JU

cc Liz Drummond

/ April 1981

Miss Caroline Stephens
Private Secretary to the
  Prime Minister
10 Downing Street
SW1

Dear ~~Caroline~~,

... I enclose details of the arrangements and a
brief for the Press Conference to launch the
DoI's 'Micros in Schools' scheme on 6 April.

A copy of this letter goes to June Nisbet (DES).

Yours sincerely,

Jonathan Hudson

JONATHAN HUDSON
Private Secretary

MICROS IN SCHOOLS: PRESS CONFERENCE ARRANGEMENTS FOR PRIME
MINISTER

Date and Venue: 12 noon, 6 April

                                   Millbank Cinema, Millbank SW1

Ministers present: Mr K Baker, DoI

                                   Mr N Macfarlane, DES

                                   Mr A Fletcher, Scottish Office

In attendance: Mr R Fothergill
                                   Director
                                   Scottish Microelectronics In
                                     Education Programme

                                   Mr D Walker
                                   Director
                                   Scottish Microelectronics
                                     Development Programme

Media Coverage: Correspondents from the National
                                   Press and the principal education
                                   and technical journals have been
                                   invited by the No 10 Press Office.
                                   BBC and independent television
                                   have also been invited.

Detailed Arrangements:

On arrival at the main(revolving door) entrance to Millbank Tower
at 12 noon the Prime Minister will be met by Mr Baker. He will
then escort her to the display area outside the Cinema which is
located on the ground floor of Millbank Tower; Mr Macfarlane and
Mr Fletcher will be in this area.

Models of the two makes of microcomputer eligible for the scheme
will be on display in this area. They will be operated by school
children who will demonstrate particular aspects of the machines
which they have developed themselves. Six of the seven schools

present were the 'star prizewinners' in last year's DoI computer competition.

It is suggested that the Prime Minister should visit the micro-computer demonstration for 20 minutes and meet the schoolchildren and teachers. She will also wish to meet the managing directors of the two microcomputer companies (Research Machines: Mr M O'Reagan, and Acorn: Mr C Currie).

Following this the Prime Minister will wish to address the Press Conference (ca 100 people) for a few minutes. A draft speech is with No 10. Following this there will be an opportunity for the Press to put some very general questions to the Prime Minister for 5 - 10 minutes before she will wish to hand the Press Conference over to Mr Baker and Mr Macfarlane and depart via the main (revolving door) exit of Millbank Tower. The Prime Minister will not wish to respond in detail to questions on the operation of the DoI 'Micros In Schools' scheme or the DES strategy paper on 'Microelectronics In Education'. Instead she should refer them to the Ministers for reply in detail when they carry on the Press Conference after the Prime Minister's departure.

Department of Industry

31 March 1981

MICROS IN SCHOOLS: BRIEF FOR THE PRIME MINISTER

Background

The Prime Minister is aware that DoI has been working up, with
DES and the other UK Education Departments, a proposal to assist
maintained and independent secondary schools to purchase a micro-
computer. Under this the DoI will match on a pound-for-pound
basis funds provided locally towards the purchase of one of two
specified microcomputers (both UK designed and manufactured).
Initially only those secondary schools (ca 50%) which do not
possess a microcomputer will be eligible although when demand
from these has been satisfied it is envisaged that applications
from other schools will be invited. The objective is that there
should be a microcomputer in all secondary schools by the end
of 1982.

2   The DoI initiative links with the Government's already
announced intention to fund, through UK Education Departments,
programmes totalling £10M (£1M for Scotland, the remainder for
England, Wales and Northern Ireland) to promote a greater aware-
ness of the applications of microelectronics in education.
Together the DoI proposal and the Microelectronics Education
Programmes of the Education Departments will encourage the wide-
spread use of computers in teaching and learning and also help
schools better prepare pupils to take advantage of the wide
range of opportunities to which developments in microelectronics
will increasingly give rise.

