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PM's Luncheon on Information Technology

Science and Technology

March 1982

Referred to	Date	Referred to	Date	Referred to	Date	Referred to	Date
2.4.82							

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Science & Tech

MF

10 DOWNING STREET

Prime Minister

2

After you left the lunch today, the conversation continued to concentrate on whether and how the higher education sector could provide more trained scientists and engineers, and what part the Government and industry could play. There was no discussion of how the universities could do more to transfer the results of their research to industry.

At the end of the lunch, Sir Kenneth Corfield agreed to hold a meeting of all those present (excluding the ministers) to agree a submission to ministers. This meeting is

Scheduled for 16 April.

GJR
2/4

Prime Minister

You may like to read this before tomorrow's lunch.

Alan Lodge
Party Clerk
1/4/82.

RESTRICTED

PRIME MINISTER

HIGHER EDUCATION AND THE NEW TECHNOLOGIES: MORE COMPUTER SCIENCE PLACES

You may like to know before the lunch on 2 April that William Waldegrave and I have been discussing a proposal to provide additional places at Universities and Polytechnics for computer science and related courses. This is to meet the demand for qualified graduates, which Sir Ernest Harrison and other industrialists have predicted will accelerate with the electronic revolution.

The proposal which I have put to William is to reverse the declining intake of computer science undergraduates at Universities (which for 1982 could be 9% below 1981 and 2% below 1980); and to move, as quickly as the availability of teaching staff, facilities and reasonably qualified students will permit, towards a higher growth target. I have suggested that we should aim for an additional 1,000 admissions a year each at Universities and Polytechnics starting from October 1983. This would build up over a 3-4 year period to 6,000 more students in Higher Education.

The DES are now examining the feasibility and likely costs of this proposal and are discussing with my officials what the desirable balance in provision would be between computer sciences as such, electronic engineering and other relevant courses. At a very rough estimate the additional costs, including maintenance grants, would grow (in roughly equal stages over the next four years) to £25 million a year for the provision at Universities and a similar amount at Polytechnics, plus a further £10 million a year on student awards. Our two Departments will meet to do the sums and assess the constraints more carefully before presenting the case to the Treasury: though we should obviously need to consider the extent to which it might be possible to switch resources within the system. The scope for doing this is very small. William told me that we are up against the limit of what can be switched in the Universities.

M36ABD

RESTRICTED

I am convinced that this is the area of highest priority in industry-orientated higher education and that an early Government announcement that more places are to be created would demonstrate our commitment to ensuring that industry has the qualified manpower it will need as business becomes increasingly electronically dominated. Although nothing can be said in public at this stage, I thought you would like to be aware of this initiative.

I am sending a copy of this minute to William Waldegrave and Robert Armstrong.

K.B.

KB
1 April 1982

M36ABD

REVISED

DRAFT SEATING PLAN FOR LUNCH ON FRIDAY, 2 APRIL

The Hon. William Waldegrave

The Reverend Canon George Tolley	Professor William Gosling
Sir Ernest Harrison	Mr. Denis Allport
PRIME MINISTER	Mr. Kenneth Baker
Sir Kenneth Corfield	Dr. D.F. Hartley
Professor John Kingman	Professor Gordon Higginso

Mr. W.F.S. Rickett

ENTRANCE

REVISED Mr Rickett

LIST OF GUESTS ATTENDING THE LUNCHEON TO BE GIVEN BY THE PRIME MINISTER ON INFORMATION TECHNOLOGY ON FRIDAY, 2 APRIL AT 1.00 PM FOR 1.15 PM

The Prime Minister	
Mr. Kenneth Baker, MP	
The Hon. William Waldegrave, MP	
Dr. D.F. Hartley	University Representative. Director of Computer Services, Cambridge University (one of the Information Technology Advisers appointed by the Prime Minister)
The Reverend Canon George Tolley	Polytechnic Representative. Principal of Sheffield City Polytechnic
Professor Gordon Higginson	UGC Representative. Chairman of the UGC's Technology Sub-Committee and Professor of Engineering Sciences at Durham
Professor John Kingman	SERC Representative. Chairman, SERC
Sir Kenneth Corfield	Engineering Council Representative and Chairman
Sir Ernest Harrison	Chairman and Managing Director, Racal Electronics Ltd.
Professor William Gosling	Technical Director, Plessey Electronic Systems
Mr. Denis Allport	Chairman and Chief Executive, Metal Box
Mr. W.F.S. Rickett	10 Downing Street

MR. RICKETT

Lunch on Information Technology
Friday, 2 April

I attach a revised list of guests and draft seating plan, for the Prime Minister's approval.

