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SCIENCE AND TECHNOLOGY
COMMITTEE

THE ROUTES THROUGH WHICH
THE SCIENCE BASE IS TRANSLATED
INTO INNOVATIVE AND
COMPETITIVE TECHNOLOGY

MINUTES OF EVIDENCE

Wednesday 16 June 1993

Mrs Valerie Bayliss and Mr D Grover

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WEDNESDAY 16 JUNE 1993

Members present:

Mr Spencer Batiste	Lynne Jones
Dr Jeremy Bray	Sir Trevor Skeet
Mrs Anne Campbell	Mr Alan W Williams
Cheryl Gillian	

In the absence of the Chairman, Dr Jeremy Bray was called to the Chair.

Memorandum by the Employment Department

1. This memorandum concerns the contribution of training and vocational education to the development of the skills needed to stimulate and support innovation in industry. It sets out how the Employment Department is working with its partners to ensure that the country's training infrastructure provides the best possible context for developing an appropriately trained and developed labour force.

2. The Government's policies are aimed at raising skills generally in the workforce as an essential factor in improving competitiveness; in particular through encouraging young people, employees at all levels, unemployed people and employers themselves to become both more competent and more enterprising. The Government therefore sees its skills policies making a major contribution to the capacity of industry to innovate and keep pace with world-wide market shifts towards higher value-added products and services.

PARTNERSHIP

3. Effective investment in skills requires a partnership between employers, individual people, training and education providers and Government. The major investors are employers—spending some £20 billion a year on training. The Government's contribution is to develop the infrastructure and the strategy so as to maximise the return on investment in people, and to guarantee good training for young people and those at a disadvantage in the labour market.

4. In developing the strategy the Department has worked closely with the Department of Trade and Industry and the Department for Education, as well as the Scottish and Welsh Offices.

5. A wide range of bodies are involved in its implementation: Training and Enterprise Councils (TECs), Local Enterprise Companies (LECs), the Employment Service, the National Council of Industry Training Organisations and the National Training Task Force (recently succeeded by the National Advisory Council on the Education and Training Targets (NACETT)).

STRATEGY

6. The Department promotes six strategic priorities to guide those involved in the training system:
- To encourage effective employer investment in skills and stimulate employers to meet the life time learning targets (through Investors in People, the TEC and ITO networks, and a number of other programmes).
 - To help young people achieve their full potential and raise attainment in line with the foundation learning targets, including in particular meeting the YT Guarantee (through Youth Credits and YT, WRFE, TVEI, the Careers Service and Education Programmes).
 - To stimulate individuals to take responsibility for their own development, and so contribute to achieving the life time learning targets (through Career Development Loans, Assessment Credits and Open Learning Credits).
 - To help unemployed people and those at a disadvantage in the jobs market to get back to work and to develop their abilities to the full (through Training for Work).
 - To stimulate the provision of high quality and flexible education and training, in support of the National targets (through the TEC, ITO and Provider networks, the development of standards and NVQs, and measures to improve the training market).
 - To encourage enterprise throughout the economy particularly through the continued growth of small businesses and self-employment (through Business Start Up, the TEC Local Initiative Funds, CDLs and Credits).

TARGETS

7. A crucial element of the overall strategy is ensuring that the right training infrastructure is in place to meet the needs of business and individuals fully and effectively.

8. The Department strongly supports the National Education and Training Targets developed by the Confederation of British Industry (CBI). These are an important measure of what needs to be achieved nationally. They provide a context within which all education and training activity can be co-ordinated.

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9. National Advisory Council on the Education and Training Targets will monitor progress towards the Targets nationally and advise Government on policies which will facilitate this process.

10. At sectoral level Industry Training Organisations and Lead Bodies are playing a crucial part in achieving the Targets through ensuring the development of appropriate occupational standards and vocational qualifications for their sectors, and promoting their implementation and use through the development of detailed action plans. They then have a central role in ensuring that the necessary framework is in place to help deliver the qualifications and skilled workforce needed for the future.

11. TECs and LECs have been established to ensure that the Government's training programmes are geared to meet local requirements and to stimulate employer involvement and commitment to training. The Department's training budgets have been devolved to TECs for that purpose. TECs are supported by the Department to help them network and work in partnership with national providers. From April 1993, the National Training Partnership Ltd has been in operation to support national businesses in their dealings with TECs.

MEASURES AND STANDARDS

12. To underpin the targets and strategic priorities there have to be measures and standards. The National Council for Vocational Qualifications (NCVQ) and Scottish Vocational Education Council are overseeing the development of the reformed system of National Vocational Qualifications (NVQs) and Scottish Vocational Qualifications (SVQs), respectively.

13. As part of its role within the national training framework, the Department has encouraged the main players in the training field to develop systems, measures and approaches to help training and education provision operate more effectively and relevantly. A key element is the development of a new national framework of vocational qualifications and up-to-date occupational standards, developed by employers.

14. The Department has worked closely with employer-led industry lead bodies to develop national standards of occupational competence. These are specifications of performance. They express what is expected of people in a job or work role. They include competences within the areas of management and technology.

15. The ITO network, represented and co-ordinated by the National Council of Industry Training Organisations (NCITO), has, as noted above, taken a lead role in developing these standards. ITOs also have a remit to monitor future skill requirements and training needs and to encourage employers in their respective sectors to increase their training efforts. ITOs currently covers sectors employing over 85 per cent of the workforce.

16. Standards of occupational competence act as a basis for the development of National Vocational Qualifications (NVQ) and Scottish Vocational Qualifications (SVQ). These have a UK wide application and operate at various levels of competence from level 1 (foundation and basic work activities) to level 5 (professional/senior managerial level). These clearly defined standards of competence, together with the appropriate performance indicators, make it much easier to ensure consistency than was possible with old-style qualifications.

17. The Department's mechanisms to assure quality of NVQs and SVQs include:

- NCVQ/SCOTVEC accreditation of qualifications.
- The development of standards for assessors by the Training and Development lead body.
- The verification of assessment standards by national Awarding Bodies.

18. The key target set by Government in 1990 for NCVQ was to complete by the end of 1992 the NVQ framework for 80 per cent of the employed population up to level 4 and all the most important occupational areas. This target was reached by the beginning of December. At end of March 1993, 527 NVQs were accredited with 83 per cent coverage.

19. The Secretary of State has set NCVQ a new target of accrediting NVQs at levels 1-5 covering 90 per cent of the employed population by end of 1995.

EMPLOYMENT DEPARTMENT'S ROLE IN EDUCATION

20. The Department places a high priority on the vocational preparation of young people to reflect the needs of the economy and has been active in promoting its development.

21. We are moving to a position where young people will be able to choose from three pathways to qualifications: through academic education (A levels), vocational education (GNVQs) and vocational training (NVQs). The three pathways will be fully available when the current programme to develop GNVQs

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in a range of subject areas and levels is complete in 1994. The Government has set an expectation that by 1996, GNVQs in at least two subjects should be available in at least 1,500 schools and colleges and hopes to see 25 per cent of 16-year-olds starting GNVQ courses in 1996.

22. NVCQ has agreed a national matrix of vocational qualifications from basic to professional, agreed equivalents for academic qualifications and designed GNVQs which provide general, vocationally relevant skills as a foundation for future specific vocational skills and qualifications. All three qualification types have been integrated into one matrix and are intended to be regarded as equal in value and status. It is also the intention that students should be able to pick a combination of qualification types to suit their own needs.

EDUCATION PROGRAMMES

23. Since the mid-1980s, the Department has launched important innovations in the delivery of education through a range of initiatives such as the Technical and Vocational Education Initiative (TVEI), Education Business Partnerships, Compacts and Teacher Placement Services. These are all concerned with bringing greater awareness of the needs of industry into the classroom and with developing effective industry/education links involving employers, schools, colleges and young people.

24. Since 1987, the Department, through TVEI, has contributed to producing a more highly skilled, competent, effective and enterprising workforce for the 1990s. It is a 10-year programme for investing in the skills of all 14- to 18-year-olds in full time education and equipping them for the demands of working life. This commitment involves £900 million over the period 1987-97. By September 1993, over 5,000 schools and 1 million students will be benefited.

25. This is proving particularly effective in the provision of Science and Technology where the Department, through TVEI, is having a major influence on how Science and Technology is being taught to all pupils as part of the National Curriculum.

26. Education/Industry links are also being strengthened through Education Business Partnerships (EBPs), Compacts and the Teacher Placement Service.

27. One hundred and eleven EBPs exist in England and Wales and 22 in Scotland to bring coherence at a local level to education-industry links. Funded through TECs, they co-ordinate activities spanning all age groups and sectors from primary through to further and higher education.

28. Compacts bring together employers, young people, schools, colleges and training providers with the aim of motivating young people to achieve more at school and to continue education and training post 16. Young people agree to work towards personally agreed goals; in return, employers provide a range of employment related incentives including, in inner city areas, a job with training or training leading to a job, for those who achieve their goals.

29. The Teacher Placement Service organises placements for teachers in business and encourages business people to undertake placements in education. The benefits include a more relevant, work related curriculum, better management skills for teachers and careers guidance for students.

30. The Department places a high priority on its influencing role on further and higher education through, respectively, its Work Related Further Education (WRFE) and Enterprise in Higher Education (EHE) initiatives.

31. It has worked closely for a number of years with the Department for Education to ensure that the further education system is more responsive to client needs (both employers and individuals) and is cost effective. The Department also maintains close working relations with the Further Education Funding Council.