3   In addition to the announcement on 6 April of the DoI's
'Micros In Schools' scheme, the DES are publishing their 3-year
strategy paper on 'Microelectronics In Education'. DES are
briefing on the latter. The Press Conference will cover both of
these subjects although the main emphasis will almost inevitably
be on the DoI proposal.

4   The DoI proposal is largely being financed by funds allocated
to showcase projects involving new British technology allocated
in support of the Government's public purchasing policy. It should
lead to a strengthening of the home-based microcomputer industry
particularly in the education, small business and personal computer
sectors, and also promote further the educational software industry
in which the UK already holds a leading position.

Microcomputers Eligible for DoI Support

5   Two microcomputers have been nominated as being eligible
for DoI support under the scheme; both are British designed and
made (one, the Acorn, in Oxford, one, the RML* in Cambridge).

                                            Cambridge   Oxford.

                                   * Research Machines Ltd

Both machines will be on display and operated by schoolchildren at the Press Conference. The RML machine is highly regarded and is probably the single most widely used micro in UK schools, although the somewhat cheaper US micros (APPLE and PET) have strong footholds. The DoI scheme and the volumes involved should strengthen RML's position and help reduce the price of the micro.

6   The DoI scheme is flexible and enables LEAs, schools, PTAs and industry to contribute to 'their' half of the funding. Despite this however some areas may find it difficult to raise the £840 which is half the RML machine price. The Acorn micro is however much cheaper and, since it will require only £130 of local funding, can be expected to appeal to schools which cannot fund an RML micro. The Acorn is however a powerful machine in its own right and has one particular feature which will make it particularly valuable to schools. It can be 'networked' so enabling up to 255 machines to communicate with each other and share facilities such as discs and printers. A master station (for example operated by a teacher) can define priorities, open and close other station, communicate with them etc. The education potential of such a system is clear. A small scale demonstration of this with three or four work stations will be on display at the Press Conference.

7   The actual Acorn micro for which DoI support will be given will not be in volume production until September. Although a number of other micros are currently available the Department decided to accept this delay (although the summer holidays and the teacher training requirement we are making as a condition of support – see paragraph 12 – will minimise the effects) partly because the Acorn offered the networking facility described above and partly because the basic micro has been designed and produced for the BBC. They require it for a major new project "Computer Literacy Project" which is to be launched in January 1982.

8   The aim of the BBC project is to introduce interested adults to the world of computers and computing, and to provide the opportunity for viewers to learn through direct experience how to programme and use a microcomputer. The television series will also be broadcast to schools. Given the backing of the television series the 'BBC Acorn Microcomputer' is likely to become widely used in schools and homes. Its low price of £200 – although the DoI 'package' at £260 includes high resolution graphics, monitor, cassette recorder and networking capability – and the fact that it is 'upwards expandable' in processing power makes it more attractive as a basic machine for schools than any of the other contenders in this price range.

Possible Criticism of the DoI Scheme

9   The Prime Minister should be aware that selection of the microcomputers caused some internal concern regarding possible

EEC/GATT reaction towards the nomination by DoI of two British micros without going to open tender. EEC requirements ruled out any possible operation whereby DoI procured a large number of machines and sold them subsequently to LEAs at a lower price. By operating the scheme so that LEAs themselves place individual orders(rather than DoI)no individual order will be above the financial limit above which competitive tenders must be sought.

10   There are also acceptable defensive arguments for selecting the two micros although there may be some criticism from other micro manufacturers (both UK and US). To widen the choice would however have meant, almost inevitably, that the US machines (PET and APPLE) would have obtained a substantial volume of orders.

11   Guidelines (a copy of which is attached at Annex A) to the operation of the scheme will be received by LEAs on 6 April although the AMA and ACC have been consulted and generally approved them. A few LEAs who have standardised on the PET machine may in due course express discontent that theirs is not an approved machine for DoI support purposes. The DoI reply - even if it is not so firmly expressed publicly - must be that we are not in business to promote the American micro industry.