Sue Goodchild

Prime Minister

Dr Nicholson seems to be fairly seriously ill, and is at present in hospital for tests. I have taken the liberty of inviting William Waldegrave in his place.

A brief for the lunch is also attached ~~at A~~.

WR 30/3

30 March 1982

BRIEF FOR THE PRIME MINISTER'S LUNCH: 2 APRIL

HIGHER EDUCATION AND THE NEW TECHNOLOGIES

1 The purpose of the lunch is to discuss how the higher education sector should be helping with the introduction of new technology into industry. A list of guests is attached at Annex A. The idea of the lunch arose from a discussion the Prime Minister had with Sir Ernest Harrison of Racal on 21 December.

2 A list of suggested topics for discussion is at Annex B. The topics fall into two broad headings:-

manpower Sir Ernest argued that the electronic revolution called for 80% of student places to be in science and engineering, if Britain was to remain competitive (see background note Annex C)

technology transfer a large amount of research is carried out each year in Universities and Polytechnics. The interaction with British industry is relatively disappointing (see background note Annex D)

3 There has been criticism of the cuts in higher education and the effect this will have on industry. The topics for discussion are intended to avoid recrimination on this issue and focus on initiatives which those concerned could take to improve the HE/industry links.

4 The Prime Minister may like to know that the Secretaries of State for Education and Industry have agreed to meet at regular intervals to review ways of improving the links between education and industry. Specific suggestions under consideration at present include earmarking funds for more computer science places at Universities and Polytechnics and bringing the Engineering Council more directly into the affairs of the UGC and the new National Advisory Body (NAB) for the maintained sector.

Department of Industry

25 March 1982

ANNEX A

PRIME MINISTER'S LUNCH 2 APRIL

GUEST LIST

1 University Representative

Dr D F Hartley	Director of Computing Sciences, Cambridge University (one of the Information Technology Advisers appointed by the Prime Minister.

1 Polytechnic Representative

Rev Canon George Tolley	Principal of Sheffield City Polytechnic

1 UGC Representative

Professor Gordon Higginson	Chairman of the UGC's Technology sub-Committee and Professor of Engineering Sciences at Durham

1 SERC Representative

Professor John Kingman	Chairman of the SERC

1 Engineering Council Representative

Sir Kenneth Corfield	Chairman of the Engineering Council

3 Industry Representatives

Sir Ernest Harrison	Chairman and Managing Director of Racal
Professor William Gosling	Technical Director of Plessey Electronic Systems
Mr Denis Allport	Chairman and Chief Executive of Metal Box and Board member of the British Technology Group

Mr Baker

~~Dr Nicholson~~

The Hon William Waldegrave

ANNEX B

SUGGESTED TOPICS FOR DISCUSSION

Manpower

Are the right sort of graduates being produced for industry?

If not, can industry say clearly what it needs and would it be listened to?

How can new technology courses best be set up given the "lead-in" time?

Is industry prepared to fund more vocationally orientated courses?

Would increased "earmarking" of public funds within present financial constraints help (as is happening in biotechnology)?

Technology Transfer

What are the obstacles to more effective interchange? Is it:

- academic research is generally irrelevant to industry
- academics, governed by the academic year, are too slow to respond
- industry only takes its own research seriously (the not invented here syndrome)
- industry is concerned about commercial confidentiality
- the NRDC is interposed between universities and industry
- there is a funding gap at pre-development or post-development stage.

