

Jay 2/15

The Origins and Early History of the National Institute  
for Research in Nuclear Science

by Sir John Cockcroft

2.2.

The Foundation of the National Institute was primarily due to the success of the Berkeley and Brookhaven proton synchrotron in pushing forward the frontiers in High Energy Physics and the development of a general feeling <sup>amongst</sup> ~~among~~ nuclear physicists in U.K. that if we were not to abandon completely this field of physics it was necessary to build a multi-billion volt accelerator in the U.K.

A conference was called at Harwell in May, 1955 at which there was a general discussion on what type of high energy accelerator should be built. The discussion centred on the relative advantages of building a machine for very high energies - in the 12 BeV range - or a machine giving a 100 times higher intensity than the Berkeley 6 BeV machine but in the same energy region. There was also much discussion about whether an accelerator should be built to produce 2-3 BeV particles with intensities of several micro-amperes. Opinion seemed to be equally divided between the 12 BeV machine and the 6 BeV high intensity machine.

Prior to these technical meetings discussions had been proceeding between the Treasury, the U.G.C., the D.S.I.R. and the A.E.A. on the future method of financing of nuclear physics research.

In June 1954 the Treasury wrote to Sir Donald Perrott to say that the D.S.I.R. were contemplating transferring the responsibility for fundamental research in the universities to the U.G.C. and wished to be assured that there would be a sound division of responsibility between the U.G.C. and the A.E.A.

This was followed by a Treasury meeting on June 30th 1955 (E. W. Playfair in the chair). At this meeting the D.S.I.R. said that they would like to withdraw from making large scale grants to universities from September, 1957 and the U.G.C. suggested that the A.E.A. should take over the responsibility.

I suggested that any further big equipment which might have to be provided for university research should be set up at a new central establish-

ment to which all interested universities could have access. Sir Keith Murray supported this proposal but did not wish the Establishment to be sited too near a university because of difficulties with comparative stipends. It was agreed to work out details for submission to Ministers.

The discussions were reported to the A.E.A. on June 30th 1955. Lord Cherwell strongly opposed the proposal for A.E.A. to take over the financing of nuclear research in the universities. At a further meeting on July 28th the A.E.A. declined to accept responsibility for the financing and operation of nuclear accelerators in universities but stated their willingness to consider accepting responsibility for a National Laboratory containing the larger machines in the multi-billion volt range.

A.T.R.E. now prepared tentative proposals for the 'National Centre for Advanced Nuclear Physics' and a memorandum from D. W. Fry proposed that the Centre should within the next 7 - 10 years embark on the building of 2 large machines at a cost of between £5 and £8 million. He advocated the building of the Centre near Harwell because of the difficulties of providing the specialised staff at any other site. There was also strong pressure from scientific groups at Harwell to house the centre on the Harwell site. (...Flowers' memorandum of October 28th 1955).

After this there was a Treasury meeting on October 4th to propose a submission to Ministers. At this meeting it was agreed that the A.E.A. and U.G.C. in consultation with the Universities should work out a detailed scheme for submission to the Lord President's Office and the Treasury.

By November 30th 1955 draft proposals had been prepared for the Construction of the National Research Centre for Advanced Nuclear Physics and the U.G.C. had consulted the Vice-Chancellors. These proposals were agreed in principle by Treasury Ministers by February 15th 1956.

By March 28th 1956 agreement had been reached between the U.G.C., D.S.I.R. and A.E.A. on the constitution of the Board of the Institute and this was discussed at a meeting of Vice-Chancellors on May 25th. By June 20th the agreement of the Vice-Chancellors had been obtained.

In July 1956 I submitted a paper to the A.E.A. recommending that the first

accelerator should be built near Harwell. This was strongly supported by Lord Cherwell and was agreed by the A.E.A. on July 26th, 1956.

One of the principal arguments put forward for this was the good quality of the Harwell sub-soil and the time which would be saved if we were to start building on a prepared site.

An informal meeting of physicists to discuss the programme was convened by Professor Devons on December 11th, 1956. There was general agreement on the need for the creation of a National Institute for the creation and operation of a 7 GeV accelerator. The meeting felt that the creation of the National Institute would not eliminate the need to install new developments in the universities of a size comparable with those now there. Suggestions were made about the relations between the universities and the Institute.

By December 19th 1956 the Lord President had approved the proposals for the foundation of the National Institute.

On February 1st 1957 the foundation of the Institute was announced by the Financial Secretary to the Treasury.

Lord Bridges was appointed Chairman of the Board and the first meeting of the Board was held on May 17th, 1957.

At the first meeting of the Board the A.E.A. offered to transfer to the Institute the Proton Linear Accelerator, the 100 MeV cyclotron and the Culham shower experiment. At the meeting of the Physics Committee there was considerable opposition to the transfer of the Proton Linear Accelerator and cyclotron largely because of the uncertainty of policy in building future medium size accelerators in universities. At a subsequent meeting on September 3rd the Physics Committee agreed to the proposal to transfer the Proton Linear Accelerator to the National Institute and this was endorsed by the Board on September, 30th. The A.E.A. formally agreed to this on January 23rd, 1958.

Dr. Pickavance was appointed Director of the Institute at the end of November, 1957.