32. Enterprise in Higher Education aims to help students become life-long learners and be better prepared for working life. Students are encouraged to develop business awareness, entrepreneurial and other transferable skills alongside undertaking their academic studies. Over 120,000 students are benefiting from the initiative and 20,000 employers are involved. The Department's funding is more than matched by both employers and contracted institutions.

33. It is also recognised that careers guidance plays an important part in the preparation of young people for working life. The Careers Service provides impartial careers guidance on the options available after school to young people both before they end their compulsory education at 16 and later as required. Fifty six Careers Service Partnerships between Local Education Authorities and TECs now exist in England to ensure that the needs of employers and the labour market are reflected fully in the careers guidance on offer to young people.

YOUTH TRAINING PROVISION

34. One of the options available for young people leaving school is Youth Training. Around 300,000 young people in Great Britain, including through Youth Credits, are currently undertaking training. With the development of TECs, the emphasis has been on making Youth Training flexible enough to meet local

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industry needs. This flexibility has encouraged TECs to develop innovative approaches to training provision, helping young people prepare better for their future careers. Youth Training also now provides more and more trainees with an appropriate vocational qualification.

35. Following the recommendation contained in the CBI report, "Towards a Skills Revolution", the Government introduced, in April 1991, 11 schemes piloting the Youth Credits concept. This operates within the context of Youth Training and offers young people enhanced careers guidance to help them make best use of the purchasing power and choice given by the credit. The additional resources provided through credits also help young people secure training to higher qualification levels.

36. This initiative aims to open up the market in training by motivating more young people to train to higher level skills and by encouraging more employers to offer structured training. Youth Credits are delivered through TECs. They, in some cases, have introduced specific incentives to local providers to train young people to higher level NVQs in engineering and in other technical disciplines.

INDIVIDUAL LEARNING

37. With the average age of the working population increasing, the Department has been aiming to build up a culture in which people see learning as a continued investment for a continuing return. There is a need to continue to pursue the agenda of action set out in the White Paper, "People, Jobs and Opportunity", for improving individual commitment to lifetime learning, and giving greater personal control over decisions about education and training.

38. As well as providing flexible and relevant training provision for the unemployed and those at a disadvantage in the labour market, the Department has been offering, through TECs, a range of guidance and assessment measures to provide individuals with good information on and better access to training and education opportunities. The ultimate aim has been to encourage individuals to attain the skills required by the economy.

39. A number of financial incentives have also been provided to encourage individuals into training. These include the provision of Career Development Loans and tax relief for training leading to a NVQ up to and including level 4. In 1992-93, Career Development Loans helped 10,230 people invest over £32 million in their own training. Over the next three years, more than 120,000 places are being made available.

40. The March Budget also provided for the introduction of a new initiative, Learning for Work. This will enable longer term unemployed people to undertake vocationally relevant education courses which will help their job and career prospects. Participants will receive an allowance equivalent to their entitlement to benefit—they will no longer have to sign on. Learning for Work will offer help to at least 30,000 people during the academic year 1993-94. TECs will help individuals to decide on appropriate courses of action.

ENTERPRISE

41. The Department works closely with the Department of Trade and Industry in encouraging the enterprise culture. TECs have an important part to play in contributing to the competitiveness of local businesses. The Government wants them to play their part fully, drawing in a coherent way on their strategic influence, their employer base and on their specific roles in relation to new and existing small firms, training and skills development.

42. This involves TECs working closely with other local bodies in reviewing local economic development and developing a readily accessible, coherent range of high quality services to businesses. TECs are currently heavily involved in the recently introduced "One Stop Shop" initiative.

43. The Department is also responsible for the Business Start-Up Scheme, previously named Enterprise Allowance. It helps unemployed people set up their own business. Participants receive an allowance complemented by business training and counselling support to help their new business over the formative months. Over 600,000 have been helped since the initiative began. 50,000 places have been made available in 1993-94.

MONITORING SKILL NEEDS

44. The Department recognises that the economy and skill needs are changing. As a result monitoring and research into skill needs is carried out at all levels of the local, sectoral and national training framework.

45. At local level TECs produce an annual assessment of their local labour market to underpin their business plan. These are made widely available to local interests. TECs are also required to survey local employers to obtain employment, occupational and related information.

46. At sectoral level ITOs are fully involved in determining their sector's key skills requirements and training needs.

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[Continued

47. At national level the Department maintains an overview of the economy's skill needs, the extent to which they are met by existing skill supplies and how they are likely to be developed in the future. This overview is assisted by research into projections of the composition of employment by occupational group; annual surveys to monitor the difficulties encountered by employers in filling skilled vacancies and research into skill trends, in particular industry sectors or occupational groups. Results are widely disseminated.

TRAINING SYSTEMS IN OTHER COUNTRIES

48. In 1984 the then Manpower Services Commission and the National Economic Development Office published a report entitled "Competence and Competition" which examined the education and training systems of Germany, the US and Japan. It remains a landmark study and many of its conclusions are still valid. In particular, it warned of the dangers of transferring elements of one country's training system to what might be the very different cultural and economic circumstances of another country. It also underlined that there were differences of approach even between countries which could be regarded as having a good education and training record. The key common factor was the active commitment of employers and individuals to learning and development, rather than anything to do with systems as such.

49. The Department has funded a number of further studies of training in other countries since "Competence and Competition", though no studies have been commissioned recently. (They include studies by the National Institute for Economic and Social Research into training and education in France and Germany and work by Professor Ronald Dore on training in Japan). Reports from labour attaches in UK embassies and contacts established through various European Community programmes and organisations provide up to date information on developments abroad. For example, the Department is involved in the work of CEDEFOP which disseminates information on developments in vocational education and training within the European Community.

50. Much of the useful transfer of knowledge and information which takes place is concerned not with general policy but with the delivery of training at the practical level. European Community training and education programmes which encourage the exchange of experiences between students, trainers and teachers from different member states provide an important mechanism for the transfer of practical knowledge. The transfer is very far from being on a one way track from other countries to the UK. There is, for example, considerable interest abroad in the UK system of competence based National Vocational Qualifications. The UK is also acknowledged to be world leader in the development of open and flexible learning.

TECHNOLOGICAL DEVELOPMENTS

51. The Department is fully aware of the need to keep up with the new developments in the area of applying technology to training issues. Its aim is to utilise developments in new technology to improve the training infrastructure by facilitating access to learning. There are three basic reasons for activity in this area:

- (a) The need for information to support policy development in the UK by exploring the potential benefits of technology based training for the training infrastructure. Advice is provided on the relevance and applicability of technology to training issues and the ways in which technology can and is being used. Included in this is advice on European issues and in particular on the DELTA programme.
- (b) Developing the frontiers of technology as applied to learning. It was necessary to test and evaluate new technological developments with the aim of improving the quality of learning. Many of the outcomes from this work have been applied and taken up as the technologies have become more stable and mature. Previous work has demonstrated the need for technologies to have reached a certain level of maturity before they can be implemented widely. Work is now underway to support the implementation of technology based approaches to meet the skills needs of the UK.
- (c) Action to overcome information failures in the training market. We have significant evidence that most small and medium sized companies are unaware of the advantages that technology can offer in the training process.

Examination of Witnesses

MRS VALERIE BAYLISS, Director (Grade 3), Youth and Education Policy Division, and MR D GROVER, Director (Grade 3), Training Strategy and Infrastructure Policy Division, Department of Employment, were examined.

Dr Bray

319. Mrs Bayliss and Mr Grover, may we welcome you to the Committee and thank you for coming. We have been in the past concerned about the role and opportunities for women in science and

technology and, Mrs Bayliss, you are our first woman witness in this inquiry, indeed in the life of the Committee!

(Mrs Bayliss) I regret to say that I am a historian by training, but I shall do my best!

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MRS VALERIE BAYLISS
and MR D GROVER

[Continued]

[Dr Bray Contd]

Dr Bray: As you know, we are interested in the wider questions of innovation and this is primarily the responsibility of other departments. Nevertheless, the Department of Employment does have the key role here and we are grateful for your memorandum and would like to cover the main scope of that. Sir Trevor, would you like to start the questions?

Sir Trevor Skeet

320. Yes. I have just been reading the White Paper on Realising our Potential, but there is no mention there of the Employment Department's role in improving workforce skills. Have your arrangements worked in with some of the suggestions put forward?

(Mr Grover) I certainly think that the arrangements that the Government has in place fit in very well with the framework that is set out in the White Paper. The essential elements of the framework from the Government's perspective are these, I think. The first of them is that we have a role in creating the overall training framework, if you like, in creating the system, making sure the system is there, that it flourishes, that it is kept in a good state, and that is an important part of the Government's role. For example, a good deal of effort and activity over the last few years has been devoted to getting into place the new system of national vocational qualifications, the infrastructure to support that and all the arrangements that underpin that activity. Another important element there is the strategic objectives that the Secretary of State for Employment has over the last three years set for the training system as a whole, identifying key areas which the training system ought to address, and, of course, the Secretary of State and the Government have also subscribed to the national education and training targets which the CBI articulated a couple of years ago now, and it has commended those to the TECs and asked the TECs to use those in their planning. In other words, it tries to articulate a consistent framework for all the activity that takes place in the system though, of course, it does not itself directly fund more than a very small proportion of it.

321. Since you have an interest in training and particularly the unemployed, were you consulted in the preparation of this White Paper?

(Mrs Bayliss) Yes, we were. The Department, both at ministerial and official level, were consulted on the content.

322. Did you send them a memorandum indicating your views?

(Mrs Bayliss) Not a formal memorandum. We were engaged in I think three meetings of the interdepartmental working group that produced the text.

