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THE SELECTION OF PHYSICS AS A FOUNDATION DISCIPLINE AT THE UNIVERSITY OF QUEENSLAND

A Long Winding Path to Recognition

John Mainstone

From an academic perspective, the celebrations launching The University of Queensland on 10 December 1909 were more than a little premature. In May 1910, a date – in March 1911 – was set for the university to begin its teaching, but within days of that date it was still largely unclear what areas of study would be on offer to students. The first UQ Senate had been appointed in April 1910. Long-standing, and quite fundamental, differences of opinion among the senators finally led to a compromise decision to create Chairs in Chemistry, Classics, Engineering, and 'Mathematics and Physics,' with the proviso that applicants in the Science and Engineering areas with a special interest in the practical application of those Sciences to the industries of Queensland would be given preference during the selection process. This was hardly designed to give much encouragement to the fundamental scientific discipline of Physics. Queensland was unique: the make-up of its population ensured that Physics was the totally invisible scientific profession. In the space of a few weeks early in 1911, this changed dramatically. The mathematician Henry Priestley arrived in Brisbane on 15 February, as Professor of Mathematics and Physics: by 25 March the physicist Thomas Parnell had been appointed as the (virtually autonomous) Lecturer in Physics. In 1919 Parnell became the university's first Professor of Physics. Still Head of the Department of Physics and much respected by his colleagues, Professor Parnell died on 1 September 1948.

Introduction

It may come as a surprise to some people to learn that in today's (real) world there are physicists from several countries actively engaged in trying to develop an 'invisibility cloak,' something recognised by devoted Harry Potter fans as an important item in the lad's armoury. There is really nothing spooky about this research project. The underlying physics has been a part of the physicist's armoury in the field of optics for a very long time. However, it has been only recently that developments in the field of condensed matter ('solid state') physics have made it possible to create new materials of the type required to fabricate the 'cloak.' In practice, the prototype will probably turn out to look more like a 'shield' than a cloak, but we can be fairly sure that the cloak will not be far behind. Francis Bacon once spoke of 'money' in the juxtaposed roles of servant and master when he issued a note of caution in his famous aphorism, but in many aspects of life it can also be true that '*Invisibility* is a good servant, but a bad master.'

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Consider the case of physics here in Queensland one hundred years ago. The very *invisibility* of the professional physicist—and the comprehensive academic discipline of physics—within a community in which the engineer, the lawyer, the doctor, and so on were clearly visible and their practices recognised, almost (but fortunately not quite) denied physics a place on the virtual honour roll of the foundation disciplines at The University of Queensland. The path to the ultimate recognition of physics as deserving of this honour was indeed tortuous.

A University for Queensland

There had been talk of establishing a university in Queensland for several decades. Then, on 10 December 1909, the fiftieth anniversary of the formal erection of the Moreton Bay settlement to the autonomous Colony of Queensland, the Queensland Government of the day hosted a gala celebration in the grounds of the stately ('Old') Government House for the purpose of publicly witnessing the royal assent being given to the University of Queensland Bill. The Bill had been passed by the parliament, with support from all parties, in mid-November.

The newly-arrived Governor of Queensland, Sir William MacGregor,[1] must surely have been impressed by the apparent desire of the populace to see this educational venture succeed. After the speeches were over, the 800-voice choir consisting of boys and girls chosen from the fifth and sixth classes of the metropolitan schools sang four stanzas of an ode specially composed for them by W. J. Byram,[2] beginning with

> Dear land, the queen of all fair climes!
> To jewels of thy diadem
> We add to-day its brightest gem,
> A guiding star for after-times.

The Governor probably joined the invited guests at this gala celebration in their wholehearted applause for the musical prowess of these future Queensland citizens, but it turns out that he also had another rather important matter on his mind.

Sir William MacGregor was really far from happy. By enabling the University Act on this day he was thereby consigning his own household to the ranks of the homeless. Government House, which had been home to his ten predecessors—from the first Governor, Sir George Bowen, onwards—had just become the home of the university. The corollary to the praiseworthy educational initiative was that this Governor was being forced by "people power" to acquiesce in a scheme to shift him out to demonstrably inferior rental accommodation at Fernberg, some four kilometres away (as the crow flies) from the corridors of power: Parliament House and the adjacent Queensland Club.