MANPOWER

Science v Arts

1 In the HE sector as a whole 37% of students are studying sciences, 57% arts and the rest medicine and dentistry. In the Universities there is to be a shift towards sciences in the new UGC allocations: the ratio (Arts: Sciences: Medicine) of 50:41:9 in 1979/80 is to progress to 48:42:10 in the next two or three years. In the maintained sector, although only 31% of advanced students are on science courses, the bulk of the arts courses are vocationally orientated (business, commerce, law). There is no central mechanism in this sector for allocating resources between courses although the new National Advisory Board may express views on the future disposition.

Skill shortages at graduate level

2 Although there is no evidence of severe shortages at present a number of recent studies have concluded there will be shortages of computer science and electronics graduates as the economy recovers and electronics is applied across a wide range of manufacturing and service industry. This is at a time when student numbers in engineering and mathematical sciences at Universities are falling from 1980/1 levels. If other new technologies like biotechnology take off, there will be a requirement for other skilled staff. Uncertainties over the prospects for the new technologies do however make central planning of curricula and student numbers very difficult.

Applications for places: quality

3 In the past, industry may have been ready to recruit and train the arts graduate in preference to a lower quality specialist. There is evidence from Universities now however that very able students are applying, eg for computer science courses, and are not able to find places. The availability of technically skilled manpower in the future does depend on the right students coming forward and in the formation of attitudes towards industry and wealth creation in school. The DOI's Industry Education Unit has a number of schemes aimed at this.

Industrial support for courses

4 Precise figures are not available but it is thought that about 90% of all funding for higher education comes from the Government. Now that they are under financial restraint, educational institutions may be looking to industry for finance. The formation of CAMPUS at Salford is a good example. US firms are beginning to support courses at American Universities, particularly in engineering. Until now British industry has been finding it hard even to provide placements for sandwich course students.

STUDENT NUMBERS

Full time and sandwich home and EC students at universities in Great Britain

'000s

	1979-80	1980-1	1983-4 (1) Proposals	% change (2) 79-80 - 83-4	% change 80-1 - 83-4
TOTAL SCIENCES of which	107.2	111.3	104.6	- 2	- 6
engineering	32.6	34.2	33.1	+ 1	- 3
mathematics (including computer science)	11.5	12.7	11.8	+ 3	- 7
biological sciences	17.6	18.2	16.2	- 8	-11
physical sciences	20.9	21.8	22.6	+ 8	+ 4
MEDICINE AND DENTISTRY	23.3	23.6	24.4	+ 5	+ 3
TOTAL ARTS	130.8	134.0	119.8	- 8	-11
TOTAL ALL SUBJECTS	261.2	268.9	248.7	- 5	- 8

Home full time and sandwich AFE students: England and Wales

'000s

	1979-80	1980-1	1984-5	% change 79-80 - 84-5	% change 80-1 - 84-5
TOTAL SCIENCES of which	50.2	54.9	No central control over these figures		
engineering	22.7	23.8			
mathematics (including computer science)	4.9	6.0			
biological sciences	3.3+	3.3+			
physical sciences	3.0+	2.9+			
TOTAL ARTS	121.5	121.5			
TOTAL ALL SUBJECTS	171.7	176.3	183.5 (+) (3)	+ 7	+ 4

FOOTNOTES

(1) UGC student number targets for universities to be achieved by 1983-84 or 1984-85 at latest. Individual subject targets are UGC's internal planning figures. Universities are only given science/arts/medicine targets.

(2) The UGC's 1981 grant distribution and guidance were necessarily based on 1979-80 baselines - these were the latest figures available to them.

(3) AFE projection for 1983-84 (all subjects) = 190.9(+)

Provisional AFE 1981-82 figures (all subjects) = 191.9

(Provisional universities 1981-82 figures (all subjects) = 270.7)

\+ includes overseas students

(+) projections based on proposed PES provision

ANNEX D

TECHNOLOGY TRANSFER

Consultancy Work

1 Many academics already take on outside work or have spent time in industry (in the case of engineering Finniston Committee reckoned 78% had spent at least a year in industry).

2 Many Universities and Polytechnics have industrial liaison officers to promote this interchange. The range of their activities varies considerably. Some are developing new products or processes with industry, sometimes on science parks; others have more modest operations.

