Marshall Plan promised funding and technical support for a programme of investment, and Ireland, now a republic, was investing heavily in housing, arterial drainage, agriculture and rural electrification, all offering promising careers for engineers and scientists. Yet by the mid-1950s emigration had soared, and many graduates were forced to seek careers overseas.

Student numbers in UCD continued to rise, despite the poor employment prospects in Ireland. The Merrion Street building, which had begun life with 141 students, now had to provide classes for more than seven times that number. Pressure on accommodation was slightly relieved when office space occupied by the comptroller and auditor general's department was handed back to the university in 1950. Additional space was provided by adding another floor to the first year chemistry laboratory and rearranging some of the offices, laboratories and workshops. (The workshops of Merrion Street were a distinctive feature of the building, with graduates of many years standing recalling the technicians who facilitated teaching and research activities there.) Lectures were duplicated and laboratory classes had to be repeated up to ten times to cater for the rising numbers. Opportunities to meet and talk outside the classroom were minimal, and one of the few meeting places for students was on the steps of the front hall.

Despite the lack of space, research continued to expand and the range of subjects increased. A degree in chemical engineering was established, with John P. O' Donnell appointed professor of chemical engineering in 1957. The need for increasing specialisation led to the separation of mechanical and electrical engineering, with the first degrees under the new arrangement awarded in 1959.

Many UCD Merrion Street graduates of the 1950s would play significant roles in the economic and industrial expansion of subsequent decades. This included figures such as the McCabe brothers, Liam Connellan, later director general of the Confederation of Irish Industry, chairman of the National Roads Authority and president of the Royal Dublin Society, Tom Hardiman, later director general of RTE and chairman of the Irish Goods Council and the National Board for Science and Technology, and Brian Sweeney, later managing director and chairman of Siemens in Ireland and first chairman of Science Foundation Ireland.

The McCabe brothers

The six McCabe brothers from Ballybay in County Monaghan all qualified with degrees in mechanical and electrical engineering from UCD, funded by scholarships and by financial support from brother to brother. Their subsequent careers reflect the contributions made by UCD engineering graduates of this generation to the development of state and private sectors.

Gerry (B.E. 1946) worked in the air corps and the civil service, and served as Chief Aeronautical Officer. Colum (B.E. 1950) worked in electricity, gas and water utilities for over thirty years, serving as general manager of Dublin Gas. Joe (B.E. 1954) was chairman of the Industrial Development Authority (IDA), Irish Distillers Group and Irish Ropes. Jim (B.E. 1955) managed Glen Abbey plc before moving to Lesotho and South Africa. Vincent (B.E. 1956) spent five years as a primary school teacher before following his brothers into engineering. He became a highly popular professor in the department of mechanical engineering in UCD, and dean of the faculty of engineering and architecture. Frank (B.E. 1957) became vice-president of Intel and of Digital Equipment Corporation, also serving as a director of the IDA and of Science Foundation Ireland.

Above: The McCabe brothers: Colum, Joe, Vincent, Frank, Gerry and Jim

Dervilla M. X. Donnelly

UCD chemistry graduate Dervilla Donnelly has led a multi-faceted career combining outstanding contributions in research and teaching with leadership in science policy and broader public service. Following her B.Sc and Ph.D. from UCD and postdoctoral studies at UCLA, she returned to UCD as a lecturer in chemistry in 1956. She rapidly gained international renown in her field of phytochemistry, the study of chemicals with biological activity derived from plants, and was appointed professor of phytochemistry in 1979. Wood chemistry was a particular interest, and she applied her research to a variety of problems encountered within the Irish forestry industry.

Donnelly's commitment to European research saw her elected chairman of the European Science Research Council and vice-president of the European Science Foundation. She was the first woman president of the Royal Dublin Society and chairman of the Dublin Institute for Advanced Studies, the Custom House Docks Development Authority and the National Education Convention.

In 2000 Dervilla Donnelly received the UCD Charter Day medal, for her many contributions to the country and to the university. Of these contributions, she is particularly proud of her eighty Ph.D. students, many of whom have themselves won considerable distinction in academia, industry and business.

Above: Dervilla Donnelly

The overcrowding problem

Student numbers in UCD continued to climb throughout the 1950s, and the university's perennial problems of overcrowded lecture rooms and limited financial resources became a subject of humour in *Dublin Opinion*. From 3,115 students in the 1950-51 session, the number had increased to 4,768 by 1959.

In 1951 the UCD Governing Body resolved that the best interests of the university would be served by developing on the lands around Belfield in south Dublin, and a building plan was prepared in 1955. Throughout the decade the university remained in constant communication with the government about the urgent need for new buildings. At the same time it was renovating and rebuilding parts of the existing buildings in Earlsfort Terrace and Merrion Street to provide interim teaching and research facilities and prevent 'a complete breakdown of teaching'.

