

UNIVERSITY OF BRISTOL

Gazette for April 1971

FIFTY YEARS AGO

The following extract is taken from the Minutes of a Special Meeting of Council on 7th June, 1921 (Present: Mr. George A. Wills (Pro-Chancellor) in the Chair; Mr. H. H. Wills (Pro-Chancellor); Mr. Stanley H. Badock (Treasurer); Mr. Hiatt Baker; Professor Dobson; Professor Ferrier; Professor Francis; Professor McBain; Professor Tyndall. Mr. Oatley, the University Architect, also attended):

"Received and approved: the following report from the Special Buildings Committee: —

NEW PHYSICS BUILDINGS PROPOSED TO BE ERECTED ON THE ROYAL FORT

The plans and design of the New Physics Building (to be placed 110 feet away from the Royal Fort House, and to take the place of the Stable and the old Manor House) have been carefully considered by the Sub-Committee appointed in June, 1918, consisting of the Vice-Chancellor, Professor Francis, Professor Tyndall and myself, and have been drawn and designed by the Architects, Messrs. Oatley and Lawrence.

The plans and design were placed before the Special Buildings Committee on May 27th, 1921 (Mr. Oatley being present) and the Committee approved the plans and design subject to the Council's agreement.

The Contract for building has been drawn up by the Architects and submitted to me, and has been approved by the solicitor to the University, and the Committee . . .

. . . I move that Council authorise the Contract to be sealed by the University, and signed by Messrs. Henry Willcock and Co., and that the New Physics Buildings be erected as soon as possible on the Royal Fort, and that the plans and design are approved by the Council.

(Signed) H. H. WILLS, Chairman."

(Mr. Henry H. Wills had purchased the Royal Fort House and grounds and presented them to the University, and he provided the funds for the erection of the New Physics Building, subsequently named the Henry Herbert Wills Physical Laboratory.)

The sequence of events, which culminated in this entry in the Minutes of Council, had begun a little over five years earlier on 12 April 1916. On that day Mr. Henry Herbert Wills met Dr. Arthur Mannering Tyndall in the latter's room in the Department of Physics. This was then in part of the buildings inherited from University College on University Road. Forty years later, Tyndall wrote, "No one could have forecast the future consequences of that meeting". The purpose of this note is to describe some of the 'future consequences' in the context of the 1921 minute.

Something may first be said about Harry Wills and Arthur Tyndall. Wills was at this time sixty years of age and as Chairman of the Special Buildings Committee (established in June 1914) and a member of Council was active in University business. After his retirement in 1918

the University became a main preoccupation. He was absorbed by problems of building design and his portrait in the Reception Room appropriately shows him holding a plan. He had a perceptive and sometimes disconcerting eye for "work in progress". Harry and his elder brother, George (later Sir George), were the eldest of the six sons of Henry Overton Wills and they had provided funds for the erection of the Main Building in memory of their father. Neither George nor Harry had had a University education, a fact which George, Pro-Chancellor, Chairman of Council and Treasurer, is said to have regretted. Harry had followed George to Mill Hill, but became a dayboy at Clifton in 1872. His younger brothers, one of whom went to Cambridge, followed him to Clifton. In 1875 Harry Wills served one year of an apprenticeship at the Avonside Engine Co., joining the family firm of W. D. & H. O. Wills in 1876. His name appears in the register of those attending day and evening classes in the first session of University College, 1876-77. Later Wills described himself as 'trained as a mechanical engineer'; in fact his formal training was brief, but his enquiring mind and responsibility as technical director of the firm of which he became a partner in 1884 enabled him to play a part in the adoption and development of cigarette machines and mechanical packers. His management of the export factory often took him overseas.

In April 1916 Arthur Tyndall was thirty-four years old and had been acting head of the Physics Department since 1910. Tyndall's long association with the University College and with the University, which he had vigorously helped to promote, is unique. He had entered the University College at the age of seventeen in 1898, having won the only annual scholarship offered by the City for study at the College. In the following year he began the intermediate course in Physics for an external degree of the University of London. In the year of his graduation, 1903, he became an Assistant Lecturer. This was the start of forty-five years of service in the University, which was punctuated only by a brief period of secondment in the winter of 1915-16 to a military Radiography Unit at Bramshott in Hampshire. Had he not been recalled to Bristol early in 1916, he would have been posted to the Mediterranean. Retrospectively we can see that had Tyndall not been urgently called back to the University at this time, the history of the development of Physics at Bristol might indeed have been different. In 1919 Tyndall became Professor of Physics and by the year of his retirement, 1948, he had held office as Pro-Vice-Chancellor and as Acting Vice-Chancellor. He was elected a Fellow of the Royal Society in 1933. No figure in the University's history can have commanded more respect and affection. He had a marvelous eye for spotting ability in young physicists and the support and encouragement, which he gave to students and colleagues in his Department, was fundamental to his calling. One recalls him as a man of courtesy and great charm; his shrewdness was enriched by generosity of spirit, a sense of humour and disarming modesty. He died in October 1961 in the house in which he had lived in Henleaze Gardens since 1915.

