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MICRO SCOPE

Newman College with MAPE

Contents

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Editorial

MICRO-SCOPE seems to be the victim of a strange phenomenon. Copies are despatched by BKT but must disappear into some kind of cosmic black hole because they never reach the designated recipient. The problem has been analysed and two factors isolated. In some cases a copy is sent to an institution where it gets lost in the internal workings. In other cases *MICRO-SCOPE* does arrive but the cover of one issue is so much like another in appearance that no-one is ever sure that they have received the latest edition. *MICRO-SCOPE* provides a vital link between members of MAPE. Even the polythene it arrives in is important because your membership number is printed on the address label. When you join MAPE the first communication you receive is *MICRO-SCOPE*. Acknowledgements and membership cards are not sent. If your copy of *MICRO-SCOPE* is no longer being delivered then your membership has lapsed.

We have no way of solving the problem of the copy which gets lost at its destination. However, in an attempt to solve the second problem we have changed the cover. We would be delighted to change the contents in response to readers' requests but we haven't received any. I would like to extend a two-fold invitation to all readers. Firstly, please write, brickbats, bouquets, hints and comments will all be welcome. Secondly, if you would like to take the opportunity to express an opinion, perhaps at greater length than is usual in a letter, please contribute to a new feature entitled 'Viewpoint'. If you've got something to say, spread the word through *MICRO-SCOPE*.

MICRO-SCOPE exists to serve members of MAPE but organising and editing a journal is difficult when the response from readers is almost non-existent. I've got the job – gi's a clue!

* * *

MICRO-SCOPE is now published by Castlefield (Publishers) Ltd. We are indebted to Margaret Barfield of Heinemann for all her hard work on issues one to twelve. Barbara Faux, of Castlefield Publishers has now taken over Margaret's function and is responsible for the layout of the journal. David Barlow is continuing to supply us with his inimitable cartoons for which we are always grateful.

Micro-misconceptions (Magic without wizards)

Mike Matson
4MATION

Comment 1. 'I'm lucky, my head is a real wizard with computers.'

Comment 2. 'Unfortunately one of our staff knows all about micros.'

If a top infant can switch on the micro and other equipment, write the final chapter of her story, and then print out the whole text – if a pre-school child can insert a disc, boot it, and then select which game he is going to play – who needs computer experts?

In the average school teachers are able to use televisions, videos, stereos and all the other hi-tech paraphernalia without induction courses, sleepless nights, user groups, guilt, specialised publications or people who talk about nothing else. I believe that the computer is no more difficult to use than many other sophisticated machines which are to be found in schools. Indeed I'm quite sure that learning to use a micro requires less time and intelligence than mastering the process of video recording. (If you mess up a recording of 'Coronation Street' you've had it whereas with a computer you can always start again.) Whilst no-one would expect the teacher who is a fully-qualified motor mechanic to lead a more educational field trip to the seashore by mini-bus than the non-mechanic, there are thousands who believe that if they are to tap the full educational potential of the micro they need to know all there is to know about the machines. It really is unfortunate (and unnecessary?) that there is such a vast contingent of teachers (and other adults) who are baffled and worried by the mystique and jargon, the hysteria and fanaticism, and the sheer nightmare-inducing quality of manuals and documentation designed not for them but, I suspect, to impress all the other authors of such materials.

Some months ago I was at a meeting called to discuss the possibility of combining a 'computers in education' newsletter with a technological publication. Although I knew that my views were contrary to those of the other participants I was completely unprepared for the furore which resulted from my innocent remark, 'As far as most primary teachers are concerned the use of the micro in the classroom has nothing to do with science and technology'. I think I would have had a similar reaction if I had suggested to them that appreciating Stravinsky on a hi-fi is not a scientific pursuit. A few weeks' later I was mildly rebuked by an art adviser for forsaking the creative activities of the classroom in order to pursue a career connected with computers. The universal ignorance about micro applications does not make it easy for me to convince anyone that not only am I being far more creative than ever before but that children's creativity can be both encouraged and stimulated by using micros.

It would be interesting to research the backgrounds of those people connected with computers in an advisory capacity. I must be on fairly safe ground when I suggest that the majority have been connected with maths, science, commerce or industry and very few have either artistic or broad educational experience. Their influence is unlikely, therefore, to do anything less than exacerbate the micro misconceptions. Other advisory persons are likely to be more interested in their own particular subject areas than in the wide educational view which reflects the real world. (It is my belief that computers can help us to realise that looking at the world through curricular windows is completely unnatural for, and inappropriate to the needs of, the primary child.)