Mrs Campbell

323. Could I ask a very general question about the objectives of your Department. I am interested to know whether you consider it to be your

responsibility to have, if you like, the priorities to have a general level of vocational education throughout the workforce or whether you feel it is more important to have a smaller number of very highly-trained people? How do you see your objective in that sense? Which of those do you think is the most important priority?

(Mr Grover) I think the possibly frustrating answer is that they are both important. There are six objectives that the Secretary of State set out and it is perhaps worth saying quickly what they are. The first of them is encouraging effective employer investment in training, because by far the largest investors in training in the United Kingdom are employers. The important word in that objective is effective and what we are trying to do is put in place the mechanisms that help ensure that that investment is well-targeted. Of course, one of the targets quite clearly is the higher skill levels that employers need to grow and to get more competitive, both domestically and internationally. That is the first objective. The second objective, also a very important one, is helping young people to achieve their full potential. Clearly the basic education that they have to build on in their future working life is essential. That they should have that sort of sound basis, that it should be well directed towards the sorts of needs in the scientific and technological area that we see as likely to arise, has actually been one of the major thrusts of the education programme the Department has been engaged in for the last few years. Then there is stimulating individuals to take responsibility for their own development—again quite clearly important, particularly in some of the more mobile labour markets at the higher technology end of the system. Helping unemployed people is the fourth area, helping them to get the skills they need to be able to function effectively in the labour market. Then there is an objective which is about stimulating the provision of flexible, high-quality training. That is actually getting the quality of the system up. Part of that is ensuring that new technology is used effectively in training systems as well as ensuring that people are trained to use new technology themselves. Then the last is encouraging enterprise in the economy. Those are very broad objectives, deliberately broad, because what we have tried to do in using them is to focus the mind of the various customers we have outside—the TECs, industry training organisations and others—and say, "Look, these are the key things you need to take account of in your planning." Then alongside that we put a good deal of detailed information that enables them to target down and to specify.

324. If I can put the question more specifically, supposing you had to choose between your fourth objective, which is helping the unemployed, and, say, something which improves training for high-tech industries, which of those would you regard as being the most important?

(Mr Grover) If I may say so, I think posing the question in that way to Government is not quite the right way to put it. These are the objectives for the

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[Continued]

[Mrs Campbell Contd]

whole of the system. The Government's role in that system varies between these different categories, so it has a particular role in helping the unemployed because nobody else is going to assist them. We would argue, I think, that the needs of updating and upgrading existing employees are very much essentially employers' business. There are lots of things we do to help them do that but they do not add up in terms of Government expenditure to the same sort of quantum as training unemployed persons or, for that matter, training young people, where the Government as a government has a specific role. So asking the Government to choose is perhaps not the right way to put it. If you are saying to the training system as a whole, "You ought to be taking high-level skills more seriously," you are addressing that remark not just to Government but to a whole range of other actors in the scene as well.

Mr Batiste

325. Clearly what you have described is a role by which you devolve the responsibility for delivering most functions to other organisations. I think it would probably be fair to say yours is a department that is probably the most devolved department in government, but clearly with such devolution comes the responsibility for ensuring that the services are adequately provided and what I really want to know is, do you accept that you have a detailed responsibility for monitoring what goes on on the ground, and how do you deliver on that? How effective can a monitoring in the structure that you have be?

(Mr Grover) Clearly in this area we have a range of different sorts of devolution (if that is the right word). We have the TEC system delivering our very large-scale programmes, but we also have, for example, industry training organisations and sectors, industry-led bodies responsible for developing occupational standards and a number of other arrangements of that sort. So a generic answer might be misleading about any particular group, but let me, for example, take the training and enterprise councils, which I think might be of particular interest. There the monitoring and control of what they do is actually close because it is a contractual relationship. It is a contract drawn up after quite an extended planning process which goes top down bottom up and is iterative and quite an extended planning process that takes place in the context both of the broad objectives that I described to Mrs Campbell but also in the context of very specific information about things. So it is planned in that sense. When the contract is drawn up our regional directors negotiate and agree those contracts and they specify volumes of training weeks, the outputs, the prices that the Department expects to pay in a lot of detail. They also specify the quality requirements that the TECs are expected to meet. Now, our directors have the responsibility of monitoring that process and they have the responsibility for only paying the training and enterprise councils when

those contracted objectives are achieved. Every training and enterprise council is reviewed each quarter formally.

326. Reviewed by whom?

(Mr Grover) By the regional director of the Department who is a person who has the prime responsibility for contract management. At the half-year stage there is a much more detailed and complicated formal review. They are audited by the Department, they are audited on a quality basis as well as on a financial probity basis and by the National Audit Office.

327. By whom?

(Mr Grover) By the Department's policy office and by the National Audit Office. We also have within the Department a quality assurance division which has the responsibility for ensuring that that aspect of their performance is monitored.

328. One of the problems of structuring it in the way in which you do in the separation between your Department and the Department of Trade and Industry is that you do not have as much contact with what must be the end customer, the people who are taking the product of training, and you do not necessarily have enough direct liaison with industry. To what extent are you hampered by not being able to get an adequate feedback on the quality of what you are providing and the nature of what you are providing through a more indirect system which you have through regional directors rather than the direct response from local industry?

(Mr Grover) Well, one of the reasons that lay behind the decision to devolve the provision at local level to the training and enterprise councils was actually precisely that they were much closer to the ground and much more in touch with what are usually their peers in the business community than our previous arrangement which was to deliver it directly ourselves through the classical network of area offices. So the idea behind delivering it in this way at all is to try and get better contact between the end customers, whom we see as very often very largely being the business community as well as individuals, between them and the deliverer in a way we could not do before with the system we had. I must say I have not detected any falling off in the level of representations about what goes on on the ground in the TECs system to ministers, to the regional directors directly, and there is a whole range of ways of having direct access of that sort as well as the very detailed and formal approach that we take through our quality assurance arrangements which I have just described, through looking both at particular TECs, but also at subjects and looking at how TECs, for example, are implementing the new national vocational qualifications. We have just done a major study on that and part of that of course is talking to customers, talking to industry, talking to individuals, assembling that information and then using it to inform our dealings with the TECs.

329. Do you think it would be more effective in that process if the TECs were now or at some point

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[Continued]

[Mr Batiste Contd]

in time to be merged with the chambers of commerce locally so that you had one clear organisation in each major area responsible for a much wider range of delivery of services which relate directly or indirectly to industry rather than having them separated between different departments? I appreciate there is a policy element which would have to be addressed to ministers in relation to that, but I am looking at the technical aspect at the moment of the practical problems of delivering a high-quality training service from a variety of different departments.

(Mr Grover) Well, as you rightly say, Mr Batiste, it is very much a live policy issue at the moment which ministers are thinking about, so if you will forgive me I would not like to commit myself to a firm view one way or the other. What I would say is that on the sorts of issue that one would need to think about, clearly there is something to be said for having an organisation that does focus itself on training and enterprise and has got that sort of visible role inside a local community and which is clearly identifiable as a flagship with that role. That said, one of the things that has been clear ever since the first TECs were set up and since the TEC prospectus was issued is that they are not there to be the only game in town and they are there to work with all the other actors and the chambers of commerce of course are important in many localities, not in all of course because there are many areas where the chambers movement is not particularly strong, but there are plenty of other actors as well. Many enterprise agencies, many colleges, FE colleges, will equally want to take a direct and active role. I think one has to take that into account as well in looking at the practicality of having a single organisation and you have to ask yourself how far can a single organisation go. As I say, those are the sorts of issues you need to take into account. I think it would be probably imprudent of me to come down firmly on one side or the other at this stage, but it is very much a live issue, and those are the sorts of issues and they are very actively under review.

Cheryl Gillan

330. In the Department memorandum you talk about your labour force surveys and I am quite interested in the point you make that your results are widely disseminated. I would like to go a bit deeper than that and I would like to ask you how often do you collect this information, what is the size of your sample, what sort of results, how do you produce and translate your results and then to whom do you disseminate them, and then what happens after that? How do you act on the information you have gathered?

(Mr Grover) I think the first important thing to say is there is not one single source or survey for this information and there are a number of different surveys which generate information about skill needs and really they fall into three main categories. The first of them is that we have work which looks at broad, long-term trends at national level, if you

like. That work is contracted out and it is done independently and we think it is right for it to be done independently, that sort of forecast, and it is done by the Institute of Employment Research at Warwick University and has been done that way for a number of years now. The second is that we do have an annual assessment of skill needs. It is a relatively recent survey, but quite a detailed survey with a large sample of the skill needs here and now in the economy, as it were, rather than the long-term trends that the Warwick work is designed to address. The third area of research we undertake is work about particular industries and looking at broad sectors, again usually commissioned from outsiders, but looking in a bit more detail at some specific industries. Now, all that work in effect is supplemented by what other people are doing as well which is equally important in this context. For example, in particular sectors industry training organisations are assessing what their sector's skill needs are. Sometimes that is work which we support financially through the support we give to those organisations and quite often it is work that they do for themselves because they have the resources and the interest in their employer base. There is also the work that goes on in the context of the system of national vocational qualifications, looking at skill needs, if you like, at the micro level in terms of the needs of particular jobs and reviewing and updating the statements of standards of those jobs. Lastly of course at the local level is what the TECs do themselves where they are planning at local level, looking at their local labour market needs and assessing those which they have to do as part of the contract that we have with them. That is quite a complex mosaic and one of the issues for us as a department, and it is part of our role in bringing together the framework I was describing at the beginning of the session, is actually trying to make sure that everyone who needs to know about those things does know about them. Our main mechanism for doing that is an exercise called the "skills and enterprise network" which we set up, from memory, about three years ago and the notion of that is that we run a service of assembling this information, digesting it and circulating it to a wide range of people who have indicated their interest in receiving it. That is not just information generated by the Government, but information from a whole range of other sources and the idea is to get at least a headline appreciation of the key issues by all of the people in the market who might be interested and there are something like 40,000 subscribers to that service so it goes pretty wide and it is not a sort of closed circle.