These personal descriptions are significant because the enthusiasm of Tyndall for a new Physics building and his enlistment of first the interest and then the generous financial support of Harry Wills are central to the story. From an early stage Mr. George (later Sir George) Oatley was closely engaged in collaboration with them. Each man worked hard individually: together they were a powerful team. It was Oatley's role to fulfill in architecture the needs and the wishes of the other two men. Oatley's skill and learning in the Gothic style was no doubt congenial to both George and Harry Wills. They had already commissioned him to design the Main Building and the University Tower. Oatley was in partnership with his brother-in-law, G. C. Lawrence, but little University correspondence to the firm of Oatley and Lawrence was ever the latter's concern. In due course, Mr. Ralph Brentnall became Oatley's partner.

Wills and Tyndall met in April 1916 to discuss the choice of a site for batteries and a generating plant to supply additional electricity to the Great Hall and to supply, Tyndall hoped, the Physics Department. Ultimately the project was never fulfilled, but as a result of further meetings, which George Oatley sometimes joined, Tyndall and Wills acquired mutual respect and became friends. During the summer of 1916 Tyndall may well have wondered whether he had found in Harry Wills a potential patron of Science in general and of Physics in particular. This at least seems likely, because on 21 October Tyndall sent Wills a general scheme of extension "as a pressing necessity if the University is to take its full part in the development of science and its applications to industry after the war". Harry Wills took notice and replied a week later that the statement "raises (as far as I am concerned for the first time) most important issues". This letter was written soon after a meeting on 24 October of the Special Buildings Committee at which Tyndall was present (though his name does not appear in the minutes). At this meeting, in Arthur Tyndall's words, "the possibility of a new Physics Wing was even broached". This was what Tyndall most wanted, but his influence was limited, for he was not even a member of Senate, and patience and diplomacy were needed. There were two possibilities. The first was the reconstruction, strengthening and adaptation of existing buildings, possibly with some extension. This was investigated, but on 30 December Oatley told Wills that he would regard "as wasteful any significant and material expenditure". Meantime, Tyndall had written to Harry Wills on 29 November offering to show him over "the existing buildings whenever you care to go into the question of future accommodation for Physics". At the same time—this was the second possibility—he wrote of a new building, suggesting 34,000 square feet of space. The letter ended, "the University would then have a Physics Department to be proud of".

Tyndall clearly caught the imagination of Harry Wills. The seeds of the idea germinated quickly. Before 9 March 1917, when Wills was negotiating the purchase for £20,000 of the nine acres which remained of the Royal Fort estate, he mentioned to Tyndall the possibility that part of the estate might be suitable for Physics. Dr. Tyndall was not sure about the area suggested: he thought it was too close to the noise of Park Row and of its trams. There was, however, in Wills's view, an alternative in the land on which the Senate House now stands. This he bought for the University, incurring an obligation of a peppercorn rent for ten thousand years from 1902.

The nature of Tyndall's exchanges with Harry Wills during much of the summer of 1917 is unclear. Tyndall was obviously working hard, for on 27 July he wrote to Mr. Oatley, "I am sending you my copy of a rough plan of proposed building and the summary which Mr. Wills suggested". The nine-page summary gave particulars of a building of 49,885 square feet. It is most improbable that Tyndall could have envisaged himself preparing such a plan twelve months earlier. He was already thinking of a Laboratory, which would possess extensive research facilities. These he regarded as essential if his ideas and ideals were to be fulfilled.