The University Act of 1909 paved the way for the appointment by the government of the first Senate. The names of the members of this inaugural governing body were published in the Government Gazette of 16 April 1910. It is this day which is taken to be the date of the foundation of The University of Queensland. By the time the gazettal occurred, the Governor had already been persuaded to accept the position of inaugural Chancellor of the university, and thereby chairman of the first Senate. In many ways it was inevitable that the strong ideological differences which had marked both the parliamentary and community debates on the nature of a proposed university throughout the preceding decades would

1. R.B. Joyce, "MacGregor, Sir William (1846–1919)" *Australian Dictionary of Biography* vol. 5 (Melbourne: Melbourne University Press, 1974), 158-160. (Hereafter *Australian Dictionary of Biography* will be abbreviated as *ADB*). Detailed coverage of the developments which led to the establishment of The University of Queensland can be found in Malcolm I. Thomis, *A Place of Light and Learning: The University of Queensland's First Seventy-Five Years* (St. Lucia: The University of Queensland Press, 1985), chapters 1–5.
2. William James Byram (1861–1922), solicitor, was well known in Brisbane literary circles.

be reignited. In essence, the opposing positions amounted, on the one hand, to a 'people's university' to serve the state, and, on the other, a university linked to the world-wide community of scholars, one which aspires to scholarship at the highest possible level and is engaged in the extension of knowledge through research. The Chancellor, MacGregor, was quick to make his own position very clear.

After flirting with arts at the University of Aberdeen for a year, MacGregor had begun medical studies at the University of Glasgow, and eventually took out his first degree in medicine at the University of Aberdeen in 1872 (this was not an uncommon practice in Scotland). Two years later he had received the MD degree from the same university. His subsequent career had resulted in him gaining considerable experience as a colonial administrator in different parts of the world, but he never lost his interest in the classics or his fascination with science. Faced with the responsibility of charting the destiny of a fledgling university in the emerging State of Queensland, he was resolute in his championing of the 'traditional' model of a university, both in the meetings of the Senate and elsewhere. For him, the simple 'utilitarian' model was not of the *esse* or *bene esse* of a university.

Decades of Discussion and Disappointment

The (education) Royal Commission of 1874 had recommended to the government of the day that a university be established immediately. No action was taken. A second Royal Commission in 1891 had produced a detailed report which leaned towards a 'utilitarian' model for Queensland's university but settled for a recommendation calling for what appears to be a 'traditional' model, in this case embodying five foundation faculties: arts, law, medicine, science, and applied science. Once again, the government declined to take any real action. Still, the university cause was kept alive by a small dedicated group of men who had been involved in the Royal Commission, as they waited patiently for a rekindling of the flame—under a different guise—in 1893.

It was in 1876 that Reginald Heber Roe,[3] a young Oxford graduate in mathematics and the classics, and having some experience in the chemical and physics laboratories, had been appointed as the headmaster of the Brisbane Grammar School. He then served with great distinction in that post until 1909, acting as a powerful mentor for many young men who were later to become Queensland's leaders. One of Roe's early *protégés* was John Laskey Woolcock,[4] who by the 1890s was a prominent Brisbane barrister. Both Roe and Woolcock served on the Royal Commission of 1891 and had been disappointed with the subsequent inaction of the government. It would be hard to imagine that either of these learned men was unfamiliar with the essays of Francis Bacon. The opening words of Bacon's essay *Of Delays*—'Fortune is like the market; where many times if you can stay a little, the price will fall'[5]—and also those oft-quoted words from his *Of Boldness*—'If the hill will not come to Mahomet, Mahomet will go to the hill'[6]—may well have served to inspire them to embark upon an alternative plan of action as from 1893.

Early that year, Woolcock took the initiative to invite a small group of his like-minded friends—among them his trusted mentor Roe—to his chambers in the city to explore the possibility of introducing University Extension to Queensland. This particular model for adult education had proved very successful in England for almost a decade, and was certainly gaining momentum in the United States. As a matter of interest, the Chautauqua (NY) Literary and Scientific Circle (1878) became a model for the Brisbane Literary Circle (1888). The cost to the State Government of providing infrastructure, as well as

3. E. Clarke, "Roe, Reginald Heber (1850–1926)" *ADB* vol. 11 (Melbourne: Melbourne University Press, 1988), 437–439.
4. W. Ross Johnston, "Woolcock, John Laskey (1861–1929)" *ADB* vol. 12 (Melbourne: Melbourne University Press, 1990), 570–571.
5. Francis Bacon, "Of Delays," in *Francis Bacon: The Major Works*, ed. Brian Vickers (Oxford: Oxford University Press, 2002), 383.
6. Francis Bacon, "Of Boldness," in *Francis Bacon: The Major Works*, ed. Brian Vickers (Oxford: Oxford University Press, 2002), 361.

staff, for a Queensland university was undoubtedly an insurmountable obstacle, given the current hard times, but the prospect of having public lecture courses delivered by academic staff visiting Queensland from the University of Sydney (or elsewhere) should have immediate appeal. Once having experienced some of the joys of university study, albeit by extension, the general populace of Brisbane would, it was conjectured, be only too ready to side with those who desired to see the Queensland University established. With high expectations of success, Woolcock and his influential colleagues publicly launched the University Extension Movement. Both *The Brisbane Courier* and the *Queensland Times*, important players in the business of moulding public opinion in the colony, applauded their efforts.