Most of the teachers I have met on the many computer sessions which I have led have fallen into five broad categories.

1. The 'I wouldn't-be-seen-dead-near-one' brigade: fear, prejudice and feelings of inadequacy override all rational thought. (Happily I report that the number in this category is far less now than a few months ago.)
2. The enthusiasts who switch on at 8.30 every day and wonder what they ever did in the pre-micro classroom.
3. The micro-freaks whose sole pleasures in life are the insertion of chips and the disarmament of software protection devices. (The software houses don't have to worry too much about the piratical tendencies of these people because as they wouldn't know how to use an educational program they would never buy one anyway.)
4. The happy-go-lucky party who will contentedly make use of any program which comes their way.

5. The educationalists who will use the equipment only when appropriate. (This group actually switch off micros sometimes.)

In my experience the last of these groups contains the smallest number of teachers. (I feel bound to confess that at different times I have belonged to all five groups.)

The computer buffs (enthusiasts or freaks) perpetuate the myths. One needs to listen to no more than one synchronised, incremental, user-defined, gobbledegook-laden conversation to realise one's own pitiful inadequacies. Of course 'experts' remain 'experts' only as long as the vast majority of humanity remain in ignorance – and certain cunning little techniques are often used to ensure their apparent infallibility, ploys such as 'don't tell all – just enough to know all'. It is inevitable, however, that the ignorant masses will start to find out about things. The solution then is for the 'expert' to become ever-more 'expert' in the ever-decreasingly narrow fields until, with luck, they disappear up their own user ports (whose 'female' part, at least on the BBC machine, is a standard 20 way insulation displacement connector!).

Even the publications which aim to help the ordinary class teacher are inadvertently 'scaring the pants off them' by the inclusion of such gems as, 'When CB2 is to be used as an output handshake line the shift register must, as before, be disabled by clearing bits 2, 3 and 4 of the Auxiliary Control Register (ACR)'. I wonder what percentage of the readership of the magazine which published that came anywhere near to understanding it.

During the last few months I have been trying to convince teachers that they really do not *need* to know very much about computers. An understanding of some *computer-speak* may be of value occasionally but the average teacher will find that possession of a National Certificate for Applied Nonsense in Technical Design and Organisation in Information Technology (C.A.N.T.D.O.I.T.) will be of little practical benefit in the classroom. I have encountered so many people who have felt that it was their duty, as teachers, to attend computer courses and, consequently, have been bitterly disappointed and disillusioned by the antics of the technical cuckoo who disposes of all educational considerations. It is often said that the usefulness of any course is best measured by the amount of time available for teachers to get together and discuss the realities of the classroom. Surely we are now at a stage where 'computer' courses should involve real teachers (of the fifth kind) talking about how they actually make use of micros in their schools.

During the course of my travels around schools it has been fairly obvious that the most exciting developments in the use of computers have occurred not where the 'wizards' lurk but where there are keen, enthusiastic teachers who may know nothing about micro-technology but who are able to use their imaginations to capitalise on the possibilities offered by micros. It was not so long ago that these machines were the preserve of the scientists. I believe it is when the artists get hold of them that things really start to happen.

Recently I was involved in the making of a video designed to show how the micro could be used by the teacher to promote such non-computer activities as art and drama. The teacher who participated in the project is a wonderful example of a non-computer expert. I am quite sure he would not be offended if I said that his knowledge extends very little beyond knowing how to set up the equipment and switch on. In his case it is not the computer which makes the classroom an exciting learning environment but his belief in, and an enthusiasm for, an education which goes beyond the basics and ensures that children actually want to work at a variety of activities which have meaning for them there and then.

One occasionally meets the 'lucky' person whose school is able to boast that it has several hundred pounds' worth of software. It is also possible to come across the individual who has spent a quarter of the software allocation and has no idea what to do with the rest of the money. It is highly likely that the latter person has considerably more idea about education than the first. If the range of currently available software is a true indicator of the contemporary education scene then there should be no excuse for employers, in ten years' time, lamenting that 'these kids can't even read or add up'. No doubt they will be complaining that that is *all* the kids seem to be able to do. Educational software is 'educational' only within the confines of the software originator's concept of the term 'education' (except where an imaginative teacher is able to make alternative use of the material.) Many software suppliers make a great point of declaring that there has been teacher involvement in the production of their materials. If my five-category assessment of teachers is anywhere near accurate then this declaration is of limited value. There has to be a grain of truth in the advice, 'All you need is a word-processor, database and turtle-graphics (plus an adventure?)'. If these few resources were used to the full there would be no time for 'Zap-Add', 'Splat-Spell' and 'Tables-Avengers'.

