

30th November, 1962.

NI/62/16

NATIONAL INSTITUTE FOR RESEARCH IN NUCLEAR SCIENCE

GOVERNING BOARD

The rate of Construction of the Electron Laboratory

Note by the Secretary

As will have been seen from the minutes of the General Purposes Committee, Professor Merrison has completed his first plans and estimates for the Electron Laboratory. A brief summary of these estimates is appended. A number of comments on these estimates are necessary.

It will be seen the total capital budget for the construction of the synchrotron and laboratory buildings corresponds approximately to that already agreed by the Treasury.

Professor Merrison states that the rate of spend is based on an optimistic programme when no major design or construction difficulties will be encountered. Such a programme leads to a date for the commissioning of the synchrotron of October, 1966, that is, a four-year rather than a five year construction programme. This necessarily entails a pattern of expenditure different from that envisaged in previous five-year forecasts of the Institute.

The present forecast indicates an excess expenditure in 1964/65 of £1 million, with a corresponding under-expenditure spread over the following three years. Unforeseen delays are of course probable, but some allowance for these had already been made by a "shadow cut" of £0.5 million in the total N.I.R.N.S. forecast for 1964/65, and it seems almost certain that the Laboratory can not be pressed forward with full vigour unless approval is obtained to spend more in 1964/65. Firmer figures than the present ones will not be available for several months, when there is definite information on the site and progress with some of the main plant items.

In these circumstances, the Minister for Science's Office has been informed, through the A.E.A., of the belief that the Laboratory can be built in four years, and it has been suggested that Treasury approval in principle to the acceleration should be sought, but that we should not submit revised figures until next spring when the 1964/69 five-year forecasts are prepared. No commitment of over-expenditure in 1964/65 would be made by next Spring in any case.

The Board are invited to consider whether they approve the action reported in the previous paragraph, or whether they consider that the pattern of expenditure laid down by the Minister should be adhered to. It must be pointed out that in giving approval of the estimate of £3.29M on 30th April, 1962, the Treasury explicitly reserved their position on the starting point for the programme of a 2 per cent growth of expenditure per annum, and commented: "in practice, this would no doubt imply that the N.I.R.N.S. might have to reduce the rate of the expenditure on the Laboratory."

A point should perhaps be added concerning the year 1963/64 for which estimates have recently been submitted to the Treasury. These show an expenditure of £6.51M at the Rutherford Laboratory and of £1.08M at the Electron Laboratory, less a "shadow cut" of £0.600M divided in an unknown way between the two. Undoubtedly it was assumed that a substantial part of the shortfall in expenditure represented by the "shadow cut"

would arise at the Electron Laboratory. The new estimate for the Electron Laboratory, on the contrary shows an excess expenditure of £0.14M in 1963/64. Nevertheless, it is not suggested that any attempt should be made at this late date to seek funds for 1963/64 exceeding those shown in the estimates now being submitted (NI/GP/2/28).

APPENDIX

SUMMARY OF ESTIMATES FOR ELECTRON LABORATORY 1963 - 1967

1. Cost of Items in Capital Budget

These are listed in the following Table. For comparison the estimates given in NI/61/16 as amended by the Governing Board are listed.

	<u>M £</u>	<u>M £ (NI/61/16) (as amended)</u>
(a) Land	0.050	(not shown separately)
(b) Site work and Buildings	1.257	1.17
(c) Architect etc. Fees	0.150	(not shown separately)
(d) Magnet	0.334	0.40
(e) Power supply	0.413	0.40
(f) Injector	0.300	0.25
(g) R.F. System	0.200	0.13
(h) Vacuum System	0.120	0.08
(i) Regulation and Controls	0.100	0.10
(j) Contingency	0.436	0.44
	<u>3.360</u>	<u>2.97</u>

The figure of £3.360M is to be compared with the figure of £3.29M approved by the Treasury (30th August, 1962).

2. Rate of Spend in Capital Budget of Electron Synchrotron (inc. Buildings)

The items are listed as in the previous table.

	<u>1963/64</u>	<u>1964/65</u>	<u>1965/66</u>	<u>1966/67</u>
(a)	0.050	-	-	-
(b)	0.315	0.917	0.025	-
(c)	0.030	0.090	0.030	-
(d)	0.177	0.093	0.064	-
(e)	0.120	0.293	-	-
(f)	0.075	0.135	0.055	0.035
(g)	0.030	0.060	0.070	0.040
(h)	0.020	0.060	0.040	-
(i)	0.010	0.030	0.030	0.030
(j)	0.080	0.210	0.060	0.086
	<u>0.907</u>	<u>1.888</u>	<u>0.374</u>	<u>0.191</u>

3. Rate of Spend in Total Capital Budget

	<u>1963/64</u>	<u>1964/65</u>	<u>1965/66</u>	<u>1966/67</u>	<u>1967/68</u>
External Electron Beam	-	-	0.01	0.14	0.15
Physics apparatus	-	0.01	0.03	0.14	0.20
Minor schemes and plant	0.11	0.18	0.18	0.14	0.14
Electron Synchrotron (including Buildings)	<u>0.907</u>	<u>1.888</u>	<u>0.374</u>	<u>0.191</u>	<u>-</u>
	1.017	2.078	0.594	0.611	0.49

4. Rate of Spend in Total Budget

	<u>1963/64</u>	<u>1964/65</u>	<u>1965/66</u>	<u>1966/67</u>	<u>1967/68</u>
Capital Expenditure	1.017	2.078	0.594	0.611	0.490
Salaries, wages etc.	0.095	0.240	0.300	0.350	0.400
Admin. expenses	0.012	0.030	0.040	0.050	0.060
Stores, materials, services	0.095	0.250	0.310	0.350	0.400
E.M.R.	<u>0.018</u>	<u>0.040</u>	<u>0.050</u>	<u>0.050</u>	<u>0.050</u>
Totals	1.237	2.638	1.294	1.411	1.400

The figures in the non-capital budget are the same as those in NI/GP/62/29 except that it has been assumed that there will be 40 staff in post on 31/3/1963 and 140 on 31/3/1964. All the non-capital items have been scaled accordingly.