Research Councils

3 The SERC in particular has a number of cooperative schemes in which it funds research or teaching projects at Universities or Polytechnics jointly with industry. Companies are showing increasing interest in these schemes.

The NRDC

4 The NRDC has rights of first refusal to all Research Council funded work at Universities and Polytechnics. There has been criticism of their effectiveness in the past; their amalgamation with the NEB as the British Technology Group was intended to make them more commercial and bring them closer to industry. The question of the NRDC's rights of first refusal is being reviewed by an official level working party at present. Over the years the NRDC has licensed 299 inventions arising from Universities and Polytechnics. Apart from cephalosporin, which has generated licence income for the NRDC of £34 million, the remainder have yielded under £3 million over the last 30 years.

Other initiatives

5 The BTG is running an Academic Enterprise Competition offering prizes to academic researchers considering setting up their own business.

6 The DOI has offered the EPIC award (Education in Partnership with Industry and Commerce) for proven schemes of successful participation between industry/commerce and higher education.

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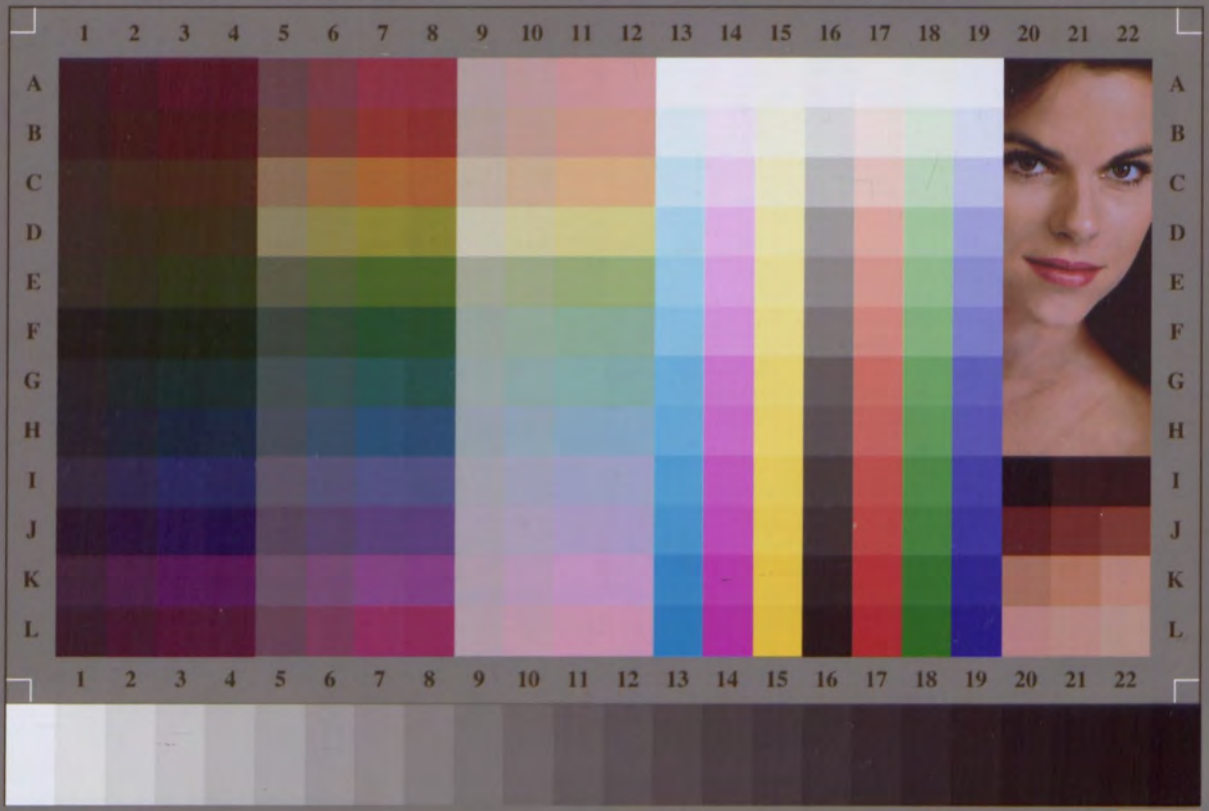

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