Government funding was given for the acquisition of Merville estate in 1951, and other estates neighbouring UCD's grounds in Belfield were acquired in the following years. In June 1959 the government agreed in principle to the gradual transfer of the college to the lands at Belfield.

Above: 'We may have to abandon our first chemistry course – somebody broke the beaker.' *Dublin Opinion*, 1959

The government in Merrion Street

The decade of the 1950s was a politically volatile one, with changes of government in 1951, 1954 and 1957. Irish voters were unhappy at poor economic prospects, stagnant living standards and high emigration. It was in the 1950s that the Department of the Taoiseach began to play a greater role in economic policy, starting with the appointment of Patrick Lynch, a future UCD professor of economics, as economic advisor to Taoiseach John A. Costello. *Economic Development*, written in 1958 under the direction of secretary of the Department of Finance T. K. Whitaker, with Charlie Murray, assistant secretary of the Department of the Taoiseach, as principal collaborator, played a key role in modernising the Irish economy.

When Seán Lemass succeeded de Valera as Taoiseach in 1959 he continued to take an active role in strategic issues such as economic policy, Ireland's campaign for membership of the EEC, and North-South relations.

Above: Eamon de Valera and Maurice Moynihan, secretary to the Department of the Taoiseach, on the occasion of de Valera's retirement as Taoiseach in 1959. The inscription reads 'Don rúnaí díograiseach, cómhairleoir stuama agus cara dílis.' (To the conscientious secretary, wise counsel and loyal friend.)

1960–1970

Education was a major preoccupation for the government and for Irish society during the 1960s. The 1965 OECD Report *Investment in Education* was followed in 1966 by the announcement by Donogh O'Malley, Minister for Education, of free secondary education and the introduction of grants for third-level students. Education and science were seen as essential for Ireland's growing economy. The 1960s graduates could hope for jobs in Ireland.

Having approved the transfer of UCD to Belfield, the government fast-tracked funding for the UCD science building, the first major government investment in university buildings since the foundation of the state. 1964 saw the start of the move to Belfield, with the departure of chemistry from Merrion Street and physics from its home in Earlsfort Terrace. The other science departments in Merrion Street left for Belfield soon afterwards. The space released for engineering facilitated an expansion that matched national ambitions for industrial and economic growth under Taoiseach Seán Lemass, who had often spoken on this subject in the building.

A degree in agricultural engineering was established in the department of mechanical engineering in 1961 and the first graduates in the discipline qualified in 1964. Professor Patrick Leahy established the part-time Master of Industrial Engineering programme in 1967 to cater for the growing needs of industrial enterprises in the country. Among the first graduates of this programme in 1969 were Don Godson and Brian Kearney, who went on to become CEO of CRH and founder and CEO of Project Management, respectively. The first academic computer in the country was installed in Merrion Street in 1962, and later that year the country's first public course in computing was given in the building by Professor L. Brendan D'Alton in collaboration with IBM. The decade also saw a significant increase in the number of research postgraduate students in engineering. The degree of Master of Engineering Science (M.Eng.Sc.) was established, and students won research scholarships from university, government and industry.

The last link with the teaching staff of the RCScI was severed in 1967 with the retirement of George Ring, lecturer in electro-technology, who had graduated from the RCScI in 1920, worked on the teaching staff of that college and transferred to UCD in 1926.

Pioneering women professors

By the middle of the twentieth century, the presence of women in the sciences was becoming more common in Ireland, but it was extremely unusual for them to be heads of academic departments or professors. However, Merrion Street in the 1960s housed three exceptional women professors – Phyllis Clinch (1901–84), Carmel Humphries (1909–86) and Eva Philbin (1914-2005). These three women made significant contributions to teaching and research in their scientific disciplines, both nationally and internationally. They also led their departments in UCD with great distinction through and following the move from Merrion Street to Belfield.

Phyllis Clinch joined the department of plant pathology in UCD as a research assistant in 1929, moved to the botany department in 1949 and in 1961 succeeded Joseph Doyle as professor of botany. A world renowned scientist in the field of plant disease, she is best remembered for her work on potato viruses, which was used by the Department of Agriculture to develop stocks of disease-free potatoes for farmers. She was one of the first four women elected to membership of the Royal Irish Academy (RIA) in 1949 and was awarded the Boyle Medal by the Royal Dublin Society (RDS) in 1961 – the first woman (and, fifty years later, still the only woman) to win the award.

Carmel Humphries graduated from UCD in 1932 with a B.Sc. in botany and zoology and an M.Sc. the following year. After undertaking research in England and Germany, where she made discoveries that had significant impact in insect taxonomy and water quality assessment, she returned to Ireland and after a series of temporary positions was appointed as an assistant in the zoology department at UCD in 1942. She succeeded James Bayley Butler as professor in 1957. A noted researcher in freshwater biology, Carmel Humphries was a popular lecturer with generations of students. She was a member of the RIA, the RDS and the Institute of Biology of Ireland.