In the world of science recent investigations into artificial intelligence have caused us to view the capabilities of animal life in a fresh light. The least able member of any school (child or teacher) is, in fact, a highly intelligent, sophisticated and resourceful being when com-

pared with any synthetic 'thinking device'. In the same way the use of computers in schools suggests to some people that there has to be a better way of preparing children for adult life than the rigidly organised 'section 5B today' activities which have been the hallmark of the so called 'educational' system for so long. Before deciding whether an item of software fits into the school scheme we should, first of all, question the value of the scheme. There is little point in using a computer to assist with a particular activity if that activity is, itself, pointless, inappropriate or even harmful.

The computer 'expert' is unlikely to be the best person to help find solutions to all these problems. I remain convinced that it's not the computer wizards who perform magic in schools but the creative, imaginative teachers who use the micro to enhance their existing magic.

Monitoring and assessing children's conceptual development

(A report of an M.E.P. Project based at Pentland Primary School, Cleveland)

Anne Liddle
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The two year project began on October 1st 1982, and its theme is the exploration of Computer Managed Learning in the Primary School. Interest in this area evolved shortly after 1979 when we first began to use computers in our school. As a variety of management strategies for C.A.L. began to develop, curiosity about the role of the computer in general teaching management began to emerge. Throughout our observations we felt that Computer Managed Learning could feature quite significantly in the Primary School. Although at the moment the majority of schools have access to only one computer, this situation is rapidly changing. In the future it is expected that computers will be commonplace in people's lives at work and at home. It is quite feasible to expect that teachers will have computers at their disposal to support them in the management, as well as the provision of children's learning experiences.

The computer can collect, store, calculate, and present information with ease, and all these aspects have obvious potential for school management. However, we wanted to determine ways in which the computer could be used, particularly in classroom management, to support the practising teacher.

Most teachers admit that one of their most demanding classroom tasks each day is gathering the required amount of pertinent information about the children in their care in order to check and plan their progress.

> 'The structure of the subject matter is one of the most important influences on the work schools do. But as every teacher knows, it would be pointless to follow that structure without regard to the pupils' understanding and ability to respond. The pupils' stages of development and their individual capacities and difficulties are the most important element in a school's work. To be able to assess this development, and to present each child with work of the right level of difficulty, are two of a teacher's most valuable skills'[1]

The day to day assessment procedures adopted by the majority of teachers lean heavily upon observation and discussion techniques. Realistically, in a busy classroom with the varied amount of curriculum aspects to be pursued, the practical impositions of the school, and the number of children needing attention, teachers find it extremely difficult to go beyond the level of merely establishing a certain measure of success or failure. Ideally assessment should take into account the quality, level, and totality of success, and indicate the directions of failure; it ought to have a diagnostic function concerned with different skills, abilities and attitudes.

Many of the computer programs used in schools contain elements which collect and present scores and times etc. There are more demanding programs, which challenge children with problems and pose questions, which expose their knowledge of skills and concepts, from which a skilled teacher can gain information regarding the children's understanding and relative progress. It was felt that by using a combination of the elements, the computer could provide valuable support for the teacher in her day to day assessment procedures.

Classroom Assessment Procedure	Computer aided classroom procedure
Teacher/child discussion	Group discussion
Teacher instructions	Computer instructions
Assessment (Teacher observing)	Assessment (Teacher observing when necessary)
Marking (teacher)	Marking (computer)
Evaluation (teacher)	Evaluation (teacher)
Provision of further work Compensatory or progressional	Provision of further work Compensatory or progressional

Plan for proposed computer aided assessment

The project's initial objective was to develop a series of programs to support the teacher in monitoring and assessing children's progress in key curriculum areas. The emphasis was to be on children's ideas and interpretations in relation to certain selected concepts, and *not* on the acquisition of facts. Each set of project programs have been based on key learning stages within certain chosen concepts. It is essential to see the programs as only part of an overall learning framework, and to put them in context of the whole presentation of each specific concept.

The selection of concepts to be used was very difficult to make. We felt that if the programs were really going to be of value, then they should help us with concepts which we found challenging to assess. Like many schools we could readily relate to the following remark.