331. Can I just come on to that because the OST has announced it is going to carry out the survey of the demand for graduate scientists. How is that going to gel with the work you do? Will there be any duplication of the work? Are you going to use the skills and enterprise network to disseminate information? Has the thinking gone that far?

(Mrs Bayliss) We would expect to include in the material we circulate around the skills and enterprise network the results of surveys like the one that the

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Office of Science and Technology is going to do. We do in the Department of Employment undertake a regular review of the economy in terms of employment about every three years or so and again that is carried out by the Institute of Employment Research at the University of Warwick and that includes a large element concerned with the graduate labour market and indeed the postgraduate labour market as well. That material is available to the OST as indeed is all our research and in fact all our research is published. We would expect them to take account of what we are finding there and, similarly, to feed their results back to us.

332. Lastly, I wonder do you have available any unemployment statistics and do you monitor the statistics, say, for scientists and engineers who are finding themselves back in employment again? I am not entirely sure whether those sorts of statistics exist and whether they would fall into your stimulating individuals in other mobile labour markets as one of your areas?

(Mr Grover) I think I would have to give you a note on that. I am afraid I do not have the answer at my finger tips to that precise question. I am sorry.

333. I would be interested in a breakdown by their occupations or their training of scientists, engineers and technologists, and also the age profile, and any evidence you have as to what retraining these people will be undertaking and how many come out of science and move into other disciplines?

(Mr Grover) We would have to provide a note on that.¹ I am unable to answer that in detail.

Lynne Jones

334. We were interested in the survey of the Office of Science and Technology. Is that in conflict with the work that you do and how are you liaising with them?

(Mrs Bayliss) As I said just now, we would expect the two departments to work together to ensure that the two essential programmes do not overlap. This is in the normal course of business and the OST will have available to them and we are in touch with them on our routine research programme and I would expect them to build on it.

335. They would take yours and build on it?

(Mrs Bayliss) Yes. I would expect them to pitch their research requirement with regard to material that had already been collected or was being collected by the Employment Department to avoid unnecessary overlap.

336. You would expect it but you do not know?

(Mrs Bayliss) They have not yet completed their research specification. I think we are in touch with them but I would be very surprised if they set out to spend resources on overlapping material. There is really not very much point in that.

Mr Williams

337. Do you find there are certain areas of skill shortages, the recession notwithstanding?

(Mr Grover) I think the general position on that is that at the moment there are not very large-scale pressures from skill shortages. For example, the last CBI quarterly trends survey, which is probably the best measure that we have on an on-going basis of skill shortages, suggested that something like 6 per cent. of firms expected that a lack of skilled labour might limit output over the next four months. It is going up slightly, there is no doubt about that, but a figure of that level is much lower than it would have been.

338. Where are the skill shortages, as far as there are any?

(Mr Grover) That particular survey does not break it down in that sort of detail, so that would be across the board and it might be quite low-level skills which might be critical to a particular process as well as high-level skills.

339. Do you find that there are regional variations in skill requirements? I am thinking particularly of my own region, frankly. Whereas 20 or 30 years ago we prided ourselves on the high quality of our education, recently there have been many reports that have put us in a rather poor light. Do you find across the country there are variations in the skills around the workforce?

(Mr Grover) There are certainly variations in skill demand, of course, depending on the industrial structure of the locality, etc., so there are those sorts of variations. That is one of the reasons why one of the main ways of looking at skill demand is to do it at local level through the training and enterprise council's assessment in their local context, but all the time you have to play that sort of assessment against the national level assessment, particularly of high-level skills where the demand in any particular locality may not be particularly large. So getting that articulation right is one of the difficult things about getting the system that we have to work, but clearly the demands in any locality are going to vary.

340. Finally, how do we compare with our competitors—Germany, the United States, Japan—in terms of the skills of our workforce?

(Mr Grover) I am afraid one is almost tempted to say, Chairman, do you want the short answer or the long answer?

Dr Bray

341. The short one!

(Mr Grover) Good! It is not easy to answer those questions, for a number of reasons. The first of them is that the measures are often quite misleading. You can say that whereas a good way to do it is to compare levels of qualifications, which looks attractive on the surface. But for example there are some cultures, like Teutonic cultures, where formal vocational qualifications are very much the norm and where there are very high levels of vocational

¹See page 85.

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qualifications. There are others, like Japan, where they rely very much on the basic education system to produce people who are ready for work, and then by and large, though it is changing slightly, the training that goes on in the workplace is the responsibility of the employer. That is not a certificated qualification. So if you simply look at the figures it looks as if Germany is a much more qualified nation at adult level than Japan. Empirically, that does not seem very likely to be the case. So that is an elaborate way of saying it is rather difficult to compare. I think the broad lessons that we have drawn from a range of studies over the last few years are probably these, that at the high levels, the graduate levels, our supply and our output compare well with many of our principal competitors, particularly our principal European competitors. Probably where the biggest gap is—and it is one which is being addressed very sharply in current policy—is the gap at what in NVQ jargon is called level III, that is, the supervisor level, the junior technician level. We think there probably is a big gap there and a lot of studies have suggested that that gap has a real impact on productivity. That is a very important issue for us at the moment. Those are very broad conclusions and I am afraid, Chairman, I could go on for hours about them but you do not want me to, but those are the broad conclusions and they have been a very important determinant of policy.

342. Before we leave this question of information intelligence about significant requirements, you have not mentioned the basic statistical organisation of the Department of Employment. That continues to operate independently, although elsewhere in government business statistics have been rationalised in the Business Statistics Office. Why has the Department of Employment stuck out against joining in using the common register rather than pooling its basic statistics collection with that of every other aspect of business activity?

(Mr Grover) I am afraid, Chairman, I am not briefed to answer that question. I am not responsible for the Department's statistics. I will very gladly find the answer for you but I would rather not attempt one off the top of my head.

343. Being responsible for manpower, have you ever visited the Business Statistics Office in Newport?

(Mr Grover) No, I have not visited the Business Statistics Office.

344. There has been a proposal for the use of a common register and now there is a proposal for its devolution to the chambers of commerce. These proposals have been on the agenda for 30 years and all the time the Department of Employment seems to have been the one which has stuck out. From your general knowledge of the Department, what is the reason for this? Is it that there is a national network there which the Department of Employment thinks gives it a superior advantage over the others?

(Mr Grover) You must forgive me, Chairman, I am not an expert on this and I must preface my

remarks by saying that in case I commit a folly, but the Department does have some particular needs for labour market information. For example, in terms of the unemployment statistics it has a particular need for surveys of individuals which I do not think would be addressed by the arrangements you have just described. Those are clearly things to which we attach very considerable importance and we would need to be sure that those are things that we could continue to do effectively whatever the arrangement. I am afraid, Chairman, I just do not know and I would be foolish to try to attempt an answer to the question of what our attitude is to the Business Statistics Office and the arrangements around it. I will gladly enquire of my colleague who is responsible and will let the Committee have a note.¹ *The Committee suspended from 5.13pm to 5.22pm for a division in the House*

Sir Trevor Skeet

345. Mr Grover, my colleague mentioned just a moment ago that there is a possibility of merging the TECs with the chambers of commerce for local work and you very, very wisely decided not to give an answer to that one, but I think it is quite apparent, is it not, that there are too many organisations both nationally and locally dealing with this particular job and which just do not co-operate. I have in mind an extract which I saw in the *Financial Times* on 15 June where they talk about 82 TECs in the country and 126 industry training organisations and one is complaining against the other that they are misunderstood and they are complaining about a lack of collaboration. How do you ensure that if TECs look after the local interests you could look after the national interests and ensure that the work is done and should be done?

(Mr Grover) Well, the system actually works at the three levels. It works at the national level where the Government has responsibility for setting the framework in the way I described at the beginning of my evidence; at the sectoral level you have the industry training organisations; and at the local level you have the TECs. The reason why we have the three levels is that they have all got different jobs, they have different tasks and they have roles to play in the framework. One of the issues that we have had to deal with over the four years since TECs have been on the scene is the issue, precisely the issue you have put your finger on of how best to make sure that the TECs draw on the industry training organisations for experience and knowledge and assessment of requirements and how best to make that relationship work effectively. There are a number of ways we are trying to do it. The first is to set some objectives that are common to the system, so that there are objectives which relate to the industry training organisations as well as objectives which relate to the training and enterprise councils, so they are meant to be objectives for the system as a whole and incidentally to be objectives which are relevant to the relevant parts of the education system

¹See page 85.