Eva Philbin (née Ryder) joined the chemistry department in UCD in 1945 and worked to develop the highly successful research school in natural products chemistry, succeeding T. S. Wheeler as professor in 1963. Students from this school were to prove central to the development of the chemical and pharmaceutical industry in Ireland. Eva Philbin was the first woman president of the Institute of Chemistry of Ireland, chairman of the National Science Council and senior vice-president of the RIA. In 1989 the RIA acknowledged her achievements with a festschrift containing contributions by 115 authors.

Clockwise from top left: Phyllis Clinch (1901-1984); Carmel Humphries (1909-1986); Eva Philbin (1914-2005)

Pat Kenny and Eddie O'Connor

Friends as UCD chemical engineering students in the late 1960s, Pat Kenny and Eddie O'Connor went on to make their mark on the country in very different ways.

After graduating from UCD in 1969, Pat Kenny completed an M.Sc. in engineering at Georgia Institute of Technology, returning then to Ireland to lecture at Bolton Street College of Technology. While lecturing, he took the first steps into what would be a lengthy and influential career in broadcasting on RTE, spanning science and technology, business, news and current affairs as well as music, young people's programming and entertainment.

In the 1980s he presented a number of radio programmes before securing the show *Today with Pat Kenny* as a permanent feature. His early television career focused mainly on current affairs with *Today Tonight*, but having hosted *Saturday Live* and *Kenny Live* for RTE television, as well as presenting the *Eurovision Song Contest* in Dublin, he was the obvious successor to Gay Byrne as host of the *Late Late Show*. He hosted that show for ten years before returning to current affairs with the audience-based TV programme *Frontline* in 2009. He continues to play a central role in media debate during Irish general elections and, as well as interviewing politicians on radio, hosted the 5-way *Frontline* Leaders Debate in February 2011. Pat Kenny has won a number of broadcasting awards, and is a Fellow of Engineers Ireland.

With a BE in chemical engineering (1970) and a Masters in Industrial Engineering (1976), both from UCD, Eddie O'Connor was to pursue a successful career in energy that spans over four decades. After completing his bachelors degree he joined ESB, leaving in 1987 to become chief executive officer at Bord na Móna. In 1997 he founded Airtricity, the Irish wind farm development company, developing a business success story around renewable energy. Within a decade, O'Connor had sold Airtricity North America to E.ON for approximately $1.4 bn and the remainder of the company to Scottish and Southern Energy.

Not ready to retire from the sector, he went on to set up Mainstream Renewable Power, whose core business is to develop, build and operate renewable energy plants in collaboration with strategic partners in Europe, South America, the US, Canada and South Africa. Eddie O'Connor received an honorary doctorate of science from UCD in 2008 and was presented with the Foundation Day Medal for outstanding alumni in 2010.

Above: Pat Kenny and Eddie O'Connor at the UCD Foundation Day dinner in 2010

David O'Reilly

Many of those who studied in Merrion Street built their careers outside Ireland. One of the most notable of these is David O'Reilly, who went on to become chairman and chief executive officer of Chevron Corporation.

A native of Dublin, David O'Reilly earned his bachelor's degree in chemical engineering from UCD in 1968. Upon graduation, he took up a position with Chevron Research in the United States as a process engineer. Over the course of his career with Chevron, O'Reilly served in positions of increasing seniority, responsible at various stages for the corporation's strategic planning, US refining and worldwide exploration and production. He was appointed chairman and chief executive officer of Chevron Corporation on 1 January 2000, a position he held until his retirement ten years later. He is now chairman of the National Petroleum Council in the United States and a director of Bechtel Group and Saudi Aramco.

David O'Reilly maintains his association with UCD Engineering as adjunct professor of chemical and bioprocess engineering and chair of the university's Energy Advisory Board. He received an honorary D.Sc. degree from UCD in June 2002.

Top right: David O'Reilly

Bottom right: The Sanha complex, Angola

Above: Students in Merrion Street at work and at play in the early 1960s

The government in Merrion Street

Seán Lemass was Taoiseach from 1959 to 1966. This was a critical transition period for Irish politics and for the economy. The first generation of leaders, many of them veterans of the 1916 Rising and the War of Independence, were retiring from active politics, and in 1965 Lemass boasted that Ireland had the youngest Cabinet in Europe. Lemass was determined to transform the Irish economy, and as part of that process industrialists, trade union leaders, civil servants and government ministers began to meet on a regular basis to exchange views and plan strategies. His meetings in 1965 with Terence O'Neill, prime minister of Northern Ireland, represented the first official talks between the leader of an independent Ireland and his counterpart from Northern Ireland.