> 'It is all to easy to restrict assessment to those aspects of mathematics teaching which are most easily tested. Efforts should be made to broaden assessment procedures to include as many as possible of the initially planned objectives of the course'[2]

The first three sets of programs developed were based on the concepts of area, weight and volume. One of our main problems with the project was the amount of research needed to design and develop the programs. With only a part-time teacher and programmer as project staff, time was very precious. The three particular concepts were chosen because in school we had some excellent materials produced by a Schools Council Project 'Area, weight and volume; monitoring and encouraging childrens' conceptual development'. Although this material was very good, the advocated assessment procedures were difficult to administer, very time consuming, and impossible to conduct in a busy classroom. Teachers had enormous difficulty in refraining from asking leading questions, in prompting and maintaining a fair and consistent presentation. Nevertheless the material was ideal as a basis for our project.

Many people who have been involved with research projects will sympathise when I say that the project leapt from one problem to another. The difficulties were too many to mention in detail in this short report. They ranged from design problems in trying to keep instructions readable and simple; lack of computer memory size; the elimination of the break key function so results were not erased; complex decisions regarding the diagnostic results to be obtained; and the process for constructive program evaluation.

The programs produced in the mathematical packages are as follows:-

WEIGHT

Program 1 *Terminology – lighter/heavier*
The children are asked to compare weights of similar volume by direct handling.

Program 2 *Principle of an equal arm balance*
The children are asked to handle assorted objects of similar volume and relate their observations to a balance.

Program 3 *Comparing weights by direct handling*
The terminology is extended and includes 'equal to' and 'same as'

Program 4 *Predicting the movement of an equal arm balance*
Children are given the weight relationship of objects and are asked to use the facts to predict the movement of a balance.

Program 5 *Conservation*
Children are involved in two activities dealing with continuous conservation.

Program 6 *Units*
The children are asked to find the weights of objects using arbitrary, then standard units. The children then use the information to deduce relationships between the objects.

Program 7 *Serialisation of objects of different volumes*
Children are asked to weigh and compare objects. The children answer questions related to the ordering of the objects. The questions involve extended terminology (heaviest, lightest).

Program 8 *Ordering weights*
Children have to solve a problem based on observation and deduction.

Program 9 *Logical reasoning*
The children are given facts about weighted pots. They must then draw conclusions and answer questions about the pots using reasoning and logic.

VOLUME

Program 1 *Matching objects of similar volumes*
To show children's ability to think of volume in terms of separate dimensions using relevant terminology.

Program 2 *Conservation – external*

Program 3 *Conservation – internal*
These programs help to distinguish children who are relying on perceptual observation rather than logic when making conclusions.

Program 4 *Matching objects of similar volumes but different shape*
Blocks have to be either turned onto different faces or mentally cut to be matched, showing the children's ability to visualize volume relationships.

Program 5 *Use of arbitrary units*
The children use simple measurement techniques.

Program 6 *Use of standard units*
Using units the children compare and measure the volume of objects.

Program 7 *Calculations using centimetre cube units*
The children use appropriate standard cube units to establish the idea that volumes of cuboids can be identified by using the Length x Breadth x Height = Volume relationship.

Program 8 *Problems*
The children deal with simple problems which involve the use of logic to establish conclusions.

AREA

Program 1 *Sorting and matching shapes*
The children are asked to match shapes, to determine their awareness of 'surface'.

Program 2 *Analysing and matching composite shapes*
Children are involved with using more than one piece to cover the surface of selected shapes.

Program 3 *Categorising shapes according to attributes*
The use of shape terminology and the observation of physical properties leading to sorting and simple categorising.

Program 4 *Matching shapes*
The children are involved with the scanning and analysis of shapes.

Program 5 *Conservation*
This program helps to distinguish between children relying solely on perception when identifying changing surfaces and those introducing logical reasoning into their observations.

Program 6 *Arbitrary units*
Children use simple measurement techniques to determine area relationships.

Program 7 *Measuring with units*
Children are involved with the accurate use of units to measure surface areas.

Program 8 *Standard units*
Children are involved with using a grid measurement device.

Program 9 *Calculations using units*
Children use and calculate in units incorporating half units.

Program 10 *Measuring and calculating*
Children use a ruler showing their technique in measuring different areas.

Program 11 *Problems*
To show children's ability to arrive at conclusions through logic rather than simple observations or trial and error.

The programs are intended for children in the 7–11 age range, and are to be used at selected intervals after children have encountered learning experiences relevant to each key stage. Once the teacher feels that a child has acquired all the necessary information and expertise within a stage, then an assessment program can be used. The programs can help to confirm that a child has a good understanding of the stage, or it can present evidence of misunderstanding, the lack of application or mastery, and the need for compensatory work.