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also. The second area where we have devoted quite a lot of effort and so have the TECs and so have the industry training organisations is actually precisely trying to set up some co-operative activities between them. Now, the problem varies according to the size of the industry training organisation. There is not a great problem in principle, for example, in terms of making the construction industry training board visible to the training and enterprise councils since it is a great deal bigger than any of the training and enterprise councils. All of the training and enterprise councils are interested in the construction skills in their areas and if there is a problem it is not a problem of visibility and knowledge that the organisation exists. At the other end of the scale there are some industry training organisations who deal with a specific sector that is actually very concentrated geographically, so, for example, the ceramic sector is very concentrated geographically in the territory of the Staffordshire TEC and they work together well and they do not need any particular stimulus or systems to work together and the commonality of interest is perfectly clear to both parties. Now, I apologise for the slightly long answer, but I think it may be just worth exposing the problem. The issue arises where you have industries which are widely dispersed but in relatively small numbers in employer terms and a good example, for example, is printing which is, I think I am correct in saying, about the sixth biggest industry in terms of employment in the country, but in virtually every TEC area they are actually relatively small units, so in order to try to tackle that issue we actually set up a project bringing together the British Printing Industries' Federation and the training and enterprise councils in getting them to sit down and work out how to effectively work together, how to make sure that the printing industry's needs are articulated to the TECs and how the TECs are going to respond.

346. I am very much obliged for that, but three Departments are involved in that, Education, Employment and Trade and Industry, and when you have TECs saying that far too little has been done to unite all the diverse bodies, they hear your side of the question, but they have their side of the question which has been fully ventilated in the local newspaper, but is there not something to be said that the national position may miss out very, very substantially on this unless more is done?

(Mr Grover) Well, at national level Mrs Bayliss may want to talk a little more in detail about the links with the Department of Education, but certainly those three Departments do work very closely on these issues. There are distinctive focuses of course and we of course have a distinctive focus in our responsibility for the labour market issues, the Department for Education has a distinctive focus on schools and on further and higher education, and the Department for Trade and Industry has its focus on competition, competitiveness and industrial performance. Those are different focuses. The issue of education and training impacts on all of those issues and the three departments do have well-established

arrangements for working together on a whole range of issues that we have talked about. Each of those departments does have relationships with the TEC movement. In the case of my Department and the Department for Trade and Industry they have contractual relationships with the TEC movement. Now, to the maximum possible extent we spell out very clearly what those relationships are and say to the TECs what those relationships are. For example, the strategic guidance which was issued to the TECs last year was actually issued jointly by Mrs Shephard, the then Secretary of State for Employment, and the President of the Board of Trade and was explicitly subscribed to and agreed to by the Secretary of State for Education, and as it happens the territorial Secretaries of State as well, so at the national level there is very close co-ordination and co-operation. At the local level one of the roles of the TEC is actually to bring together the different local actors.

347. That is right.

(Mr Grover) There are a lot of local actors absolutely agreed that one of the main reasons for bringing in place the TEC movement was to provide a focus for skills and enterprise at local level that could bring together those different actors. That is how we have chosen to do it and that is the path we are pursuing.

348. I am very much obliged. Are you also aware that £48 million was applied for providing that computer equipment from your Department to TECs, I dare say to provide an updated means of dealing with staff? The Audit Commission had a look at this and found that the expenditure was entirely inadequate. Have you some explanation for that?

(Mr Grover) If I may say so, Chairman, that is an issue that the Public Accounts Committee is looking at on 28 June and I think it would be wrong of me to anticipate what they are going to—

349. But you must have some departmental knowledge of this?

(Mr Grover) I do not have departmental responsibility for that computer system or that arrangement.

Dr Bray

350. It was provided independently of the responsibility for the TECs?

(Mr Grover) I am not the senior official responsible for links with the TEC movement. It is not in my division or, for that matter, in Mrs Bayliss's division.

Sir Trevor Skeet

351. But it is surprising that such a large mistake was made, £48 million?

(Mr Grover) I really do not think I can comment on that. It is a subject for the Public Accounts Committee.

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Sir Trevor Skeet: We will have to wait for the final explanation.

Mr Batiste

352. The National Training Partnership Limited was established, I think, some two or three months ago. What does it do, is it doing it properly and why is it limited?

(*Mrs Bayliss*) I will endeavour to answer those questions, Mr Batiste. Before the training and enterprise councils were set up, when the Department ran training programmes for adults and young people directly through its 58 area offices, we needed arrangements—and these dated back to 1983—to make it more convenient for large companies across the country with many outlets to deal with 58 area offices. To help the companies with that, because they did not want to have up to 58 contracts but one single contract, we established something called the Large Companies Unit, which was indeed set up under my aegis ten years ago. That worked very well while we were delivering the programmes direct but once we got the complete network of 82 training and enterprise councils established, the TECs themselves were not happy with the notion that the Department should continue to be involved in the direct organisation of the delivery of training contracts and programmes and in discussion with the Department came to the conclusion that it would be better for that work to be done and owned, as it were, by themselves and not by the Department of Employment. The TECs and the majority of the large companies who used our internal unit came to the conclusion that the best way forward, having done a feasibility study, was to set up a non-profit-making company limited by guarantee. That is the status of the National Training Partnership and its main subscribers are a number of TECs and large companies. Essentially it carries out the function the departmental unit did previously by making it easy for multi-site companies to contract with a number of TECs.

Dr Bray

353. Will it be examined by the National Audit Office?

(*Mrs Bayliss*) It will be subject, as I understand it, to the same audit arrangements as apply to companies, because, of course, it is a company, therefore subject to company law. It will have to have its own external auditors who report in the normal way and, therefore, will be under the supervision of the Department of Trade and Industry.

Dr Bray: Could we move on to the question of the NVQs? Mrs Campbell?

Mrs Campbell

354. I want to refer you to the White Paper, The Strategy for Skills and Enterprise, which implies that TECs should have a lead role in ensuring that local targets for Foundation Learning are met. As I

understand it, youngsters of 16 can follow various different routes. They may stay at school and re-take GCSEs, may go on to an A-level course, which for many parents is the most prestigious and sought-after route, may go into immediate employment and not do any training at all, may be unemployed and follow a youth training scheme and then follow a course leading to an NVQ at the end of it. With such a mixture of routes how do you propose that the TECs, who are only responsible for a small proportion of that, should actually work towards achieving the overall targets? One of the things that very much worries me is that a lot of youngsters find themselves following an A-level route when that is really not the most appropriate route for them, and I wonder if you have any plans, or if you think it is your role, to make the vocational qualification route a rather more prestigious one than it is at the moment?

(*Mrs Bayliss*) Perhaps I can take the first half of that. My ministers have given the training and enterprise councils a specific remit to ensure that the targets are delivered in their localities and we have asked them to set up something called an education and training forum which is intended to bring together all the organisations—schools, colleges, employers and the TECs themselves—who have a responsibility for contributing towards those targets because they are providers of education and training. All the TECs have done that. We have given TECs and have produced and published something called a tool kit, which is a pack of materials containing advice on how a TEC can measure the current baseline, and the progress towards the targets so far in its locality. We have asked them to establish baselines this year and most of them have either done so or are well on the way to doing so, and the tool kit also gives them advice on how to measure progress in future years. So we have set the operation up on the ground and that is, I think, the most important step that we have taken to ensure that there is measurement, monitoring and progress towards the target. The second thing we would say—but I will ask Mr Grover to elaborate on this when I have finished—is that together with the Department for Education we have begun to open up three rather distinct pathways for young people to choose at 16, as you were indicating, between the traditional academic route of A-levels or AS-levels. That is the first route, the second is vocational qualifications now measured by NVQs, and the third, the new general national vocational qualifications, which are a broad introduction to a variety, a group of jobs within a particular industrial sector. We have five of those already available through 90 pilot schools and colleges from last September. We will eventually, by 1995, have those qualifications available in 15 occupational areas and we see this as offering a real alternative at 16 to the other two routes. I think I would agree with you that A-level is a problem for some young people. It was designed for a very specific purpose. As the numbers taking A-level or attempting A-level have risen—and they have risen very sharply over the last four or five years—we are seeing increasing numbers either not

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getting very good results or failing. I think we have identified a real market gap in the range of qualifications available on the ground to 16-year-olds and the General NVQ is an attempt to fill that. The Government has set an expectation that by 1996 about a quarter of 16-year-olds should be starting on a GNVQ course and that at least 1,500 schools and colleges should be offering GNVQ courses in at least two subjects. We think that that expectation should be met readily.

355. There is quite a problem over the planning of this on the ground. Although the TECs are responsible, the new Funding Agency for Schools is going to have some role in deciding provision as well as the Further Education Funding Council, and just such a problem has occurred in my area where 11 grant-maintained schools are now applying to have their own sixth forms where they cannot hope to do anything except GCSE courses and A-level courses, and I feel that if youngsters are going to be pushed into these sixth forms instead of travelling 15 miles or so to the nearest further education college, this is going to present us with problems on the ground?

(Mrs Bayliss) The Government's policy is clearly directed at maximising choice locally. The general national vocational qualifications are already available for sixth forms and will continue to be and we expect to see more schools coming into the provision of them as their availability extends. So as far as the Funding Council and the Funding Agency for Schools is concerned, the FE Funding Council does have a responsibility for ensuring, as you will know, that there is proper provision in each locality. There are very strong links between the training and enterprise councils and the FEFC. For example, the FEFC is about to set up a network of regional committees and the TECs in each region will have two representatives on that. Following the 1991 White Paper, every training and enterprise council has the opportunity to put a nominated governor on the governing body in each FE college. So we are seeing the development of, as it were, a co-ordinating network on the ground and I think that can only be helpful in the context that we are discussing.

Lynne Jones

356. You say that you have provided this tool kit to enable the TECs to monitor and to see how they are getting on with their targets. How are you going to ensure they are consistent in their approach to this because it is very important if we have these targets that we are actually all measuring them on the same basis? Secondly, in terms of the fora that are being set up, and I take it the TECs are taking the lead in this, what obligation is placed upon the other organisations to participate and to provide information and how is that co-ordinated and, really leading up to that, you have this target that at least half the age group should attain NVQ Level III by the year 2000, but how are you going to ensure that is achieved?