Lemass's Cabinet meetings were short, less frequent than before, and decisive; his successor Jack Lynch preferred a slower, more deliberative pace of decision-making. The outbreak of violence in Northern Ireland in August 1969 did not give the government the luxury of long reflection. An emergency Cabinet meeting, with ministers summoned back from summer holidays, revealed strong divisions between those who were in favour of intervening to protect the nationalist community in Northern Ireland and more cautious voices. The divisions within the government over Northern Ireland came to a head in May 1970 with the Arms Crisis and the resignation and dismissal of four Cabinet ministers.

Above: Letter from Seán Lemass to Eamon de Valera after his appointment as Taoiseach

1970–1980

The 1970s saw a continuation of the expansion of student numbers in UCD and other Irish universities. Student numbers in Merrion Street rose by nearly 20% over the decade. For the first time there was a steady, though initially very small, stream of female engineering students in UCD.

In the context of the Troubles in Northern Ireland, security concerns about the co-location of university facilities and key government offices surfaced once again. The army, who patrolled the building at night, increased their presence but there was free access for staff and students during the day – an unsatisfactory and, realistically, an unsustainable situation.

A number of key professorial appointments during this decade led to an expansion in research capacity within the school of engineering. In the department of civil engineering, the newly appointed Professor Jim Dooge developed his multi-faceted career as engineering academic, international scientific statesman and politician. The first chair in electronic engineering in the country was established in UCD in 1972 with the appointment of Professor J. O. (Seán) Scanlan. A leader in the analysis and synthesis of electronic circuits, Scanlan later served as president of the Royal Irish Academy and was the first in the country to be elected Fellow of the Institute of Electrical and Electronics Engineers. Professor Annraoi de Paor, appointed professor of electrical engineering in 1975, applied his expertise in control theory to initiate important research activities in renewable energy and biomedical engineering. Professor Paul McNulty was appointed to the chair in agricultural engineering in 1978, and developed strong research activities within that department in support of the agriculture and food sectors nationally.

Ireland, a member of the European Economic Community from 1973, was beginning to see the growth of the multinational sector of its economy, with the arrival of companies such as Analog Devices and Pfizer. Professors from the school of engineering worked closely with the Industrial Development Authority to enhance the case presented by Ireland to multinational companies. Improvements were made to the country's infrastructure – the gas network was a particular focus during the 1970s, with the discovery of the Kinsale gas field and the establishment of Bord Gáis Éireann. All these developments provided exciting employment opportunities for engineering graduates from the university and the promise of a new era for the Irish economy.

James Dooge

James (Jim) Dooge (1922 – 2010) combined a career of great distinction in engineering research and scientific leadership with one of political service at the highest level. A graduate of UCD in science and civil engineering, he returned to Merrion Street in 1970 as professor of civil engineering. He is recognised as one of the founding fathers of the modern engineering science of hydrology, and he also made important contributions to the fields of meteorology and climate. He chaired the International Conference on Water and the Environment in 1992 that produced the Dublin Statement on Water and Sustainable Development, with its four enduring major principles, and served as president of the Royal Irish Academy.

Jim Dooge also enjoyed a long political career as a member of Seanad Éireann. In 1981, although a member of the upper house rather than the Dáil, he was appointed Minister for Foreign Affairs. Many of the recommendations of the Dooge Committee on institutional reform of the EEC (now EU), which he chaired in 1984, were reflected in the Single European Act and the Treaty of Maastricht. He later commented on the value of an engineering background in politics, based on the engineer's ability 'to assess problems, to focus on detail and work constructively towards a solution, despite setbacks.'

Above: Jim Dooge receives the Prince Philip medal of the Royal Academy of Engineering in 2005

Professor Dooge was the recipient of many international awards and honours. He received the 2001 IMO prize, the highest honour of the World Meteorological Organisation, and the 2005 Prince Philip Medal of the Royal Academy of Engineering in the UK, awarded to 'an engineer of any nationality who has made an exceptional contribution to engineering as a whole through practice, management or education'. He received the gold medal of the Royal Irish Academy in 2006, 'for a life that has been marked by extraordinarily distinguished public service and by scholarship of the highest quality and originality.'

Left: Séamus Timoney (1926-1991)

Above: Timoney fire tender

Séamus Timoney and the Timoney Technology Group

Séamus Timoney (1926-1991) joined the academic staff of UCD's department of mechanical engineering in 1955 and proceeded to establish a substantial research activity focused mainly on internal combustion engines. He supervised a large number of postgraduate research projects and maintained strong relationships with the automotive industry in the USA, obtaining substantial funding from General Motors for his work. His efforts were later recognised by his election to fellowship of the US-based Society of Automotive Engineers.