On 31 August a decisive meeting of the Special Buildings Committee was held. Oatley presented block plans "setting out a completed scheme on 'The Fort' estate for additional future buildings for the University, in the form of a parallelogram enclosing a quadrangle (or possibly more than one)". A penciled plan of 12 December 1917 indicates the ambitious way in which it was thought that the Royal Fort estate might, in the long term, be used. A campus with six towers, comparable to that of the present Physics Laboratory, was envisaged: the site was to be fully exploited and in the process beautiful landscape gardening by Humphrey Repton would eventually be sacrificed. Oatley, we may presume, had drawn his plan to meet the wishes of Harry Wills. The plan may be regarded as undesirable in several ways, but it was the

product of thought for a long-term and very expensive future. The meeting was lengthy and at its start Tyndall may well have been anxious about its outcome. What decision for Physics would be made? Earlier in August, he had written to Wills, "I have now no hesitation in saying that the south corner of the Fort estate is the best site for Physics. The more I think of it, the more enthusiastic I become". All ended well at the meeting, which finally instructed Mr. Oatley to prepare sketch plans for a new Physics Department "on the southern half of the proposed future line of buildings facing East and West on that part of 'The Fort' estate proper adjoining University Walk". A site for a residential college was also chosen.

When the Special Buildings Committee next met, on 7 June 1918, preliminary plans and elevations were submitted by Oatley and Tyndall. There is a note in Oatley's handwriting that the building would cost £72,000 at pre-war prices. "What it is likely to cost now", he added, "no one can say." The report of the Committee came before Council on 21 March 1919. It emerges that Harry Wills had expressed his intention of giving "certain 5 per cent National War Bonds" to form the principal of "The Royal Fort Physics Building Fund". This is not recorded in the original minutes of June 1918, but it seems to have been at this time that he announced his intention. The bonds were of the value of £100,000. In 1920 he gave a further £100,000, recognizing that "owing to the times and excessive prices" his earlier gift would not be sufficient.

During 1919 Tyndall spent eleven weeks (at a cost of £448) in the United States and Canada visiting laboratories; for three weeks he was accompanied by George Oatley, who on his return to his office in Bristol briefly described his visit as disappointing and then asked for his mail. Shortly after Tyndall's return, his appointment to the chair of Physics, which had been vacant for nine years, was announced. He presented a report to the Special Buildings Committee on 25 July 1919; it does not appear to have survived. This meeting was an important one because it was decided to recommend to Council that the Physics site should be changed from that agreed in 1917 to the position on which the Laboratory was subsequently built. The initiative came from Tyndall himself and his wish was clearly sound. He later wrote, "I found an excuse for shifting the site . . ." The nature of his "excuse" is not known.

Oatley and Tyndall now worked hard on the final plans. At the latter's suggestion it was agreed, early in 1920, that Mathematics should occupy the third floor. This plan involved "wholesale rearrangement", as well as the assent of Harry Wills. Wills now hoped that the Physics Laboratory would be ready "about the same time" as the Main Building, but the final plans were not advanced enough for completion of a contract with builders until 1921. The matter had, however, been discussed with Mr. John Ward, partner of Henry Willcock, early in 1920. The choice of Henry Willcock and Co. as contractors was a natural one. The firm was proving its reliability and the quality of its work on the Main Building. The subsequent negotiation of terms, in which Harry Wills showed his habitual attention to detail, was satisfactorily completed. Demolition of buildings on the site began on 30 May 1921, a few days before Council approved the signing of the contract.

Sadly, when Harry Wills died on 11 May 1922 only the foundations of the Laboratory had been laid. Tyndall later described his gift as "at that time the largest in the history of Physics in this country". The Laboratory was opened on 21 October 1927 by Sir Ernest (later Lord) Rutherford, the President of the Royal Society. The University was proud to display what it believed to be the finest laboratory of its kind in the country. If the external appearance of the Laboratory caused surprise, the celebration brochure stated that "the building as designed is the

first installment of an extensive scheme of University buildings intended by the late Mr. H. H. Wills to crown the top of a hill overlooking the city, and to be a distinctive feature in distant views of the city". Herein lies the key to the architecture. A Georgian style might have been chosen, but Oatley believed that his own favourite idiom of the Renaissance would give greater scope for free development. The theatre wing was carefully designed to balance the Georgian mansion, which it faced. The title of the Laboratory bore the name of Harry Wills, as had been decided in 1921. The title of 'Physics Laboratory' has only been formally adopted comparatively recently. In 1927 and for many years after, departmental notepaper was headed *Henry Herbert Wills Physical Laboratory*.

J. W. SHERBORNE

I am grateful to Mr. Ralph Brentnall for his help and for allowing me to consult plans and letters retained in his office. Dr. Bernard Alford supplied some information about Harry Wills's business career. The University Library has a copy of Professor Tyndall's History of the Department of Physics in Bristol, 1876-1948; this was written in 1956 and privately circulated.