(Mrs Bayliss) I do not think, if I may say so, there is a real problem with knowing what the

qualifications are because they are rather sharply defined. If I can come back as well to the last target you mentioned, which is the one that 50 per cent of young people should reach NVQ Level III by the end of the century, we know what NVQ Level III qualifications are and we know what the academic equivalents are (they are A Levels and Advanced Supplementary Level) and we know what the equivalent is in general NVQ terms. I think there is no difficulty about actually measuring the qualifications obtained.

357. It is collecting the pass rates and putting them all together.

(Mrs Bayliss) Precisely so, and the trick is in ensuring that all local parties are prepared to operate in precisely that area. We have, as I said earlier, imposed a very clear obligation on the TECs to organise the collection of that material. The Department for Education has issued guidance to schools and the Further Education Funding Council has advised colleges to co-operate in the collection of that information. There is a very strong steer coming down to local level from both departments on this matter and so far I am bound to say it seems to be working well. If I can come specifically to the target that 50 per cent of the young people should have NVQ-III or equivalent by the end of the century, when we measured this last year we found that 33.5 per cent of young people had obtained qualifications at that level and that was a 3.5 per cent increase on the number the year before. We need an average of 2 per cent a year improvement to reach the target by the end of the century, so at least one can say that we are off to a good start and if that rate of increase or anything like it does continue, as we very much hope it will, we will make it.

358. So if we put down parliamentary questions on these statistics they will be readily available from the Department?

(Mrs Bayliss) In due course yes, because the National Advisory Council on Education and Training Targets which the Government set up not many weeks ago, as you may know, has been charged also with collecting material of that kind and it will become available.

Mr Williams

359. Your departmental report 1990/91 established that only 34 per cent of those leaving youth training had completed their programme and that of those only 53 per cent had gained a qualification. That means that within that 66 per cent who did not complete the course, only 18 per cent ended up with a qualification. Why is there this phenomenal drop-out rate in the various youth training schemes?

(Mrs Bayliss) I think the first thing to say is that a high proportion of those who leave youth training whether they have actually completed their course or not do go into what we term loosely as a positive outcome of either a job or a further course of training or education. The programme is not compulsory and young people are often very keen if

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they see an opportunity for a job in particular to take it rather than to wait until they have actually completed their course while they are on the YT programme.

360. Could I just challenge you there? My understanding of annex B of your paper in the fifth column there was that the percentage of leavers gaining positive outcomes which included jobs at the end of training was 57 per cent last year.

(Mrs Bayliss) You are looking at the departmental report?

361. Yes, I think annex B is taken from your departmental report.

(Mrs Bayliss) I do not think I have said anything which is inconsistent with that.

362. Sorry, the 34 per cent includes jobs, does it?

(Mrs Bayliss) Yes.

Lynne Jones

363. Actually the estimate for this year is a lower percentage as well, 30 per cent.

(Mrs Bayliss) Yes.

Mr Williams

364. It seems to imply that two-thirds of entrants to the youth training scheme opt out.

(Mrs Bayliss) Two-thirds of them do not complete their qualifications while they are on YT. That does not mean that some of them do not complete their qualifications subsequently and we know that they do, but for that information we have to rely on our follow-up survey. Now, we do write to every trainee six months after they have finished and ask them to send us a form recording what they are doing, so that is our main source of information and the figures I gave you just now are drawn from that.

365. I assume that from customer feedback you must be aware that amongst young people there is strong disappointment and dissatisfaction with what is provided in the youth training programmes?

(Mrs Bayliss) I would not dispute that that is the case for some programmes and for some young people. In areas of high unemployment in particular where the prospects will not look very good, it can require a good deal of motivation to get into the course in the first place and to stick with it right until the end which may be two or three years down the track with the intention of getting a qualification and young people may not feel that there will be a job available at the end. The advice I have always given to young people is, "You should not assume you will be the one that fails", and I think they have to be given some incentive and hope and I think that is actually a reasonable position to offer to any person.

Sir Trevor Skeet

366. But surely, Mrs Bayliss, these figures are not good, are they? You say that they fall into jobs or they go for further education, but there must be quite a number of them who just fall by the wayside and do not try.

(Mrs Bayliss) That is bound to be the case, that a proportion do.

367. Can you particularise those people who tend to fall by the wayside and tend to be uneducable in this sense?

(Mrs Bayliss) From my recollection of our findings from the youth cohort study which investigates areas like family income, profession and wages earned by the family and so forth, there is no direct correlation, I have to say. I do not think one can assume that particular income groups produce young people who will always be the ones which drop out and fail to look for a job and so forth. The evidence is not there.

368. No, but there must be quite a number of people on drugs and who have been led astray in this way that you cannot do a great deal with. You have already indicated that you have some line of improvements. Have you got any further thoughts on this?

(Mrs Bayliss) We do have a number of young people who get into programmes which are specially adapted for those with particular difficulties. We have a number of voluntary organisations who run programmes for young people of that kind. I have to say the problem is getting those young people on to the programmes in the first place. About three-quarters of the young people who leave school at 16 and do not go into further education do end up in YT, but there is the other quarter which does not and that will include most of the people you are talking about. We do have schemes which, for example, fund outreach workers who go out and try to get these young people into the programmes, but it is very hard work.

Dr Bray

369. Of all the organisations in the youth training scheme, are there any who act specifically as representatives and advocates of the young people? In Scotland that role is to some extent played by the Career Guidance Service and there are special arrangements for co-operation between some of the LECs and the local authority career guidance organisations. Do those exist generally?

(Mrs Bayliss) Yes, they do, Chairman. The local authority careers service through Scotland, England and Wales generally expects to take on that responsibility. There are one or two youth training providers, and one thinks, for example, of NACRO, who are particularly concerned with crime prevention and picking up young people before they slip into a life of crime and they are very significant providers of youth training.

Lynne Jones

370. What proportion of people leaving YT actually are achieving NVQ Level III?

(Mrs Bayliss) At the moment that proportion is under 10 per cent. The reason for that is that the rule that trainees should seek an NVQ was one of the new

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[Lynne Jones Contd]

regulations which only came in for the year 1991, so the first trainees who will emerge with those qualifications will not begin to emerge until the end of this year or the year afterwards, so we have to wait until they have finished to see how well they have done.

Dr Bray: Can we move on to quality assurance. Mrs Campbell?

Mrs Campbell

371. I am interested in the way that youngsters are encouraged, that participants are encouraged, to take responsibility for their own training. I am interested in the pilot scheme which you have been running for training credits and I wonder whether you can tell us whether you feel that has been successful or not and also how you ensure that the training which participants have to choose from is high-quality training?

(Mrs Bayliss) The first young people to take up their training under the credit scheme started slightly under two years ago and most of them are still training and we started another cohort last year. We have something like 45,000 young people now training as a result of having a training credit in 20 areas and, as I expect you know, we are aiming to go national by 1996. We have had a great deal of evaluation on the first stage. For example, the first 11 TEC areas that engaged in the pilots each produced an evaluation of what had happened on the ground. All those have been published and there is a summary report which is actually in the House of Commons Library, and we continue to evaluate these very closely and very rigorously. We are beginning to get results from interviews and from our surveys with the young people about the extent to which a credit is a motivational factor. It is very early days and I would not want to place too much weight on this yet but they do seem to have a positive effect on encouraging young people to think a bit more carefully about the options they take at 16. Of course, part of the credit scheme does involve extra careers advice and guidance compared with what they would have got had the credit scheme not existed.

372. One of the criticisms I have heard is that, in fact, the training credits are very often not encouraging youngsters to get involved in any way, that what happens is that the employer takes the training credit and says, "Hand it over. You sign here and I am going to decide what you should do." Do you have any evidence that that is happening in a widespread way? Certainly the NATFE report which was published on training credits indicated that that was a problem.

(Mrs Bayliss) There is no information from our systematic evaluation of surveys that that is happening other than in a very few cases and you will always, I fear, get the odd maverick in a scheme of this kind, particularly as it gets large, but there is no evidence whatever that that is happening generally. You asked about the quality. It is built into the system that the young person who chooses

to use the credit for a training scheme must pursue a course leading to a national vocational qualification. So the youngster knows at the outset what competencies he or she should expect to be training in and what certificate he or she is going to get at the end. The training and enterprise council is charged with monitoring what the employer is doing by way of providing training and ensuring that what the young person is signed up to do is actually being delivered, and they visit and check; they interview young people on a sample basis from time to time without the employer present, which is a very powerful form of feedback.

Lynne Jones

373. Can we discuss the amount of money which is spent on youth training per participant per week. The figures that I have had from my local TEC seem very low, something like £56 a week training allowance. Could you comment on that? There are figures here which indicate a cost of around £6,000. I am not sure how the two distinguish and whether there are other pots of money coming in and how it all works, but it does not sound a great deal of money to enable quality training to be given.

(Mrs Bayliss) I think we have to distinguish between two levels of operational agreement. The first is the contract between the Department of Employment and each TEC and that contract strikes an average unit price for the delivery of youth training. It specifies the number of young people the TEC will provide places for and the average price that the Department will pay to the TEC. That price will take account, on the basis of local negotiations, of particular factors such as the number of youngsters expected to come forward and special educational needs, and that is obviously quite a powerful influence in driving costs. On the other hand, there is the price that the individual TEC strikes with the organisations in its locality who actually provide training and there will be a range of prices because the TECs are buying training in different occupations. It is self-evidently going to be less expensive to train a young person in an area like hairdressing than it is to give them three or four years in engineering. We leave that very much to the TECs. We cannot do it from the centre. The price that the Government gives to the TEC is influenced by a judgment of how far the TECs are also going to be able to get the employers to contribute. The Government price has never been intended to cover the full cost and it does not. Employers on average are probably putting in something like £800.