Practically all the programs are used with some kind of supporting apparatus. Because of the assessment nature of the results, indications of success or failure are not given to the children. Surprisingly, we found simply to say 'Thank you, you have finished' seemed to satisfy them. In all the evaluation reports no-one remarked that any child has showed concern.

Even when programs are repeated, the children do not seem to identify that they have failed. The use of random elements and the facility for teachers to change program apparatus allows the programs to be successfully re-used.

The results shown at the end of each program

are in the form of a diagnostic readout. The computer will keep the results of up to six childrens' attempts at a time. At the end of the lesson or when convenient, the teacher can call up the results. They can note each child's progress on a simple check list which can be used either to create individual records, or as information for another check list which shows details of experiences provided, the child's stage level, and the use of compensatory work.

The programs are *not* intended to dictate standards, but to present information regarding childrens' understandings at particular learning stages. *Neither* are they intended to replace the vitally important teacher/child interaction necessary in assessment. The teacher is to use the information supplied by the computer to focus on the direction of the interaction, making it relevant, meaningful and productive. It is hoped that the programs will provide the teacher with the decisions to be made regarding the provision of the most appropriate learning experiences.

The results obtained through the programs, as hoped, gave a vast amount of information, again too much to mention in this report. Teachers received many unexpected facts to consider about their children. Many results held implications on how concepts were being taught. Lots reflected the narrowness of childrens' experiences and the lack of structure within the experiences.

Examples of readout from Weight Program 6

	No. weighing attempts	Answer given	Correct answer	Result
1	1	8	8	C
2	1	5	10	*
3	1	Green	Green	C
4	1	Blue	Green	*
5	1	Pink	Pink	C

In this program the children are asked to weigh some coloured boxes, first using arbitrary units (questions 1, 2) then standard units (questions 3, 4, 5). Using their findings the children are then asked to find boxes which are twice as much (questions 1, 3), half as much (questions 2,4) and equal (question 5) using firstly arbitrary units and secondly standard units. We found that the majority of children were very accurate when weighing boxes, but had difficulty in using the information. It was obvious that ensuring children can weigh accurately does not guarantee that they will then be able to sort out, categorise or pursue implications about the measurement.

Area Program 7 asks the children to determine the area of some given shapes. By the answer given, the computer indicates the most likely method the child has used e.g. counting perimeter etc. In this situation a high number of children applied L x B even to irregular shapes. It would appear that many children are encouraged to answer abstract problems before they have extensively explored the concept of measurement of area in a practical way.

Example of readout from Area Program 7

	Correct area	False perimeter	Length + breadth	Length x breadth	Actual Perimeter
EXACT	1	0	0	7	0 *
APPROX	2	0	0	2	0 *

It is anticipated that the assessment programs will eventually be used on network systems. When a child has completed a program, the teacher can instruct the classroom computer to obtain the child's file from a centrally based computer, and the new results can be automatically added to the file. The teacher would have access to any child's updated records at any time. They could also obtain a progress overview of a group or class in any selected concept. In our school at the moment we are using a Level 1 BBC Econet system which is very limited. We are hoping that we will soon have a Level 2 system which should then handle a central filing system that will enable us to establish a computer aided assessment and record system.

In addition to the mathematical packages further programs have been produced on Classification and Comprehension. The comprehension programs are in two sets. The first set presents the children with a series of pictures and sentences. The matching of the pictures and sentences involves the successful comprehension of certain grammatical structures e.g. use of negative or relative clauses, the use of masculine and feminine pronouns etc. The second set are in the form of problems which are solved by 'detective' strategies. Finding the solutions involves a range of comprehension skills e.g. perception of main theme, establishing idea sequences, predicting outcomes etc.

The Classification package contains seven programs and looks at children's classification skills from simple classifying by similarities to categorising by different concept principles.

Program 1 *Classifying by one attribute*
Children take part in successive classifying activities involving colour, shape, and size in relation to regular shapes.

Program 2 *Classifying by one attribute*
In this program the questions are randomised and the children have to establish the attribute.

Program 3 *Classifying by more than one attribute*
Extension of previous program where children are asked to classify irregular shapes by 2–3 attributes simultaneously.

Program 4 *Sequential Classification*
Extension of first three programs but relying on a memorized principle.

Program 5 *Classification by function*
This program is based on a 'snap' principle. Children are asked to pair words related by function.

Program 6 *Classification by a common characteristic*
Children are given sets of words and are asked to select a group and then name the principle which applies to the group.