Colonial Days

The University Extension Movement was but the latest endeavour to foster intellectual development in the community. It has a unique place in the history of the emerging Queensland community, however, on account of its sharp primary focus on 'university.' In the year that the Colony of Queensland was granted its separate identity (1859), the Philosophical Society of Queensland, a body dedicated to the cultivation of science and technology in the new colony, was founded. Some 25 years later it was to become The Royal Society of Queensland in 1884, after being restructured in 1883. As it happened, the Philosophical Society had not been the first local entity to promote disciplined mental stimulation. Adult education intended for the general populace of the frontier settlement of Brisbane had actually become a reality a decade before, with the establishment of the (North) Brisbane School of Arts and Mechanics' Institute in 1849. This happened a mere seven years after the official proclamation in 1842 that henceforth the Moreton Bay area would be open for general free settlement, following the cessation of convict transportation which had begun back in 1824.

Even before the abolition of the penal settlement there had been a trickle of free settlers to the area. Andrew Petrie and his family arrived in 1837.[7] The following year, at the instigation of a prominent Presbyterian minister in the NSW colony, The Rev. Dr. John Dunmore Lang,[8] a group of German Lutheran/Moravian missionaries that he had engaged in Europe settled at Zion Hill (Nundah). After 1842 the numbers of settlers began to increase substantially; by 1846 the total white population count had risen to 960—in North Brisbane, 614, and in South Brisbane, 346. By 1849 the positive effects of Lang's immigration scheme were being felt quite markedly, and a decade later when 'Queensland' came into being, the population of Brisbane stood at around 6,000. It is to the credit of those early settlers that they did not allow the isolation of their new domicile to overwhelm their desire to better themselves intellectually. Before long there was a South Brisbane Mechanics' Institute, and in 1864 the Spring Hill Mechanics' Institute was established. This latter project was dear to the heart of its inaugural president John Douglas,[9] politician and administrator, whose words concerning adult education probably echoed the thoughts of a significant number of his fellow leaders of Brisbane society at that time:

> The mechanic will certainly be no worse a mechanic, and he will undoubtedly be an infinitely better man and a more useful citizen if he knows something of the laws which govern the universe, and which surround him with the most inexhaustible beneficence.

During the 1860s similar notions, but within the context of an implied higher level of commitment to the professional task of furthering both science and technology in the new Colony, were put before the members of the Philosophical Society by Sir James Cockle FRS[10] in the course of several of his presidential addresses. In what amounted to a charter for the parallel development of fundamental science and

7. A. A. Morrison, "Petrie, Andrew (1798–1872)" *ADB* vol. 2 (Melbourne: Melbourne University Press, 1967), 325–326.
8. D. W. A. Baker, "Lang, John Dunmore (1799–1878)" *ADB* vol. 2 (Melbourne: Melbourne University Press, 1967), 76–83.
9. R. B. Joyce, "Douglas, John (1828–1904)" *ADB* vol. 4 (Melbourne: Melbourne University Press, 1972), 89–91.
10. E. N. Marks, "Cockle, Sir James (1819–1895)" *ADB* vol. 3 (Melbourne: Melbourne University Press, 1969), 435–436.

technology in Queensland, Cockle stressed the value of pure scientific research, and of the study of the history of science. He urged the members to embrace the largest possible field of inquiry, and to exhibit a universal scientific tolerance. Though Cockle, a prominent lawyer, had come to Brisbane from England in 1863 to be the Chief Justice of Queensland, it was his reputation as a distinguished mathematician (in fact one deserving the prestigious honour of being elected as Fellow of the Royal Society, London) that gave him the credentials to lead the Queensland Philosophical Society for fifteen of the first nineteen years of its existence.