374. A year?

(Mrs Bayliss) Yes, but the actual range would be very much larger. In the case of three- or four-year engineering courses the employer may well be putting in a couple of thousand pounds a year and there are well-documented cases of that. The other thing I should say is that we are seeking to get the TECs to increase the proportion of young people inside the programme who have employed status. The TECs are very keen to do that because in most

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cases the employer meets the wage bill and the TEC does not spend money on the allowance, and when that happens what would have been spent on the allowance can go into the training.

375. That means, then, that the availability of the courses will very much depend on links with local employers to take on young people. Certainly with my local TEC there does seem to be a real problem that young people do not have the range of courses available to them because of the lack of willingness of employers to take them on, which means that they are doing virtually total college courses, which therefore means that there is pressure to achieve the courses because of the amount of money available. Could you comment on that and whether you are monitoring this?

(Mrs Bayliss) It is certainly the case that with the recession it has become that much more difficult for the TECs to get the employers on board on a regular basis. They have by no means disappeared. I would not want the Committee to think that. The employers are still there in very large numbers, thousands of them, but it has become a great deal harder, for example, for a TEC to get as many employers as it would like to take a young person from the outset. The TEC is obliged to provide training for young people who want it under the training guarantee, and where the employer is not there from the outset the TEC has to approach the matter from a different direction. The TEC will then find either a college, as I say, to start the training off and the college will then find an employer for the placement, so that if you like the package works the other way round, or the TEC will contract with a training provider, a managing agent who will do that job for it. The economics can get quite complex because the TEC is constantly looking to maximise the income stream from the employers to enable it to drive up the average quality of the training that is provided. But I can assure you that the TECs take that matter very seriously indeed. We ask them to review the skill needs in the local economy over the year and to try to have that judgment influence the range of training that the TEC is providing. They must, of course, take account of the wishes of young people as well. They have to do a balancing act there.

376. Therefore, if there is no demand in the economy for certain skills because of the recession, how are young people going to get the skills that they need if we are going to compete with other countries?

(Mrs Bayliss) The TEC has to take the longer view and to the extent that it is organising provision direct rather than for individual employers, it has the opportunity to do that. There is no reason why a TEC should not, for example, if the local engineering employers are finding difficulty in providing as many places as the TEC requires, go to the local college of further education and ask it to take the burden on, and that in practice is what has happened on the ground.

Mr Williams

377. Again on the question of funding, as I have understood it, three-quarters or thereabouts of the finance for TECs comes from the number of training weeks for the people on the courses and then a quarter based on the outcomes of those courses. There are some pilot schemes based financially completely on outcomes. If we move to a system which is based completely on outcomes, is there not a danger of devaluing or pressure being put on high pass rates for the qualifications that people get in the TEC programmes?

(Mrs Bayliss) The reason why there are only pilots in higher percentages of output-related funding—and, as you say, they do go up to 100 per cent. in a few cases—is precisely that we and the TECs want to find out what happens when you try to run that sort of funding regime. Some TECs have been very keen to try it out. We had in the first place, when we brought in output-related funding a couple of years ago, to provide working capital loans for the TECs. Obviously if you tie up a portion of the funding they get to outputs which are going to be two years down the track, you have a cash-flow issue which you have to keep an eye on, so we provided working capital loans. Now, we want to wait and see how the experiments of up to 100 per cent. output-related funding actually work and whether they have effects that none of us would like as well as effects that the TECs are looking for.

378. It is a dangerous area if it is an element in the free market economy when the payment is completely on outputs. If you apply that in schools and colleges that they would only get paid according to what the students get at GCSE or A Level, it creates a precedent, does it not?

(Mrs Bayliss) I think the technicalities of this are quite complex, but also quite interesting. When we began to discuss higher rates of output-related funding with TECs, and, for example, around the question of whether they should introduce it for a part of their training outputs but not the whole, we immediately ran up against the obvious fact that the output price of some of these things was going to look extremely high and we did ask the TECs to try and work through what effect that would have on the way they actually operated. We will need I think another two years or so to find out whether it is worth going down this track on a wider scale.

379. Could you just say something briefly on the "Gateways" scheme which your Department is developing?

(Mrs Bayliss) Yes, this was a set of pilots announced in November 1991 by the then Secretary of State to improve guidance and assessment of services in local areas, guidance and assessment services for adults. In 1992/93 we selected twelve TECs and one major employer, which is J Sainsbury, to take these forward. We shall have our first evaluation report at the end of this year, December to be precise, but we do have some interim evidence to suggest that the pilots have produced reduced drop-out from training because the quality of

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guidance for individuals for training has been better and they have helped individuals to think about their long-term training and employment goals rather more clearly and resources are being used more efficiently. We are hoping to build on the Gateway experience to introduce better guidance facilities right through our adult training programmes and I think we are not far off going down that road.

Dr Bray: Could we move on to the field of further and higher education?

Mr Batiste

380. There is basically one question I would like to put to you. The universities for a long time have been self-governing and of course our new reforms have put the FE colleges on to a very similar basis. This approaches from a different point of view one of the questions we put to you earlier, and this is the extent to which the interface between yourselves in the Department and the institutions which are sponsored by other departments works and whether it works well in your view or not, so in relation to the universities and in relation to the anticipated response from FE colleges, how good has the response been to your Department's initiatives in the past and are there improvements which you would like to see?

(Mrs Bayliss) We think that we have had a good response from further education colleges and from the universities under two of our initiatives and perhaps I could briefly describe them. In 1985 the Government gave the then Manpower Services Commission, now my department, control of 10 per cent. of the budget for work-related further education and we decided to tie that to the development by colleges of strategic plans and business plans and to increase the responsiveness to employers. Now, you may find this curious, but before 1984 only about 10 per cent. of local FE colleges actually produced business plans or surveyed their employers. That figure is now about 100 per cent. and that is as a direct result of our keeping back 10 per cent. of the resource and making its release conditional on the colleges and the LEAs, which were then involved in this, engaging in that kind of activity. It may be argued that it was a slightly crude mechanism, but it was certainly effective. We do have survey evidence from employers who are involved in FE locally and the most recent survey a year or two back told us that over half of the employer respondents thought that their colleges had become more responsive to their needs since we had pressed the colleges to engage in that.

381. If I can understand the nub of your point correctly, if the colleges and the universities have followed your suggestions, the money that they might or might not be provided with is dependent upon them doing so?

(Mrs Bayliss) That was the mechanism we used at the outset. I do not think for a moment now that any college would cease either to survey its local employers regularly or to carry out strategic

planning and of course we now have the FE Funding Council in that sector which will rest its allocation of resources on its colleges' plans. What we have actually done in the last seven or eight years is, I suppose, to produce a foundation of planning in the FE sector which the new Funding Council will oversee.

382. Do you feel now that the FE colleges under their new aegis have passed the point of no return in their responsiveness to the needs of their local industries in relation to the subjects covered by your Department?

(Mrs Bayliss) I am not quite sure what the point of no return would be.

383. Well, whether we go back to being rather inward-looking, providing courses which they see as best as opposed to being market-led and providing the needs of employers in their own areas.

(Mrs Bayliss) Not for a minute. I think the colleges have undergone a real cultural change. We work very closely with them and I have described the funding mechanism as perhaps rather crude, but it has been a more subtle relationship as well in terms of our helping colleges with practical advice on planning and labour market issues which I think they have welcomed and I think the results are good.

Dr Bray

384. To conclude with the question we opened with, in seeing how the system is developing and responding to the needs of industry, not in the depths of a recession but when the economy is expanding and when skills shortages are becoming apparent, do you see the Department playing an active role in the Foresight programme which the Chancellor of the Duchy is planning?

(Mr Grover) I think that the role that the Department would play will be the sort of role I was trying to outline at the start of the evidence. It will be the role of providing the overall framework, of providing strategic guidance—

385. But, you see, the Foresight programme is looking at new technologies that do not exist, skills that do not exist, which are not formalised and are not provided for in the NVQs and other countries have mobilised themselves to look forward like this to anticipate those things. It seems that the process that you are describing is sweeping up after the event. Where is the sharp cutting edge going to come from in the Department of Employment?

(Mr Grover) The first point I would make is that if I have given the impression that it is always backward-looking and never forward-looking, then I have given the wrong impression about the way in which the system works. I think it is planning for the future and planning for industry's view of the future and attempting to make sure that that view is informed by labour market information and skill requirement information of the sort I was describing a little earlier in my evidence. Now, the work that is done through something like the Foresight

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programme seems to me one of those things that you can feed into that process and it would make sure that it was disseminated to those actors in the training system who need to know about it.

386. But there has been no specific discussion yet with the Department of Employment about the Foresight programme?

(Mr Grover) There was of course the discussion which Mrs Bayliss described which preceded the White Paper and then how that is carried forward will clearly be carried forward in subsequent discussion.

Dr Bray: Mrs Bayliss and Mr Grover, we thank you for your evidence to the Committee.

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Evidence submitted by the Employment Department following oral evidence given on 16 June
Letter to the Clerk of the Committee from the Parliamentary Clerk, Department of Employment (12 July 1993)

Your letter of 22 June asked for further information following the oral evidence session with Mrs Bayliss and Mr Grover on 16 June. The information relates to the following questions:

SCIENTISTS AND ENGINEERS (Q332 AND Q333)

Cheryl Gillan's request is a multiple question, only some parts can be answered. Attached at Annex 1 are tables for science and technology graduates:

- (1) By discipline and age group.
- (2) By discipline and occupation (SOC 1-digit level).