Program 7 *Classification by a principle*
Children are asked to sub-divide groups of related words giving reasons for the classified sub sets.

Classification skills are applicable across the curriculum but particularly in the mastery of language and other representational systems. They can be directly related to computer information retrieval. They are also related to problem solving and logical thinking strategies.

The original purpose of the project was to try and develop a computer supported system which enabled teachers to gain more knowledge about their children and to a great extent this has been achieved. However, the most significant outcome of the project has been the amount of knowledge teachers gained about themselves and the way they teach. The children's assessment programs became tools for teacher self-evaluation. The teachers found the programs guided them towards children's specific difficulties and also directed them to questionable correlated teaching structures and methods. As with any research project the making of wrong decisions can be guaranteed and outcomes could have been better, but the project has been successful in pioneering a system of computer use specifically designed to be of practical value to practising teachers.

Notes

1. 'Primary Practice' *School's Council Working Paper* 75.
2. DES: Mathematics 5–11, *A Handbook of Suggestions* London. HMSO 1979.

Crystalmania

Pat Fox

FLOWERS OF CRYSTAL is a comprehensive package containing a simulation game in two parts, an introductory story in booklet form and on tape and various extras including a map, worksheets and teachers' notes. These notes do not specifiy the age-range for which the program is intended but the subject matter (direct and indirect) and the skills required would seem to indicate that it was most suitable for the upper junior/early secondary range. The game simulates the quest for a flower which will restore the ecological balance of the planet Crystal which has been brought to the brink of destruction by the greed and evil-doings of an entrepreneur called Grubble. The search for the flower is long and fraught with danger but the children are helped by Rumala, a far-sighted lady who has wisely hidden various useful items and clues along the way. Although the search is a predominantly logical process there is an element of chance which has to be taken into consideration.

Before the children actually sit down at the keyboard a certain amount of preparation is essential. The program demands no particular expertise from the children, apart from an ability to use co-ordinates and a grid, but it does call for the ability to evaluate information carefully, to hypothesise and to assume a flexible approach to the construction of strategies. These skills will need to be carefully fostered, particularly at the younger end of the age-range, as constant failure will lead to frustration and antipathy in spite of the appealing characters and attractive graphics. Prior to the introduction of FLOWERS OF CRYSTAL I increased the amount of time available for the playing of such games as draughts, chess, Connect 4, in the hope of encouraging independent thinking and strategy building. This move was greeted with both suspicion and pleasure by my pupils but I am sure it put them 'in the mood' to tackle the problems posed by the program.

I used the program with a class of twenty-

eight ten year olds and I set aside six weeks for the completion of Part One (I had no access to Part Two at that time) and, on reflection, I feel that this was a good thing as we were not tempted to give up and proceed to the second part when the solution seemed impossible.

Initially, I read the story to the whole class and, with the aid of a map, I tried to clarify the nature of the task facing the children. The class was immediately attracted to both the characters and the plot and were keen to become involved in the action. Several of the children commented on its similarity to 'Charlie and the Chocolate Factory' and 'Charlie and the Great Glass Elevator' and this caused an immediate increase in the demand for these two books from the library. Then we spent a few days familiarising ourselves with various aspects of the program. We designed posters promoting Crystal as a tourist centre (very relevant to children living in this area), and produced a guide book extolling the excellence of the planet. We painted portraits of all the main characters and made plans and pictures of places and buildings. We produced advertisements and posters to persuade people to go out and search for the flower of crystal and we wrote articles condemning Grubble (the villain of the piece).

When all the children were fully acquainted with the situation and the problem, I felt we were ready to face the computer. In order to minimise the time spent arguing about tactics whilst at the computer ('hands on' time being at a premium) we established a few ground rules and procedures. The children elected to work in groups of four or five without a group leader or specific roles. All policy decisions had to be agreed by a majority and all information had to be recorded in order to be presented to the whole class at the weekly conference. The object of the weekly conference was to pass on information, discuss the validity and importance of the information and to suggest strategies. All information was put on a board under the headings 'Useful' or 'Essential'.

Initially the groups tended to work in a random way and often had to start again as they fell prey to one misfortune or another but gradually they began to be more systematic in approach and were consequently more successful. Unfortunately each group could have only about thirty minutes guaranteed computer time a week and in order to make the maximum progress some groups became ultra-efficient and organised. They held private meetings to draw up plans of action and appointed specific children for particular jobs; the most efficient typist on the keyboard, the fastest writer as recorder and so on.