More Distant Happenings and Their Influence

We may wonder why it is that we, who are familiar with twenty-first century parlance, get the distinct impression that in the Queensland of the mid-nineteenth century there must have been a predilection for circumlocution: why did the leaders of thought at that time not simply refer to 'physics,' for instance? The answer lies in the fact that this was the era of transition, from an old terminology which had been in use within the world of learning to a new way of recognising a particular area of knowledge, having regard to its scope of inquiry and its methods of investigation. As recently as 1833 the Cambridge polymath William Whewell[11] had coined the term 'scientist,' investing that word with the specific meaning which it has today. While he was about the business of inventing nouns, Whewell gave the English language the word 'physicist' in 1840. Although 'physics' had been in use one way or another, depending on perceived etymological relationships, for several centuries, it is probable that the noun first began to assume the restricted meaning familiar to us today around the year 1715. Whether or not Newton[12] had become aware of this restricted meaning of the word, he certainly did not attempt to make use of the nomenclature in the third (final) edition of his *Principia*, published in 1726, a year before he died. Of course, it is not at all clear what Latin word would have been deemed appropriate as a *translation* of the lately concocted *English* word 'physics' anyway. Why abandon the universally accepted name 'philosophia naturalis,' or its equivalent when translated into English, 'natural philosophy'?

When the President of The Royal Society, Samuel Pepys, had given his imprimatur for the publishing by that society of Newton's first 'magnum opus' (the outcome of delicate negotiations on the part of Edmund Halley) on 5 July 1686, it was for what subsequently turned out to be a three-part treatise given the title *Philosophiæ Naturalis Principia Mathematica*: in English, 'The Mathematical Principles of Natural Philosophy.'

Isaac Newton's second major work, *Opticks*, was very different in nature. It was first published in the *English* language (1704) rather than in Latin, and tended to be principally a compendium of best experimental practice. However, the inclusion in *Opticks* of a set of 'queries'—in the form of rhetorical questions—had the effect of pointing the way to a rather broader natural philosophy that could be termed 'experimental natural philosophy,' in the pursuit of which both rigorous mathematics and deduction from experiment had roles to play. Armed with powerful tools and rules of engagement, prediction of new phenomena was to become a vital hallmark of this branch of science.

From the time of the publication in 1840 of the first edition of his seminal two-volume work, *The Philosophy of the Inductive Sciences, Founded upon Their History*, Whewell (a Kantian) was tackling the task of trying to define the boundaries of the various branches of science he had identified, including (experimental) natural philosophy. His views were to play a large role in defining, for both the scientific

11. J. Venn and J. A. Venn, "William Whewell" in *Alumni Cantabrigienses,* ed. J. Venn and J. A. Venn 6:2 (Cambridge: Cambridge University Press, 1922–1958): 425.

12. Sir Isaac Newton (1642–1727), English natural philosopher and mathematician. In 1694 he strongly cautioned against educating for engineering practice without laying down a firm foundation of theoretical scientific knowledge, expressed in a letter to Nathaniel Hawes. See *The Correspondence of Isaac Newton* vol. 3, ed. H. W. Turnbull, J. F. Scott, A. R. Hall, and L. Tilling (Cambridge: The Royal Society at Cambridge University Press, 1959–77), 357–367.

community and the general public, what was to be understood by *science* in the early years of the Victorian era.

Although by the mid-nineteenth century the name 'physics' was running in tandem with 'natural philosophy,' it was actually the latter title which prevailed in the naming of the discipline in each of the first wave of Australian universities (Sydney, Melbourne, and Adelaide). Indeed, in the University of Melbourne the Department of Natural Philosophy did not become known as the Department of Physics until as late as 1945. Whilst a rigid taxonomy was clearly a vital tool when employed (in a practical way) to advance the biological and earth sciences, it could on the other hand easily act as an impediment to the understanding of where to place 'physics' or 'natural philosophy' within the broad spectrum of scientific—and technological—endeavour. During the nineteenth century colonial era in Australia, when the first universities were being established and the Australasian Association for the Advancement of Science (AAAS) came into existence during the centennial year 1888, much uncertainty was in evidence. That is not to be taken to imply, however, that the Australian situation was all that much different from elsewhere.

In 1875 the University of Adelaide appointed Horace Lamb[13] from Trinity College, Cambridge, as its foundation Elder Professor of Mathematics and Natural Philosophy. During the time of his impressive occupancy of that post he was elected a Fellow of The Royal Society, London, in 1884. While he was an undergraduate at Cambridge Lamb had performed brilliantly in the Mathematical Tripos. Two of his professors, James Clerk Maxwell and George Stokes, had a powerful influence on him, and were undoubtedly responsible for the immense contribution he was able to make to a diverse range of topics in *physics* while in Adelaide, and also following his return to England. As it happens, Maxwell was the then recently-appointed foundation Cavendish Professor of Experimental Physics, Stokes the long-standing Lucasian Professor of Mathematics. The latter is the same chair at Cambridge that in the seventeenth century had been occupied by Sir Isaac Newton; in our time, it has been held by Stephen Hawking until his recent retirement.