Use of Micros

12   It is important that the micros provided be used by pupils and teachers. General experience is that pupils are enthusiastic, staying on after hours etc. But for micros to be really integrated into the teaching system so that the teaching of French and History by micro is almost as well-accepted as the teaching of the science based subjects, requires that teachers be made more aware of the opportunities offered. This of course will be one of the objectives of the Microelectronics In Education Programme. So far as the DoI scheme is concerned however, a specific condition of support is that two teachers from each applying school must attend a suitable (normally 4 days) period of training.

Possible Extensions of the DoI Scheme

13   Advice from those who have been consulted in the education world suggests that there will be a great deal of interest in the scheme. Initially therefore it is limited to secondary schools without micros rather than open to all; it is however likely that the scheme/be widened in due course (early 1982?) to include these. As limited to schools without micros, DoI funding of £1.5M will be required; extension of the scheme to all secondary schools would double this requirement. Both the initial funding and the extension funding are being found within the Department's existing budget.

will

14	If the scheme for secondary schools is successful then extensions of it as part of the Government's IT programme are envisaged. These include:

(i)	micros together with the necessary specific educational software packages into all special schools (micros have been shown to be very effective in remedial teaching and IT offers the possibilities of handicapped people working from home);

(ii)	micros into primary schools;

(iii)	the greater use of micros in further education.

Such extensions would however have budgetary implications.

Industry Links

15	DoI wish to take advantage of the scheme to strengthen school - industry links and ways in which direct company/school contacts can be established are being considered. In addition however as became apparent during the Prime Minister's recent lunch with the British Computer Society, they are eager to assist. The BCS have agreed therefore to draw up a list on an LEA region basis of members who would be willing voluntarily to assist schools on request either directly or through the LEAs in making optimum use of their microcomputers. Besides improving the use of the machines (and giving confidence to less-experienced teachers) such an arrangement would almost naturally lead to better school - industry contacts.

DoI Schools Micro Computer Competition

16	The Prime Minister will recall the successful schools micro computer competition organised last year under the Micro-processor Applications Project aimed at encouraging the development of computing skills in education. 100 RML machines were put up by the Department as prizes and a number of other microcomputers were donated by other souces. 500 Acorn BBC Microcomputers are being awarded later this year as prizes to those schools which competed in the competition but did not win an RML microcomputer.

17	The interest generated by the competition has encouraged the Department to sponsor the competition again in the autumn of 1981 when it will be administered by the BCS. Once again the main prizes will be the RML micro.

Publicising the DoI Scheme

18	In addition to the Press launch details of the scheme and its operation are being sent to all LEAs. A brochure is also being produced which will be sent to all schools and which will also be given prominence at various IT exhibitions at which DoI
and	will have a presence,/appropriate conferences. In addition the selected microcomputers will be on display on the "MAP Train"

4

which is being organised by this Department. School parties will be invited to the training which will visit 21 towns during the period May – October and this will give wider coverage of the scheme.

19   Details of the 'Micros for Schools' scheme will also be available on Prestel.

20   An oral PQ has been put down by Mr Neale for reply by Mr Baker on 6 April. It is concerned with the encouragement of an awareness of industrial needs in schools. Mr Baker in reply will draw attention to the Prime Minister's announcement earlier that day of the Department's microcomputer scheme for schools.

Press Conference

21   Seven schools will be demonstrating their use of micro-computers at the Press Conference. Almost all will be showing some particular aspect they have developed themselves. Six of the schools will be operating the RML machine. These schools were the "Star" Prizewinners in the DoI Schools Microcomputer Competition held in 1980. They are:

        Christian Brothers School, Northern Ireland
        St Stephens High School, Scotland
        Tonyrefail Comprehensive School, Wales
        Thomas Alleyne's High School, Uttoxeter, Staffs
        Collingwood County Secondary School, Camberley, Surrey
        Glyn School, Epsom, Surrey
        Longroad Sixth Form College, Cambridge

The Microcomputer Companies

22   The companies manufacturing the micros are both examples of young entrepreneurial activity in the field of microelectronics. Brief details are:

Research Machines Ltd (RML) was started in Oxford by Mr O'Reagan and Mr Fischer four years ago and have grown rapidly to achieve a turnover last year of £3M (profit after tax £0.65M). They employ nearly 100 people at present and expect to double that figure over the next year or so.