Séamus Timoney's academic achievements were matched by his ability as an innovator, vehicle designer and industrial entrepreneur. He was awarded a number of US and European patents based on his work on engines, combustion systems and heavy vehicle design. His innovative concepts for independent suspension in heavy vehicles were incorporated into the armoured personnel carrier he and his brothers designed and built for the Irish army in the 1970s. This design, which was later used under license internationally to manufacture substantial numbers of military and other vehicles, was later applied to airport rescue fire tenders and to many other specialist rough-terrain vehicles.

Professor Timoney founded several Irish companies, including Innill Dóiteáin Teo. in Spiddal, Co. Galway, and the Timoney Technology Group, based in Trim, Co. Meath. The latter has had international success in the design and manufacture of heavy-duty emergency vehicles, armoured cars and armoured personnel carriers.

Far left: Orna Ní Chionna
Left: Dervilla Mitchell

Women in Engineering

Although the number of women in UCD's engineering degree programmes remained small through the 1970s, the growth in numbers towards the end of the decade represented the start of a trend that would see a more substantial female student presence in Merrion Street by the mid 1980s. Each year from 1970 to 1978 saw no more than two female engineering graduates (out of an annual total of 140 – 185), a number that jumped to six in 1979.

Orna Ní Chionna was the only female engineering graduate in the class of 1977. After an MBA from Harvard she joined the London office of McKinsey & Co, and was the first woman elected partner of the company in the UK. She has served as senior independent director of a number of major companies, including HMV, Royal Mail Holdings, Northern Foods and Bupa. She is also chair of the Soil Association, the main UK charity campaigning for organic food and farming.

Dervilla Mitchell was one of four women in the UCD engineering class of 1980. She is now a trustee and board member of the global engineering company Arup, and its most senior female engineer. She led the Arup team at Heathrow Airport's Terminal 5, the largest construction project in Europe at the time. By the end of the six-year contract she was head of design management for the overall project, which had a budget of £4.3 billion, and leading a team of 1,500 people. She is a fellow of Engineers Ireland and the Royal Academy of Engineers.

The electric car

An unusual vehicle on the courtyard in Merrion Street in the late 1960s and early 1970s was the electric car designed by Jim Lacy and Professor John Byrne of the department of electrical engineering. The car was initially conceived as a research vehicle for Byrne's research into low-loss drive systems and Lacy's into control systems, but became a substantial project in itself, attracting support and interest from a number of companies. Extensive research was carried out into ways to minimize loss mechanisms, and the car incorporated regenerative braking.

The car was declared roadworthy, taxed and insured, and Lacy used it for his daily commute. A newspaper article pointed out that this daily 20 miles cost three pence, the equivalent of '480 miles to the gallon of petrol,' and the top speed was just over 30 miles per hour. Ultimately the vehicle was limited by the battery technology available at the time, with the heater proving a particularly heavy load on cold mornings.

Above: The electric car

The government in Merrion Street

Ireland became a full member of the European Economic Community (EEC) in January 1973. A general election in the spring of that year returned a Fine Gael-Labour coalition led by Liam Cosgrave, son of W. T. Cosgrave, which oversaw a substantial extension of government-funded welfare programmes designed to bring Ireland into line with other EEC member states. 1973 also marked the end of a long post-war economic boom; there was a sharp rise in unemployment and inflation. The difficult economic circumstances brought a new era of volatile politics. In 1977 Jack Lynch was returned to office with a landslide electoral victory; he resigned in 1979 and was succeeded by Charles Haughey.

When the Northern Ireland crisis erupted in 1969, no government department had formal responsibility for Northern Ireland. 1970 saw the creation of the Anglo-Irish Division in the Department of External (Foreign) Affairs, which worked closely with the Department of the Taoiseach on all policies relating to Northern Ireland. Taoiseach Liam Cosgrave led the Irish delegation in the 1973 discussions that led to the Sunningdale agreement. Although short-lived, it anticipated the framework that was followed by the 1998 Good Friday Agreement.

Above: Jack Lynch signs the treaty of accession to the EEC in January 1972

1980–1989

The 1980s saw significant investment in Ireland's infrastructure, with funding from Europe as well as the state. Major projects in the early part of the decade included the Dublin Area Rapid Transit (DART) electric train system and the country's first motorway. Bord Gáis Éireann laid gas pipelines from Cork to major industrial and population centres, and the newly formed Bord Telecom oversaw a significant improvement in the telecommunications network. The rollout of this infrastructure, coupled with the growth of the multinational sector in areas such as electronics and pharmaceuticals and of Irish success stories such as CRH and Kerry Group, focused attention on the country's production of graduate engineers.

UCD school of engineering had a particular role to play in meeting this need. A report from the early 1980s points out that about 70% of the graduate engineers in the country at that time were UCD – and therefore Merrion Street – graduates, and the university was continuing to produce close to 50% of the country's annual output of graduate engineers. Government funding was made available to the school to expand staff and student numbers, attracting new lecturers who would build important research programmes over the years to come, and there was a significant increase in the number of postgraduate students. The dean, Professor John Kelly, led a campaign to increase female participation in engineering, which had immediate success.