It is widely recognised that physics and its principal tool, mathematics, share a very close relationship. It would be hard to say of someone of the intellectual calibre of Lamb, 'There goes a mathematician *par excellence*,' without appearing to denigrate his role as an eminent physicist. By virtue of the nature of his post in Adelaide, Lamb was of course required to run laboratory classes in 'experimental natural philosophy' for undergraduates, but it would be equally unwise simply to refer to him as a physicist. We are fortunate today to be able to make use of the modern appellation 'theoretical physicist' and thereby to accord to Horace Lamb the honour that he so richly deserves within the discipline of physics.

A Question of Visibility or Otherwise

If 'mathematics' and 'physics' (or 'natural philosophy') caused some identity problems, it is also true to say that 'astronomy,' 'tidal prediction' and 'meteorology'—not forgetting 'mechanics'—just added to those problems. It is therefore not hard to see why in a discussion about, or when entrusted with the planning of, a university that was to operate within the Queensland context, influential groups of citizens and political figures would choose to start from the opposite perspective. For them the first task had to be one of identifying the 'engineer,' the 'lawyer,' the 'doctor,' the 'businessman,' the 'mine manager,' the 'teacher,' and so on, since each of these people could be recognised as a well educated practitioner, who was both visible and tangible, within the local community. The problem with this approach was that for the majority of the well-meaning arbiters of what should or should not be taught in a university, their judgements on that important aspect would, at best, be made on the basis of remembrances of their

13. R. B. Potts, "Lamb, Sir Horace (1849–1934)" *ADB* vol. 5 (Melbourne: Melbourne University Press, 1974), 54–55.

own reactions to the various subjects taught to them at secondary school. Considering the far-reaching advances in understanding that took place within several areas of physics over just a few years as a result of Horace Lamb's diligent research in Adelaide, fossilised notions of what a scientific discipline such as physics entails could easily prove to be inimical to the university cause in Queensland. Fortunately, when the time for hard decision-making came during the first decade of the twentieth century, a serendipitous enlightenment emerged in Brisbane, primed and ready to affect a balance.

During the years that followed the foundation of the Queensland Philosophical Society, and its later rebirth as The Royal Society of Queensland, one would have looked in vain to find someone in the membership list described as a 'physicist.' The same could be said of those involved in the Queensland Acclimatisation Society, founded in the same year as was the Queensland Museum, 1862. Unlike the other Australian colonies, Queensland did not move to appoint a colonial (government) astronomer. There is a touch of irony in this because the man after whom Brisbane is named, General Sir Thomas Brisbane FRS,[14] Governor of NSW from 1821 to 1825, was an eminent astronomer, widely respected in professional circles. The related professional legacy left to the Australian colonies by Sir Thomas Brisbane was meteorology, but it was not until the appointment in 1887 of Clement Wragge[15] as Government Meteorologist that Queensland was able to recognise a professional meteorologist amongst its scientific community. Prior to that date some of the members of the Philosophical Society of Queensland, and of similar bodies, had been carrying out meteorological *observations* in an amateur capacity. However, it was a time when *physicists* elsewhere were making tremendous advances in the areas of thermodynamics and fluid dynamics, which are so fundamental to meteorology. The amateur observers in general, though skilled in their tasks, would hardly have been cognizant of the *physics* which was destined to take meteorology to new heights of scientific sophistication. In a very real sense, physics was the *invisible* professional scientific discipline in Queensland.

The 'charter' for the parallel development of fundamental science and technology in the emerging Queensland Colony which Cockle had been at pains to promote in the 1860s had not really been given much chance to shape reality, given the Colony's demographical evolution. Then a clarion call that came from a local ship-builder was heard, at least by the members of The Royal Society of Queensland, in the year 1900. That influential Brisbane ship-builder extraordinaire was J. W. Sutton.[16]

Among the leading engineers in Brisbane during the latter part of the nineteenth and the early part of the twentieth centuries, two names definitely stand out: Edward Barton[17] and J. W. Sutton. Barton is best known for his role in providing the first commercial electricity supply to clients in the main city area of Brisbane in 1888. The Brisbane Technical College had been founded in 1884, and from 1889 until the end of 1904 Barton was involved in its teaching programme, initially in relation to 'electricity,' then in 'electrical engineering,' and eventually extending to 'physics.' As might be expected, his breadth of coverage of the vast field of physics (even as it was in his day) in his Technical College—and other—lectures was essentially, but not exclusively, restricted to certain topics in electricity and magnetism.