RML has concentrated on the education/small business market and sell more micros to UK schools than any other single micro manufacturer.

<u>Acorn Computers Ltd</u>

This company was started as a consultancy by Mr Currie and
Dr Hanssen in 1978 and then developed its interests in the very
fast growing personal microcomputer market. The turnover in
the 1980/81 financial year was £1.3M and the company employs
33 people.

Acorn were selected by the BBC to produce the micro for their
Computer Literacy Project against competition.

Department of Industry

31 March 1981

MICROS IN SCHOOLS PROJECT

Guidelines to LEAs

1   All maintained secondary schools, including sixth-form
colleges, which do not possess a microcomputer at the time of
application will be eligible for support under the scheme.
(For these purposes any microcomputer won in a competition organised
by the Department of Industry will not count against eligibility.)
The Department of Industry will match on a pound-for-pound basis
funds provided locally towards the purchase of one of two speci-
fied microcomputer packages.

2   Schools wishing to take advantage of the scheme must approach
their Local Education Authority. LEAs will be responsible for
finding the local contribution and the Departments hope that
LEAs will encourage schools to draw upon their own funds and seek
assistance as appropriate from PTAs and local industry.

3   Two microcomputers, the RML 380Z, obtainable from Research
Machines Limited, and the BBC Microcomputer, obtainable from
Acorn Ltd, are covered by the Department of Industry support
scheme and applications nominating other types of microcomputers
cannot be accepted. Details of the two microcomputer packages
eligible, their cost and the maximum DoI funding available in
each case are attached at Annex A'. Also attached are details of
the BBC's Computer Literacy Project which will be of particular
interest to those LEAs and schools contemplating the purchase of
the BBC Microcomputer.

4   LEAs are asked to submit applications in respect of eligible
schools in their area; only applications made through the LEA will
be considered. All applications must be submitted to Mr R Fothergill,
Director, Microelectronics In Education Programme (MEP), Cheviot
House, Coach Lane Campus, Newcastle-upon-Tyne NE7 7XA by the Local
Education Authority. Applications should give details of the
schools which are being nominated for support, a statement from
the LEA that the schools do not possess a microcomputer, and evidence
from the LEA that at least two teachers from each of the nominated
schools have undertaken, or are about to undertake, a period of
suitable training in the use of microcomputers in education. The
LEA should also indicate which microcomputer package is required
by each school. With each application the LEA will be required to
confirm that the necessary balance of funds to purchase the
equipment will be made available.

5   It will be for the LEA to provide (or make arrangements for
the teachers to attend) appropriate in-service training to enable
schools to benefit from the scheme. A period of not less than
four days training (full-time equivalent) will normally be regarded
as sufficient. Advice on the content and suitability of courses

can be obtained from MEP. A number of pilot courses of in-service training are to be supported by MEP through the network of regional in-service training courses.

6   On receipt of an application from the LEA, the Director of the Microelectronics In Education Programme will scrutinise it and, on approval, will forward it to the Department of Industry. The Department of Industry, on advice from the MEP, will issue the LEA with a voucher for each microcomputer package selected by the LEA. Arrangements for purchase, delivery and payment of the microcomputer should be conducted according to the LEA's normal practice except that the DoI voucher should accompany the order. In turn the company will reclaim the value of the voucher from the Department of Industry.

7   The scheme comes into operation on 1 June 1981. Research Machines Ltd will be able to supply the RML 380Z microcomputer package immediately. The BBC Microcomputer will be available from Acorn as from the autumn term 1981.

8   LEAs are asked for reasons of administrative convenience to keep orders for any microcomputer package purchased under the DoI scheme distinct from other orders placed by them with either company.

MICROCOMPUTER PACKAGES FOR WHICH DEPARTMENT OF INDUSTRY SUPPORT
WILL BE AVAILABLE

(i)   <u>Research Machines Limited Microcomputer Package</u>

<u>Hardware:</u>   RML 380Z (Z80A microprocessor, 32K RAM, 4K ROM,
dual double-sided single density mini-floppy
disc drives (2 x 144K)).