UCD's engineering degrees at this time were among the most sought-after options for school-leavers. The need to attract foreign direct investment was central to the economic plan for employment and prosperity, and highly skilled graduates were a key factor for prospective industrial investors. At the end of the decade technology giant Intel selected Ireland as the location for its European manufacturing and technology headquarters, ushering in a new phase in the country's industrial development.

The 1980s also saw the end of UCD's presence in Merrion Street. After prolonged negotiation with successive governments, funding was provided for a building on the Belfield campus that would house the engineering departments from Merrion Street. In the summer of 1989 UCD finally vacated the premises built for the Royal College of Science for Ireland over three-quarters of a century before, and a new era in the life of the building was begun.

Young Europeans

UCD engineering graduates were to the fore in the 'Young Europeans' campaign by the Industrial Development Authority (IDA) in the mid-1980s. Designed to showcase Ireland's highly-educated cohort of engineering and science graduates, the campaign was very influential in the development of Ireland's profile within the technology sector internationally. Professor Liam Murphy, one of the Merrion Street graduates featured in the campaign, recalls 'I'm not sure we realised at the time how widespread the picture would become. But it was great to be a part of something which helped to raise awareness of the quality of Ireland's high-tech workforce!'

The economic reality of Ireland in the mid-1980s saw many of the most highly-skilled graduates leave the country in search of opportunity. This famously included many of the graduates from the iconic IDA advertisement. However, subsequent years saw many emigrants of the 1980s return to Ireland, bringing the skills and experience they had acquired abroad and contributing to the transformation of Ireland's industrial base.

Above: The 'Young Europeans'

Research and innovation

The application of fundamental research results to industrial and economic needs and opportunities was a characteristic of the work carried out throughout UCD's years in Merrion Street.

Building energy management systems provider Cylon Controls began life in 1984 on a bench in the electronic engineering laboratories, first as an undergraduate research project and then as a spin-out company led by Seán Giblin. It has since grown to become one of the leading European providers of these systems: monitoring, controlling and reducing energy usage in buildings across the US, the Middle East, China and Europe, with technology that is crucially important for our sustainable future.

Left: Seán Giblin
Above: The Parkview Green building in Beijing, which uses Cylon technology

The world's first full-specification single DSP chip V32 dial-up modem was designed and built in the digital signal processing (DSP) laboratory in Merrion Street by a team led by Professor Tony Fagan. Over a million devices were commercially deployed after the modem left the research laboratory in 1988, and devices such as this were responsible for first bringing the internet to homes around the world. Postgraduates involved in the research project went on to found companies Massana (later acquired by Agere, now part of LSI) and DecaWave.

Move to Belfield

The science building in Belfield opened in 1964, at a time when sheep still grazed in the adjacent fields. The campus developed significantly over the course of the next decade, with the construction of arts/commerce/law, library, administration and restaurant buildings. In the mid-1970s Scott Tallon Walker were appointed as architects for the projected new engineering building in Belfield, intended to house all of UCD's engineering departments.

Progress was slow and in 1982, when architecture moved from Earlsfort Terrace to the Richview end of the Belfield campus, civil and agricultural engineering moved from Merrion Street to Earlsfort Terrace to take advantage of the extra space available there. This left chemical, electrical, electronic and mechanical engineering as the last UCD departments in Merrion Street, with government offices moving into space vacated by the university.

Successive governments were enthusiastic about UCD's plan to vacate Merrion Street, but the economic straits of the 1980s meant that the full £25 million cost of the engineering building at Belfield could not be provided. It was decided by UCD that, rather than devise a reduced building to house all of engineering, the existing plans would be modified to provide for the departments in Merrion Street in a £19 million development, with provision for the expansion of the building to provide for the remaining two departments when money became available.

Above: Head porter Arthur Keating locks the door for the last time, watched by Dean Vincent McCabe, as UCD departs Merrion Street for Belfield

The government in Merrion Street

The 1980s were dominated by the twin preoccupations of the economy and Northern Ireland. It was also a decade of frequent general elections and changes of government. Two men held the office of Taoiseach: Charles Haughey and Garret FitzGerald. This was also the time when the size and scope of the Department of the Taoiseach began to expand, particularly in the areas of the economy and Northern Ireland. There was a greater focus on government policy for the arts and culture, and a junior minister was appointed in the Taoiseach's department with responsibility for women's affairs.

The Anglo-Irish Agreement, signed by Garret FitzGerald and British prime minister Margaret Thatcher in 1985, gave Ireland an advisory role in the governance of Northern Ireland for the first time. Dermot Nally, secretary to the government from 1980 to 1993, played a key role in the years of negotiations that led up to the agreement and in the drafting of the document itself.