The class, working closely together, took the full six weeks to solve Part One but they did it, and their sense of achievement was immense. By this time the children had developed 'Crystalmania' and the classroom began to look like an alien planet with strange pictures and diagrams all over the place. Possible strategies and procedures dominated the conversation and the worst insult one child could hurl at another was to call him or her a 'Blid'.

We had a break of three weeks before we attempted Part Two but although the children enjoyed the new characters and format they did not develop the same passion for this half of the program. I am not sure whether this was because they were becoming bored through over-exposure or because they found it less challenging. The children decided not to work in set groups for this part but preferred to work in twos or threes, often changing partners. They felt that they still needed to pool information, so they kept the class discussion periods but decided to collect the information in a manual rather than on a board as the former was more accessible and portable. The children were very systematic in their approach and efficient in the collection and classification of data. I was fascinated when they decided to limit their recording to listing only those moves and actions which had disastrous or negative results. It seemed to work for within two weeks several groups of children had discovered the whereabouts of the six segments of the flower and interest began to wane. It was time to move on.

In terms of involvement, enjoyment and feedback FLOWERS OF CRYSTAL is probably the most successful program that I have used to date. The greatest strength of the program is the amount of discussion that it generates and the levels of communication between children that it demands. The children must think clearly and express their thoughts rationally. They must co-operate with each other and learn to balance the opinions of others with their own convictions. They must develop ideas systematically and learn to capitalise on failure.

The attitudes and skills that the children attain whilst playing the game overspill into their other work and the developing awareness of ecological problems forms a suitable platform for a general project on environmental hazards and the need for conservation. We developed an interesting environmental study around the title 'Balance of Nature'. We visited a local National Trust Forest and carried out a great deal of research into the relationship between animals and plant life. As the children's interest in FLOWERS OF CRYSTAL waned their involvement in the problems of the real world increased. The class decided to compile a list of threatened species and try to identify the ecological factors that had caused their decline in number.

There are many areas of study linked directly

and indirectly to FLOWERS OF CRYSTAL that can form a varied and profitable scheme of work. Some ideas are listed in the Teachers' Notes which accompany the program but there are more and the scope is flexible enough to appeal to a range of teachers and children.

The main problem with the program is the formidable amount of time and commitment, from both teacher and pupil, that is necessary in order to maximise its educational benefit. Anyone who tries to use it as a ten minute 'Do what it says, dear, and don't you dare press BREAK' activity is going to be disappointed. If used wisely the only remaining problem is how to stop Crystal from taking over completely.

Pat Fox was teaching previously at Preston C. P. School, Torquay. She is now working for the MEP in Plymouth.

A day in the life of an MEP Information Officer

Lisa Blunt

'Information Officer for the East Midlands Region of the Microelectronics Education Programme' - at a party the job title alone is a conversation killer, and in the grey light of your staff room it cannot be much more comprehensible. As I am tottering around to get to the office by 7.00 a.m. defining the job is not usually at the top of my mind, but suffice it to explain now by saying that the Microelectronics Education Programme was devised by the Government to help foster the use of computers and microelectronics generally in schools – though it was thought to mean secondary level, it does now specifically include a National Primary Project. The policy, which includes Regional Information Centres, was devised and Information Officers were devised as a part of that scheme. BUT – exactly how I, as the first Information Officer for the East Midlands RIC (Regional Information Centre) was to fill the day was not determined. Hopefully the job has grown in response to the needs of all teachers and in a way that stresses the education rather than the microelectronics. Which brings me to breakfast – the first coffee of the day in the office.

Coffee is not all that makes those first early quiet-alone hours precious. Whatever I can do in the rest of the day for teachers – be they visitors or those who write, being unable to leave forty pupils – depends on what is moved across the desk in various articles, software, information leaflets from other Centres, books, videos – it all has to be read or viewed and then put in a system that does not depend on me i.e. databases. Most of the information is listed on disc and can be retrieved in response to requests or questions from teachers. So magazines with relevant articles can be recorded, software is put into software catalogues, and so on for everything. Though preparing all this for entry into the databases can be boring, it is an essential part of 'getting the feel' of all the materials we hold about which teachers can ask.

With the arrival of Jenny to face bravely her newly filled in-tray, I know the first visitors are not far behind. If they have phoned to warn of their coming, then special materials, listings and information can be printed out ready. More and more groups of Primary teachers are coming in, having had their 2-day introductory computing course, with more questions to ask than they could have imagined previously. The kind of things we have prepared for them – or could it be for you? – could be:

A list of all the primary/infant software held in the Centre, which can be evaluated NOW

A list of recommended software from the MEP National Primary Project

A list of all the articles in the Centre on Primary Computing, or just on LOGO or language or maths or what you will

Various leaflets such as 'Managing the Micro in Primary Schools' or 'Why Logo'

A selection of Blue Files – software and articles produced by MEP which are mainly available for copying.