Of a total of 1.4 million science and technology graduates in Summer 1992, 1.3 million (91 per cent) were in employment, 47,000 (3.3 per cent) were unemployed and 86,000 (6 per cent) were economically inactive.

Whilst the age profile of employed science and technology graduates shows that 23 per cent of them were aged under 30, among such unemployed graduates 42 per cent were under 30, and 34 per cent were inactive.

Proportionately more of the unemployed than the employed graduates had natural science qualifications and proportionately fewer had medical science qualifications.

The majority of science and technology graduates were in professional occupations—54 per cent of the employed, 36 per cent of the unemployed and 47 per cent of the economically inactive. Significant proportions (19, 23 and 16 per cent respectively in the employed, unemployed and economically inactive groups) were also in manager/administrator and (16, 17 and 19 per cent respectively) in associated professional and technical occupations. Taking these three groups together, they accounted for 89 per cent of the employed graduates, 76 per cent of the unemployed and 82 per cent of the economically inactive.

No information is currently available on retraining of these groups.

EMPLOYMENT DEPARTMENT (ED) STATISTICS ORGANISATION (Q342-344)

The aim of ED Statistical Service Division is to ensure that Ministers and their officials have a relevant, reliable, timely and cost-effective supply of the statistical information and advice they need to develop, manage and report on UK labour market policies; and to ensure that labour market data are made publicly available.

ED Statistical Services Division is headed by a Grade 3 Director and has five branches each headed by a Grade 5 officer. Branches and main functions are as follows:

- (a) Earnings.
- (b) Unemployment and Labour Market Statistics co-ordination.
- (c) Labour Force Survey, Projections and International Branch.
- (d) Employment and Business Registers Branch.
- (e) Statistical services to Training, Enterprise and Education Directorate (TEED).

All of the statisticians in Statistical Services Division are part of the Government Statistical Service (GSS).

COMMON BUSINESS REGISTER

The Employment Department is not against a common register. In fact we are currently developing one, known as the Inter-Department Business Register (IDBR), in co-operation with the Central Statistical Office (of which the Business Statistics Office now forms a part). The total development cost is £4.3 million, of which the Employment Department is funding half. This initiative was announced to Parliament by the Economic Secretary, John Maples, on 9 March 1992. The register is due to become operational in late 1995 and will be the basis for the Employment Department's major statistical surveys of employers. An article in *Economic Trends* April 1992 gave details of the planned development. A copy is attached at Annex 2.

We have discussed our register with the Chambers of Commerce. At present, the law prevents our devolving the register to them or disclosing details of individual businesses. If the Chambers of Commerce's proposals for a register of their own ever go ahead we would hope to co-operate, subject to legal restrictions, in establishing their register and in maintaining both registers to our mutual benefit. However, as they cover different interests it is unlikely that the registers would ever be combined.

I hope this is clear but if you have any queries or need more information, please let me know.

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Annex 1

DATA ON SCIENTISTS AND ENGINEERS

The Tables draw on data from the Labour Force Survey which can provide information on:

- (a) *Qualifications*, i.e., the highest qualification held. To obtain analysis by discipline, only degree subjects can be itemised and 124 subjects or combinations of subjects are identifiable. Holders of lower levels of qualifications for which disciplines are not identifiable, of whom there are larger numbers, have not been analysed.

An analysis has been made by subject. Both for ease of interpretation and because of limitations of sample size, for Science and Technology, subjects have been aggregated into the following seven groups:

- Natural sciences
- Engineering and technology
- Medical sciences
- Agricultural sciences
- Mathematics/statistics/computing
- Architecture/building/planning
- Combinations of science/technology

- (b) *Age*. To minimise the amount of data lost through sample size limitation, decennial age groups from 20 to 59 and then 60+ in total are shown. (NB. The data was extracted in quinquennial age groups so the distribution could be rearranged if required.)

- (c) Though information on *unemployment* was the prime request, the number of unemployed graduates is relatively small and therefore cannot be dissected very far and yet remain publishable. Data are therefore provided for those in *employment* to set the unemployment figures in perspective. Also, to complete the picture on the "stock" of S & T qualified persons, a similar analysis is given for those who are *economically inactive*.

- (d) *Occupation*. For simplicity and because of sample size limitations, analysis is provided for the nine occupation groups of the Standard Occupation Classification (SOC) 1-digit level, viz:

- Managers and administrators
- Professional occupations
- Associate professional and technical occupations
- Clerical and secretarial occupations
- Craft and related occupations
- Personal and protective service occupations
- Sales occupations
- Plant and machine operatives
- Other occupations

For those in employment, actual occupations have been analysed; for the unemployed and the economically inactive, the previous occupation has been used, where available. This results in the inclusion of fewer persons than in the qualifications data because the information on previous occupation is not always available.

If the analysis were done at more detailed SOC levels, it might be possible to obtain the number of S & T graduates who were not currently employed in S & T-related occupations, though it might be difficult to define all occupations to arrive at clear demarcations. Furthermore, it is not possible to trace career paths of individuals nor to identify information on their re-training by discipline and subject of training. Indeed the detailed data on qualification by discipline has only become available since the Labour Force Survey changed to a quarterly basis in spring 1992.

All the analysis has been done on summer 1992 data as it was designed to maximise the "stock" by including the new 1992 graduates. Also, because there are 77 SOC 2-digit and 374 3-digit level occupations, the amount of analysis required would be considerable (and not possible in the time available), and it is likely that the sample sizes, particularly for the unemployed, would carry margins of sampling error which would preclude many of the numbers from publication.

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Labour Force Survey: Number of Qualified Persons by Subject

Age	Total	Great Britain, Thousands, Autumn 1992				
		20-29	30-39	40-49	50-59	60+
<i>Employed</i>						
Natural sciences	258	59	82	78	30	*
Engineering and technology	369	82	105	104	57	21
Medical sciences	349	71	128	90	41	20
Agricultural sciences	39	10	13	*	*	*
Mathematics/statistics/computing	178	60	49	51	14	*
Architecture/building/planning	87	19	31	24	*	*
Combinations of science/technology	26	*	10	*	*	*
Total	1,306	306	418	362	157	62
	Total	20-29	30-39	40-49	50-59	60+
<i>Unemployed</i>						
Natural sciences	18	*	*	*	*	*
Engineering and technology	17	*	*	*	*	*
Medical sciences	12	*	*	*	*	*
Agricultural sciences	*	*	*	*	*	*
Mathematics/statistics/computing	10	*	*	*	*	*
Architecture/building/planning	*	*	*	*	*	*
Combinations of science/technology	*	*	*	*	*	*
Total	64	27	12	*	12	*
	Total	20-29	30-39	40-49	50-59	60+
<i>Economically inactive</i>						
Natural sciences	30	*	*	*	*	*
Engineering and technology	32	*	*	*	*	12
Medical sciences	39	17	*	*	*	*
Agricultural sciences	*	*	*	*	*	*
Mathematics/statistics/computing	11	*	*	*	*	*
Architecture/building/planning	*	*	*	*	*	*
Combinations of science/technology	*	*	*	*	*	*
Total	124	42	28	*	22	24

*Sample size too small for reliable estimate.
A blank indicates no information available.

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Labour Force Survey: Number of Qualified Persons by Subject

Occupation	Great Britain, Thousands, Autumn 1992									
	Total	Mgr/ Admin	Prof	Ass Prof	Cler/ Sec	Craft	Pers Serv	Sales	M/c ops	Others
<i>Employed</i>										
Natural sciences	258	53	139	37	10	*	*	*	*	*
Engineering and technology	368	97	185	44	*	16	*	11	*	*
Medical sciences	349	32	233	60	*	*	*	*	*	*
Agricultural sciences	39	14	12	*	*	*	*	*	*	*
Mathematics/statistics/computing	177	36	76	49	*	*	*	*	*	*
Architecture/building/planning	87	13	53	15	*	*	*	*	*	*
Combinations of science/technology	26	*	*	*	*	*	*	*	*	*
Total	1,304	253	707	215	36	28	14	30	13	*
<i>Unemployed</i>										
Natural sciences	14	*	*	*	*	*	*	*	*	*
Engineering and technology	14	*	*	*	*	*	*	*	*	*
Medical sciences	*	*	*	*	*	*	*	*	*	*
Agricultural sciences	*	*	*	*	*	*	*	*	*	*
Mathematics/statistics/computing	*	*	*	*	*	*	*	*	*	*
Architecture/building/planning	*	*	*	*	*	*	*	*	*	*
Combinations of science/technology	*	*	*	*	*	*	*	*	*	*
Total	47	11	17	*	*	*	*	*	*	*
<i>Economically inactive</i>										
Natural sciences	21	*	10	*	*	*	*	*	*	*
Engineering and technology	25	*	10	*	*	*	*	*	*	*
Medical sciences	26	*	14	*	*	*	*	*	*	*
Agricultural sciences	*	*	*	*	*	*	*	*	*	*
Mathematics/statistics/computing	*	*	*	*	*	*	*	*	*	*
Architecture/building/planning	*	*	*	*	*	*	*	*	*	*
Combinations of science/technology	*	*	*	*	*	*	*	*	*	*
Total	86	14	40	16	*	*	*	*	*	*

* Sample size too small for reliable estimate.

A blank indicates no information available.

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