Above: UCD graduates Charles Haughey and Garret FitzGerald at their 50-year degree class reunion in 1996

Renovation

The refurbishment of the Merrion Street complex to become Government Buildings in 1990 was led by the Office of Public Works (OPW), with a budget of £17.6 million, and was the subject of national attention. The laboratories and lecture theatres of the building had seen little structural change – but much wear and tear – since 1911, and were now to be converted into the offices, meeting rooms and press facilities appropriate to modern government. The important features of one of the city's great buildings were to be maintained and enhanced, with the resulting building presenting a suitably dignified backdrop for major government events.

Layers of pollution were cleaned from the facade of the building. The front steps were extended and the courtyard refurbished, with the addition of a circular fountain. A helicopter landing pad was built on the roof.

Inside, the most obvious change was the removal of the main lecture theatre at the top of the steps in the foyer and its replacement with a dramatic beechwood staircase. The staircase is overlooked by Evie Hone's great stained glass window *My Four Green Fields*, originally created for the Irish pavilion at the New York World's Fair of 1939. The carpet on the staircase was designed by artist Mary FitzGerald to echo the colours in the window.

In the basement a former lecture theatre and canteen were converted to a press centre for visiting media personnel. The library, on the top floor, became a large meeting room. The decision was made not to relocate the cabinet room, or council chamber, but to leave it in the north wing, where it had housed government meetings since the foundation of the state.

The Taoiseach, Charles Haughey, moved into the new accommodation with his staff in January 1991 and performed the official opening later that month, in a ceremony attended by former Taoisigh Liam Cosgrave, Jack Lynch and Garret FitzGerald.

The refurbishment project won a number of awards, including the Royal Institute of the Architects of Ireland (RIAI) Silver Medal for Conservation for the period 1987-92. The RIAI citation commented that 'the re-use of this existing building of acknowledged quality for this new, and entirely fitting, purpose has created a special identity of Government, and has contributed considerably to Dublin's status as a European capital'.

Top left and right: The corridors of Government Buildings can be recognised in the early photographs taken in the building

Bottom left and right: A large meeting room occupies the space of the former library

Above and right: The original lecture theatre was converted by the OPW to become the site of the ceremonial staircase

Government Buildings since 1991

The inauguration of the newly-refurbished Government Buildings in 1991 reflected the changing nature of government in modern Ireland. There was, and is, a growing need for formal public spaces identified with government that can be used for high-level meetings, press conferences and formal photo opportunities. Politics in Ireland became more presidential. The office of the Taoiseach and its staff played an increasing role in key strategic aspects of policy, especially on Northern Ireland, Europe and high-level partnership talks on economic and social questions. The new meeting rooms at Government Buildings hosted critical meetings in the Northern Ireland peace process, such as the 1994 meeting between then Taoiseach Albert Reynolds, SDLP leader John Hume and Sinn Féin leader Gerry Adams. Visits by unionist leaders such as Ian Paisley and David Trimble also reflected the changed political environment and the critical role that successive Taoisigh and their staff played in the peace process. Bilateral meetings between heads of government also became much more common. British prime ministers John Major, Tony Blair and David Cameron all visited Government Buildings, as did US president Bill Clinton and many other national leaders. In May 2011 Queen Elizabeth II visited the building opened by her grandfather almost a century before.

Developments in communications and news media, such as the emergence of twenty-four news stations and mobile broadcasting, created a new demand for visual images as backdrops for news reports, and Government Buildings, with its iconic dome and wrought-iron gates, expressed the spirit of a self-confident country. Over the past two decades they have provided a distinctive and distinguished setting, viewed throughout the world, for journalists covering events such as key political meetings relating to Northern Ireland, visits by international statesmen such as Nelson Mandela and, more ominously, the November 2010 negotiations with the European Union, European Central Bank and International Monetary Fund that resulted in the financial bailout for the Irish economy.

Government Buildings have been at the heart of Irish politics throughout the lifetime of the state, the site of all major decisions taken by the government. While many would regard Cabinet decisions relating to the post-2008 banking and economic crisis as the most challenging to confront an Irish government, they should be set against the decisions that had to be taken by the provisional government of 1922, which faced civil war and the real fear that the new state would not survive. Decisions taken throughout this great building, which for so long echoed to the sounds of scientists, engineers and their students pursuing their journeys of innovation and discovery, will continue to shape the destiny of Ireland.

