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A NOTE OF THE FIVE YEAR FORWARD LOOK

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The proposal to build EPIC was first presented in last year's Forward Look. The Board then stated that if EPIC were not approved it would be necessary to revise completely its long term plans. The resources to build EPIC were only found by a drastic curtailment of our domestic programme and a major redistribution of our resources both of money and manpower. It is therefore not possible to derive a meaningful "no EPIC" programme from the data available in the current FYFL and certainly it would be necessary to have a full discussion by the Nuclear Physics Board before a firm "no EPIC" programme could be produced.

However, I can make some personal comments which may be useful guidance to London Office in their preparation of the paper to be presented to the ABRC.

1. If EPIC is not built then the Nimrod programme will certainly continue into the 1980's. Let us assume a date 1983 and that thereafter there would be no domestic programme. If we plan to start a run-down on Nimrod about three years before the agreed closure date, it will not have any effect during the current FYFL period. The consequence on the high energy physics community of no domestic programme would be so severe that I am sure the community would wish to prolong the life of Nimrod as long as good research was being done on it. The operation of Nimrod may therefore extend beyond 1983.
2. If Nimrod is to continue for another ten years or so then it will have to be maintained at a high level of reliability and also developed to keep pace with the needs of the experimental programme.
3. The present "EPIC included" FYFL contains no other major capital scheme. It appears to me unrealistic to assume that if the Board's plans were changed to a programme based on Nimrod and CERN, there would be no new capital developments required; for example, fast data links to CERN, new detecting devices, improvements to Nimrod such as the acceleration of heavy ions or deuterons or polarised protons. In the "no EPIC" FYFL which I have prepared I have not been able to find any money for new developments before 1979/80 and then only £0.1M.

The "No EPIC" FYFL

If we now build up the new FYFL we can start from the situation in 1974 where we have in estimates of £29.7M a total sum including £14.6M for the CERN contribution. The balance of £15.1M for the domestic programme has taken into account the cut imposed in December. The original figure was £16.6M.

In 1974/75 we are still building the new injector for Nimrod, hence the "Nimrod Machine" figure is unusually high, but the funds were found by a 25% cut in the running schedule on Nimrod and a cut of a similar size in the scale of the domestic high energy physics programme on Nimrod. Later years of the FYFL have to be adjusted now to allow for full running of Nimrod.

We assume that the cost of the IBM 370/165 is still transferred to the Science Board and that new demands for extra computing power will be considered on a Council-wide basis, so no provision has been made in the FYFL for computing developments which undoubtedly will be required.

The years 1975/76 and 1976/77 appear to be particularly difficult years because of the high capital expenditure on the NSF. Major savings are possible only in 1978/79 and 1979/80 when NINA is closed and the capital spend on the NSF has ceased.

Note the big drop in manpower shown in 1975/76. There are two reasons for this:

- (a) In 1974/75 our resources were cut sharply without a corresponding reduction in manpower.
- (b) In the Board's FYFL we showed 100 men diverted on to the design of EPIC.

5.9.74.

FIVE YEAR FORWARD LOOK 1975/76 to 1979/80
End 1973 pay & price levels (incl VAT)

	1974/75		1975/76		1976/77		1977/78		1978/79		1979/80	
	£M	MY	£M	MY	£M	MY	£M	MY	£M	MY	£M	MY
NUCLEAR PHYSICS BOARD (HEP + NS)												
HEP Exploitation												
Off Site Accelerators	2.5	230	3.0	290	3.0	300	3.2	310	3.2	310	3.4	310
Domestic Accelerators	2.7	355	2.7	365	2.8	350	2.8	350	2.8	350	2.8	350
Theory	0.3	35	0.3	35	0.3	35	0.3	35	0.3	35	0.3	35
	5.5	610	6.0	680	6.1	685	6.3	695	6.3	695	6.5	695
Present Facilities												
Nimrod Machine (including injector)	3.4	390	2.7	360	2.7	360	2.7	360	2.7	360	2.6	350
Nina Machine	1.2	165	1.0	135	0.9	105	0.7	80	—	—	—	—
360/195 Operations	0.4	40	0.4	40	0.3	40	0.5	50	0.5	50	0.6	55
370/165 Operations	0.4	35	0.4	35	0.3	30	0.2	20	0.2	20	—	—
	5.4	610	4.5	560	4.3	535	4.1	510	3.4	420	3.2	405
New Developments												
Applied Physics	0.6	120	0.5	90	0.4	70	0.4	70	0.4	70	0.5	80
Epic	0.2	55	—	—	—	—	—	—	—	—	—	—
NSF	1.4	165	2.7	120	2.6	140	1.8	145	1.4	150	1.1	150
MAJOR NEW DETECTING SYSTEM	—	—	—	—	—	—	—	—	—	—	0.1	10
NIMROD DEVELOPMENTS	—	—	—	—	—	—	—	—	—	—	—	—
Grants	2.2	270	3.2	210	3.0	210	2.2	215	1.8	220	1.9	240
	2.0	—	2.2	—	2.2	—	2.0	—	1.9	—	1.8	—
NP Board (less CERN Subscription)	151	1560	159	1450	15.6	1430	14.6	1420	13.4	1335	13.2	1340
Headlines less CERN Subscription												
CERN Subscription	4.6	—	14.6	—	14.4	—	14.4	—	14.4	—	14.4	—
TOTAL	29.7	—	30.5	—	30.0	—	29.0	—	27.8	—	27.6	—

* The figures for 1974/75 are for the proposed programme after the recent budgetary cuts have been applied
The corresponding total in the previous Five Year Forward Look was £16.6M