Barton took a genuine interest in education generally, and particularly in technical education. In 1894 he expounded for the benefit of the general populace his ideas on the topic of 'useful versus useless subjects in our schools.' Although he was clearly a person who had received a very well balanced education himself, and was an eloquent speaker and writer, he placed English grammar and music at the top of his *useless* list. On 16 April 1910 the name of 'Edward Gustavus Campbell Barton, Esquire, MIEE' appeared on the list of members of the first Senate of the University promulgated by the Queensland Government. At the Senate's first meeting on 22 April, Barton was appointed a member of the Curricu-

14. J. D. Heydon, "Brisbane, Sir Thomas Makdougall (1773–1860)" *ADB* vol. 1 (Melbourne: Melbourne University Press, 1966), 151–155.
15. W. J. Gibbs, "The Origins of Australian Meteorology" *Metarch Papers* 12 (June 1998).
16. J. W. Sutton arrived in Queensland in 1868, and established a Kangaroo Point ship-building and general engineering firm J. W. Sutton and Co. Worth noting is his Presidential Address, in *Royal Society of Queensland Proceedings* 15 (1900): viii–xxv.
17. S. A. Prentice, "Edward Barton (1858–1942) Pioneer Electrical Engineer" *Memoirs of the Queensland Museum* 27:1 (September 1988): 1–110.

lum Committee for the university. In another slightly bizarre twist, in April 1912 Barton found himself as Chairman of a Senate Committee investigating the idea of public music examinations being conducted in Queensland under a joint arrangement with other universities in Australia; subsequently he became a member of the Music Committee. More in line with what one might have expected, however, was the fact that, since he was the only practising engineer on the first senate, he had been selected as the inaugural Chairman of the Building and Site Committee.

J. W. Sutton and Edward Barton have this much in common: they were both professionally involved in the demonstration of early electric lighting systems in Brisbane. In Sutton's case it was of a cluster of street-lights in Queen Street, in December 1882. An experienced engineer, he had taken up residence in Queensland in 1868, and his firm of J. W. Sutton and Co. became involved in building iron ships at his shipyard at Kangaroo Point, as well as in other diverse ironwork in the colony. In 1877 he became a member of the Queensland Philosophical Society, and then in 1899 was elected President of the Royal Society of Queensland. Here was a well respected Queensland engineer who was not afraid to speak publicly of his own passionate interest in keeping abreast of the fundamental physics that he knew under-pinned his practice as an engineer. He had certainly impressed his Royal Society colleagues on 8 August 1896 when he gave the first public demonstration in Queensland of Röntgen rays (otherwise known as X-rays). Just nine months earlier, on 8 November 1895, the physicist Professor Wilhelm Röntgen had discovered X-rays while working in his laboratory at the University of Würzburg in Germany. Sutton had developed a personal experimental laboratory in Brisbane, and it was there, about two weeks before his public demonstration to the society, that 'a few of the leading medical men in Brisbane' had gathered for a private demonstration.

Socio-economic Perturbations

The erudite presidential address delivered by J. W. Sutton to The Royal Society of Queensland clearly showed that he was the true intellectual successor to Sir James Cockle, who had promoted his charter for the parallel development in Queensland of fundamental science and technology. Perhaps it was because of Sutton's age—he was 18 years older than Edward Barton, and died in 1913—he was not selected for a seat on the first Senate of the university in April 1910. Between the report of the Royal Commission of 1891 and the provisions that were contained in the University Act of November 1909, there had been some major oscillations in thinking. The so-called 'Federation Drought' which began in 1895 had a devastating effect on the rural sector of Queensland: it was not until at least 1904 that the situation began to improve, but by then a rather different economic focus was blossoming—the mining industry. The University Extension Movement had to struggle to hold its own during this very trying period of socio-economic perturbation, but eventually the tide of public opinion concerning the desirability of establishing a university on the ground in Brisbane began to turn. The leaders of the Extension Movement decided that the time was opportune to stage a University Congress in November 1906. It brought together around 150 people from all sections of the community to listen, debate, and plan for a University of Queensland.

The staging of this University Congress was a crucial, and in many ways highly successful, venture, but there were also some ominous signs. One of the outcomes was a draft of a bill for consideration by the government. Another was that the leaders of the congress took steps to regroup, forming a body known as the University Movement, primed to begin negotiations with the government. The main thrust was to be in the direction of scientific and technical education. The government's own comprehensive plans for the education sector envisaged the establishment of a Central Technical College; close linkage of this with the proposed university was considered a high priority. Given these parameters, the outlook for physics as a foundation discipline in its own right within the *university* began to look

rather bleak. Indeed, the recommendation from the Curriculum Sub-Committee which would be going forward was that the first three professorial appointments should be in engineering, mining, and arts: this clearly represented a rather dramatic change in thinking from the ideas that had been expressed in the 1891 propositions. If physics was going to be squeezed in anywhere here, it would have to be in the shape of a limited-scope appendage to engineering.