Far left (top): Taoiseach Charles Haughey opens the renovated Government Buildings in January 1991, watched by former Taoisigh Garret FitzGerald, Jack Lynch and Liam Cosgrave

Far left (middle): Taoiseach Albert Reynolds with Gerry Adams and John Hume on the steps of Government Buildings after their meeting in 1994

Far left (bottom): Taoiseach Enda Kenny with Queen Elizabeth II in his office in Government Buildings in May 2011

Left: Taoiseach Enda Kenny and Fionnuala Kenny with Queen Elizabeth II and Prince Philip at Government Buildings in May 2011

Top left: Students at UCD Engineering conferring

Top right: Aerial view of Belfield

Left: Engineering Building, Belfield

Above: Plans for the UCD Science Centre

UCD Science & Engineering in Belfield

Upon moving to Belfield in 1964, UCD's faculty of science was located in some of the old estate houses as well as the new science building, and a small number of teaching and research facilities remain to this day in the nineteenth century Ardmore House. One by one, new buildings sprang up on campus, with the engineering building opened in 1989. Civil and agricultural (later biosystems) engineering remained in the city centre until UCD's long presence in Earlsfort Terrace came to an end in 2007. They did not move to an expanded engineering building as originally planned: civil engineering moved to the former Philips Electronics building in Clonskeagh, now known as Newstead and integrated with the Belfield campus, while biosystems engineering moved to the agriculture building.

Science and engineering in UCD, in common with the rest of the university, have seen increases in the number of undergraduate and postgraduate students and an increasingly international student body. Degree programmes have developed significantly, with greater flexibility, opportunities to study abroad or spend periods in industry, and an enhanced interface with research and innovation. The desire for research activities at a scale that can compete globally, coupled with the increased availability of research funding from national, European and other sources, has seen the development of large and often multi-disciplinary research institutes and centres on campus, such as the Conway Institute for Biomolecular and Biomedical Research.

UCD engineers and scientists continue to apply their research to solve problems faced by Irish industry and to realise entrepreneurial opportunities. A BSE test using technology developed in UCD and licensed to Irish company Enfer Scientific has sold millions of test kits, and came at a time when the disease threatened to devastate the Irish livestock export trade. The Electricity Research Centre, which was founded in partnership with EirGrid and ESB and now partners with over 30 companies around the world, has been a major contributor to Ireland's success in the integration of renewables onto the electricity grid. A number of companies have grown out of research conducted in UCD science and engineering in recent years, including Intune Networks (optical networking), ChangingWorlds (personalisation software), Celtic Catalysts (chemistry) and BiancaMed (medical technology). Most recently, the National Institute for Bioprocessing Research and Training (NIBRT) has opened a state-of-the-art training and research facility at Belfield to support the development of the bioprocessing industry in Ireland and to attract additional bioprocessing companies to the country.

In 2007, when UCD's long move to Belfield from its city centre facilities was finally completed, the science building was almost fifty years old and under stress in the face of greatly expanded student numbers and new ambitions for teaching and research. Today, once again, the science building is at the centre of building activity in Belfield. In a multi-phase project that will renovate and expand the existing facilities, a new science centre will provide over 30,000 square metres of dedicated teaching and research space. At the same time, a refinement of academic structures will create a College of Science, as well as a College of Engineering and Architecture, within UCD, the title evoking memories of a distinguished predecessor.

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SIEMENS

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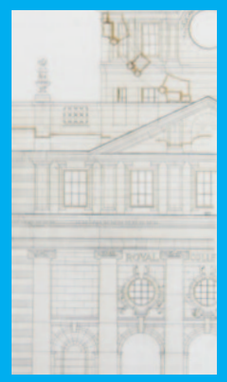
Print: Watermans Printers Ltd, Cork

Timeline

1911–1920



Opening of new building

Walter Hartley

War effort

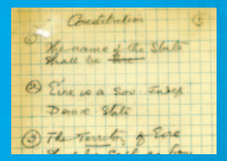
Sophie Peirce

1920–1930

Seed testing laboratory

Augustine Henry

The Shannon scheme



1930–1940

Peat testing

James Drumm

The library

The state laboratory

1940–1950

Vincent Barry

The Emergency Scientific Research Bureau

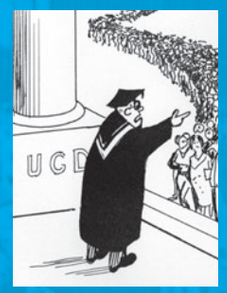
Rural electrification

Felix Hackett

Pierce F. Purcell

Michael A. Hogan

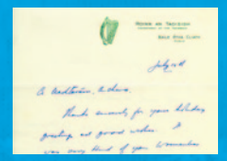
1950–1960



Overcrowding problems

The McCabe brothers

Dervilla M. X. Donnelly



1960–1970

Eva Philbin

Phyllis Clinch

Carmel Humphries

Pat Kenny and Eddie O'Connor

David O'Reilly

1970–1980

James Dooge

Séamus Timoney and Timoney Technology Group

Orna Ní Chionna

Dervilla Mitchell

Jim Lacy and Professor John Byrne's electric car

1980–1989

Young Europeans

Research and innovation

Move to Belfield