Parallel Interface and Serial Interface

High Resolution Graphics and Black and White
UHF Modulator for Graphics

12" Monochrome Monitor

3 Blank minifloppy discs

<u>Software:</u>   CP/M Disc Operating System

Extended Basic Version 5

Text Editor with Formatter

Z 80 Assembler

Also full documentation for hardware and software

Further details can be obtained from:

Research Machines Ltd.,
PO Box 75,
Oxford
OX2 OBW

Total package price: £1680 + 15% VAT (reclaimable by the LEA)

<u>Maximum DoI funding available:</u> £840

(ii)   Acorn Computers Ltd Microcomputer Package

Hardware: BBC Microcomputer (650Z microprocessor, 16K RAM, 32K ROM)

High Resolution Graphics

12" Black and White Monitor

Cassette recorder/player

Software: BBC Basic

650Z Assembler and operating system software for all internal hardware options

Also full documentation for hardware and software

Further details can be obtained from:

Acorn Computers Ltd.,
4a Market Hill,
Cambridge
CB2 3NJ

Total package price: £260 + 15% VAT (reclaimable by the LEA)

Maximum DoI funding available: £130

BBC COMPUTER LITERACY PROJECT

The BBC is to launch a major new project in the field of
computer literacy, in January 1982. The aim of the project is
to introduce interested adults to the world of computers and
computing, and to provide the opportunity for viewers to learn
through direct experience how to program and use a micro-
computer. The project is built around a ten-part television
series, and includes a book, a linked microcomputer system
complete with User Guide, a range of applications programs,
and an associated course in programming in BASIC provided by
the National Extension College.

This project forms part of a long-term commitment by BBC
Education to public information in the broad field of micro-
electronics, which has included the three-part series
'The Silicon Factor', and in the current year also includes a
five-part series on applications of computers in business and
industry, 'Managing the Micro' (7th June - 5th July 1981), and
two programmes on the implications of microelectronics for
teachers, 'Technology for Teachers' (28th Sept. & 5th Oct. 1981).

THE TELEVISION SERIES

The ten television programmes will be first broadcast on Sunday
mornings on BBC-1, weekly from January 10th 1982, and repeated
for schools and colleges weekly on Mondays at 1500 on BBC-2
from January 11th 1982. There will be a further repeat late-
night on BBC-1 on Mondays from March 22nd 1982, and the series
will probably have several further repeats in later years. A
pilot programme has been made, and tested with a range of
possible users, and until the results of this piloting have
been fully assessed, final decisions on content and presenta-
tion will not be made. The aim of the programmes, however,
will be to provide an introduction for the layman to computers
and computing, in very practical terms. It will explain, as
simply as possible, how microcomputers work, how they can be
programmed, and what sort of tasks they can be used for.
Viewers who simply want to watch the television programmes
should be able to learn something at least not only of what
microcomputers can do, but of the sorts of jobs larger and more
powerful computers can be used for. Viewers who buy the book
or follow the course should be able to go rather further into
the subject; but since in the end the only way one can learn
about computing in any depth is to gain practical experience of
it, the hardware and software of the BBC Microcomputer system
is being specially provided in order to create the opportunity
for direct "hands-on" experience. All parts of the project
will use the same dialect of BASIC, which will be fairly close
to MICROSOFT.

A BBC HANDBOOK

This will look at the wide range of things computers can do in
the real world, and, broadly, at how they work. There will be
sections on personal computing - what's possible and what's
not - and an introduction to problem solving in plain English,
leading to a section introducing the basic principles of
computer programming. It will be available in bookshops and
from BBC Publications, 35 Marylebone High Street, London W1M
4AA, from January 1982.