A Broader Perspective, but Still the Struggle Continued

The first AAAS Congress held in Brisbane in January 1895 was the sixth meeting of that organization. Editorial comment in *The Brisbane Courier* included praise for the efforts of those Queenslanders who had presented papers, and then went on to draw attention to the 'vital relationship between the Association and the colonial universities' and urged its readers to seize the first opportunity to 'establish a University of Queensland.' The next AAAS Congress to be held in Brisbane was in January 1909, the year in which the push to establish a university in Brisbane finally reached its fulfilment. Fortuitously, the presidential address was delivered by the eminent *physicist* Professor William H. Bragg[18] from the University of Adelaide. His masterful speech made a great impression on the audience. At long last, physics had ceased to be the problematic, completely *invisible*, professional scientific discipline in Queensland. Although Bragg was to leave Adelaide shortly after this to take up the Cavendish Chair of Physics at the University of Leeds, he was destined to have one further important role to play, on behalf of The University of Queensland, in the appointment of its first professors.

The 1909–1910 version of the plans for establishing the university called for three foundation faculties—Arts, Science, and Engineering—and four Chair appointments. As to the chosen faculties, those on this definitive list represented, in effect, the distilled essence of several decades of (sometimes heated) discussion and very earnest planning which finally led to the official founding of the university on Saturday 16 April 1910. The newly appointed senators were summoned forthwith to their first senate meeting on the afternoon of the following Friday, 22 April, in Parliament House.[19] Protocol demanded that the formal election of the Governor as Chancellor proceed with the Minister for Education (Hon. W. H. Barnes)—not a member of the Senate—in the Chair briefly. Shortly after assuming the Chair, the Chancellor presided over the election by the Senators of the Vice-Chancellor (essentially equivalent to 'Deputy Chancellor' in the terminology adopted much later). The unanimous vote was in favour of Mr. R. H. Roe, the former long-time headmaster of the Brisbane Grammar School. This Oxford-educated English intellectual was to prove himself more than able to hold his own in serious debate with the recently-arrived Scot from Aberdeen, now both the Governor of the State and the Chancellor of The University of Queensland, whose future had yet to be defined.

The career public servant, Mr. J. D. Story,[20] permanent head of the Department of Public Instruction, had done his homework for the first senate meeting so well that when he submitted a number of strategic proposals for consideration, via the mechanism of a notice of motion, the senators agreed that they preferred to vote on such matters immediately. Provisional committees were set up—Finance, Administrative, Building and Site, and Curriculum—the Chancellor and Vice-Chancellor to be *ex-officio* members of each of the committees. Clearly, the Curriculum Committee, above all, had to move swiftly if there was to be any hope of commencing teaching in 1911. Its duties were defined as being:

18. S.G. Tomlin, "Bragg, Sir William Henry (1862–1942)" *ADB* vol. 7 (Melbourne: Melbourne University Press, 1979), 387–388.
19. Details relating to each of the early Senate Meetings referred to in this paper are found in the compilation The University of Queensland Senate, *Minutes of Meetings* vol. 1 (Brisbane: Government Printer, 1910–1911).
20. Georgina Story, "Story, John Douglas (1869–1966)" *ADB* vol. 12 (Melbourne: Melbourne University Press, 1990), 110–112.

1) To submit recommendations as to the matriculation requirements;

2) To suggest the conditions to be observed in regard to the award of the government scholarships and medals;

3) To submit recommendations as to the Chairs to be established, and the method of appointment of Professors and Lecturers; and

4) To submit a draft calendar for the first university year.

It was absolutely essential that the third item on this list be acted upon with haste.

The Curriculum Committee presented its first report to the second senate meeting on 11 May. A week later, at the third meeting on 18 May, a motion was passed that degrees were to be granted in three faculties—namely, Arts, Science, and Engineering. In regard to the inaugural professorial positions, it was resolved that in the current round four Professors should be appointed, 'namely Professor of Classics; Professor of Mathematics and Physics; Professor of Chemistry; and Professor of Engineering.' The salary was fixed at £900 *per annum*. Applications for the Chairs were to be invited by advertisement in the United Kingdom and in Australasia. Applicants from the UK, Canada and the USA were to send the paperwork to the Office of the Agent-General for Queensland (in London). The Agent-General and Professor Bragg, together with one eminent authority in England in each faculty selected by them, would be requested to recommend the three most suitable candidates for each Chair from amongst those applicants. Applications from Australasia or elsewhere were to be forwarded straight to the University Registrar. The closing date worldwide would be 31 August.

The newly appointed Agent-General for Queensland in London was Sir Thomas Bilbe Robinson,[21] a former shipping manager with very considerable commercial experience. MacGregor must have felt emboldened by the apparent 'defeat' of the utilitarian model, for he wasted little time in acting unilaterally to despatch Robinson to offer the Mathematics and Physics Chair (at £200 above the advertised salary) to the brilliant physicist Ernest Rutherford, who was at that time Professor of Physics at the University of Manchester. The bid failed.

It is curious that after receiving the second report of the Curriculum Committee at its Meeting on 25 May, the Senate had resolved to send a letter to the 'Home Selection Committee' (i.e., the one in England) requesting that 'in the selection of Professors of Science and Engineering, preference be given to those who have a special knowledge in the practical application of those Sciences to the industries of Queensland.' One senses that at that stage the power struggle was not over just yet.

The date for the commencement of teaching had been set by the senate as the second Tuesday in March 1911. A somewhat unwelcome complication emerged from the senate meeting of 1 August 1910, with the formal recognition that provision would have to be made in 1911 for the teaching of *second year* subjects in Arts and Science for suitably qualified students.

In England, Professor Bragg and Sir Thomas Robinson set to work with the members of their various selection committees to conduct the required interviews and make their assessments of the candidates on offer. By 9 November 1910 the university had to hand the reports from the Agent-General. In the case of the Chair of Mathematics and Physics, the recommended candidate was the 27-year-old English mathematician Henry James Priestley,[22] highly qualified in mathematics. Priestley was certainly acquainted with physics, having spent two years of his time in Cambridge working on electromagnetic-wave research projects in the physics laboratory. There was an exceptionally lengthy meeting of the Senate on 8 December 1910, for the purpose of allowing the members to review the Chair applications and consider the reports from the selection committees. Put to the vote, Mr. Henry Priestley emerged the favourite for Mathematics and Physics, having fourteen votes as against five for Mr. J. J. Durack.

21. Paul D. Wilson, "Robinson, Sir Thomas Bilbe (1853–1939)" *ADB* vol. 11 (Melbourne: Melbourne University Press, 1988), 427–428.
22. C. S. Davis, "Priestley, Henry James (1883–1932)" *ADB* vol. 11 (Melbourne: Melbourne University Press, 1988), 295.

The Senate thereupon resolved 'That Mr. H. J. Priestley be appointed to the position of Professor of Mathematics and Physics in the University of Queensland.' It was almost Christmas by then.

The Cloak of Invisibility is Finally Lifted

Back in May 1910 the pious hope of the Senate, when fixing the date in March 1911 for the start of first term, was that each professor would be on duty by 1 January 1911. Clearly, that was just not going to be possible for Priestley. In fact he managed to reach Brisbane on Wednesday 15 February 1911, just short of four weeks before the beginning of term. The thought of having to start teaching first year, and probably second year, students in both the mathematics and physics disciplines at very short notice must have been somewhat daunting for the professor. He was successful in convincing the senate of the need to advertise a Lectureship in Physics immediately; accordingly it endorsed such urgent action at its meeting on 27 February. By a hair's-breadth, physics had finally been given official recognition as one of the foundation disciplines in their own right to be established within the fledgling University of Queensland!

Early in 1904 a twenty-two-year-old Cambridge physics graduate, Thomas Parnell,[23] had arrived at the University of Melbourne to take up duties as Lecturer and Tutor (in Physics, Chemistry and Mathematics) at Trinity College. Seven years later, on 16 March 1911, he submitted an application for the position of Lecturer in Physics at UQ. A telegram to him from the Registrar on 24 March, on behalf of the Senate (confirmed by letter dated 25 March) informed him that his application had been successful, and that he should 'enter upon duty no later than the 24th April, if possible.' Parnell replied by telegram, with: 'Telegram received letter not yet to hand probably arrive Brisbane April 21st.' Parnell's salary did indeed commence on 21 April 1911, right on cue.

Meanwhile students had been arriving at the university from the beginning of term, only to find that there was utter confusion as to what areas of study across the university would be open to them, and from what date. With Parnell's appointment, at least two of the disciplines which simply had to be pivotal for science students, mathematics and physics, were actually under way, albeit just a little tardily.

Epilogue

Thomas Parnell devoted the rest of his life to the development of the university, not just his own discipline but also in the broadest sense. The university's recognition in 1918 of the importance of the discipline of physics had led to Parnell's appointment as its first Professor of Physics, from 1 January 1919. Professor Parnell died on 1 September 1948, while still Head of the Department of Physics and a man held in honour by the university which he had served with distinction for more than thirty-seven years.

23. R.W. Home, "Parnell, Thomas (1881–1948)" *ADB* vol. 15 (Melbourne: Melbourne University Press, 2000), 570–571.