THE NEC COURSE

The National Extension College is providing a 30-hour
introductory course in programming in BASIC in association with
the BBC project (with which it will be software compatible).
It will be possible to follow the course as a home-based
correspondence student, to use it as a flexi-study course with a
combination of home-based work and work in a supporting college,
or simply to buy and use the course material independently.
Arrangements are being made for equipment to be made available
to students in various institutions, on a workshop basis. It
is hoped that this will be the first of a range of such courses
in this field. For details of the course, and of supporting
services write to THE NATIONAL EXTENSION COLLEGE, 18 Brooklands
Avenue, Cambridge, CB2 2HN.

TELEPHONE REFERRAL SERVICE

A telephone referral service will be available in association
with the series, to put viewers in touch with local sources of
advice and help.

THE BBC MICROCOMPUTER SYSTEM

The BBC Microcomputer system will consist of two alternative
models of a microcomputer (which can both use either a domestic
TV receiver or a monitor as the display unit), a range of
expansion options, a Teletext receiver, a Prestel option, and
a disc system. The greater part of the system will be
available by cash post from the fourth quarter of 1981.

1. The Microcomputer (approximate price of £230 from Autumn
    1981). The standard model of the microcomputer is based on
    a 2 MHz 6502 microprocessor with 16k of RAM and 32k ROM;
    the ROM includes a 16k BASIC and a 16k operating system,
    which includes a machine O.S., a cassette O.S., a disk O.S.,
    and a network O.S. The system has a variety of eight
    different display modes, notably a teletext mode, a
    80 x 25 characters mode, and a 320 x 256 high resolution
    graphics mode; it can display up to eight colours. The
    language specification includes a comprehensive set of
    BASIC commands, and is close to MICROSOFT BASIC.

cont...

The system has cassette, television, and video interfaces, and a full travel keyboard. It has been designed with the capability for substantial expansion in terms of RAM, second processor, and high-speed communication to other computers.

The enhanced model of the microcomputer (approximate price £330 from Autumn 1981) will have the following additional features: memory extension to 32k RAM, A-D interfaces, Centronics (printer) interface, RS232 (5-0-5V) interface, "Tube" and Bus connector.

2. Expansion options There will be a range of expansion options available in an add-on box.

   - Second 8-bit processor (3 MHz 6502 with additional 64k RAM) (approximate price £395 from Autumn 1981)

   - Second 8-bit processor (Z-80 with additional 64k RAM, giving a CPM facility) (approximate price £395, from March 1982)

   - a further 16-bit microprocessor (68000) with additional 128k of RAM (approximate price £995, from early 1982).

3. Teletext receiver (approximate price £100). The teletext receiver will be contained in a separate case, and will be capable of displaying teletext transmission from the BBC and IBA, and of downloading computer programs, transmitted in the form of telesoftware, directly into the memory of either model of the microcomputer. For an additional cost there will be a Viewdata option which will provide access to British Telecom's Prestel databank.

4. Disk System A disk system will be available from around March 1982, which, linked to the CPM facility, will provide the capacity to run and store CPM-based applications programs. (With a single drive and the CPM facility this will have an approximate price of £780; with double drive and CPM facility approximately £970).

5. User Guide A User Guide, which will include an equipment manual, a detailed software specification, a guide to programming, and a range of introductory programs, will be boxed in with the microcomputer and included in the price. It will also be separately available.

SOFTWARE

A range of compatible software is being developed in association with the BBC Microcomputer System. This will include a wide range of applications programs, including games, instructional programs, programs of practical use in the home, programs for the use of hobbyists, and programs which should be of practical use to the small businessman. Some of these programs will be available in printed form, some in recorded form on disk or cassette, and some through telesoftware. Some of this software is being specially written, and some is being adapted from existing programs, and the BBC is actively interested in any available software which may be suitable for this system. At the simpler levels we are hoping it will be possible to run some BBC software on other similar systems, and other software on the BBC system, with comparatively little modification.

For further details and specifications of hardware, software, or any other aspects of the project, write to:

> ROBERTS SALKELD,
> BBC
> BROADCASTING HOUSE,
> ROOM 125,
> WOODHOUSE LANE,
> LEEDS.
> LS2 9PX

19.3.1981