Of course if you just want information on the use of simulations or on the available software for 4 year olds then the task is narrowed down. Once visiting primary teachers have started to get through some of this print – the present stage of computing is NOT replacing literacy – then the interesting part can begin. Working and talking with them about their own ideas in education and the role of computers in that. My role is NOT to give advice – your advisor for Computing will do that – nor is it to give in-service training – your LEA and other MEP personnel do that – I can just give as much or as appropriate information

as possible, but information is a dead thing unless it leads people to action. With the vital individuality open to teachers in the English system, discussions on how each can best incorporate the computer as a tool within their own classroom can be emotional – and the best part of the day.

After the unheralded visitor who peeps in on the stroke of 12.00 – and lunch, there can be more visitors, perhaps from secondary schools or colleges. Their needs are more particular – they are to write a Computer awareness course or have a certain 4th year Geography course. More and more there are requests for suitable software for 14 year old and adult remedial students – is anyone listening?

For those too far from the Centre to pay a visit, there has to be time to answer their letters and phone calls. All the listings from the databases on software, articles etc., can be sent out – though requests for 'everything on educational computing' from innocently ignorant B.Ed. students get a smile but a less fulsome reply.

Having got into the mood to write in the somnambulism of the afternoon, more follows. There are regular magazines for both Primary and Secondary schools – even the odd articles like this.

At some point through these tasks I will be listing all the things not done today and packing up to leave the rest 'til tomorrow – just pausing to check on the visitors planned for the next day – could it be you? You all have your own Regional Information Centre thanks to MEP and your L.E.A. – do come or write or phone. Each Centre and each MEP Information Officer does the job differently, but the aim of the job is the same – to help teachers use microelectronics (including computers) in their classroom.

Lisa Blunt is now MEP Managing INSET Editor. The East Midlands MEP have a new Information Officer who will undoubtedly be 'doing it her way'!

CONFERENCE REPORT

America and Micros

Elizabeth Moore
School of Education, Open University

An all-embracing American conference on education had its venue in New Orleans in April this year. It was a five day event packed with presentations, discussions, critiques, and , despite the heat, something called 'fireside chats'. The scale of this American annual meeting was vast by European standards: over five thousand participants.

The microcomputer-related sessions were well attended and distilled a range of experiences relating to the introduction of new technogical devices into schools: from the most commercial to the most naive. Cultural differences surfaced in ways of applauding with medals new ideas and fresh theoretical analyses. This was the style in which to congratulate recipients and motivate others. So the suggestion was put forward at one computer session that medals should be awarded to improve schools' use of micros.

Amongst the smaller and less-formal sessions was Greta Fein's presentation: 'Microcomputers and young children: just another toy?' She raised controversial questions about whether micros might, in some circumstances, reduce pre-school childrens' participation in other activities that were also designed to promote symbolic representation and other cognitive skills. This seemed possible when another participant told of Californian pre-schools where the home corner and block areas for pretend play had been banished in favour of more workbook time. There was also the tale of a New York parent, perhaps one of many, who had put away all his child's toys other than the microcomputer, TV and video system at the approach of the child's fifth birthday.

Concerns about young children not being permitted to play have been echoed by some English nursery staff who conjecture that under-fives should not be exposed to computers at all. Might micros limit opportunities for co-operative play en route to the development of a healthy spectrum of normal behaviour and skills' development? In an English study, staff in twenty two nurseries were asked for their views after watching children use a micro as a form of free-drawing tool. Half of the staff who responded gave very favourable comments, a quarter were somewhat in favour but carefully explained their reservations, and just a quarter were opposed. Greta Fein's study of children's experience of the micro in the experimental American classroom examined the extent to which the children might benefit or otherwise. It was reported that the permanent pre-school staff did not themselves touch the computer at

all: they let this be the domain of the researchers and the children. It will be interesting to read more about Greta Fein's work when it is published later this year. (Fein, G. and Campbell, P. (editors) 'Microcomputers and Young Children' USA Reston Publications, (November, 1984).)

The empirical evidence gathered to support the introduction of computers into schools from first grade upwards in the USA is, as yet, patchy and based on tests after drill and practice routines that simulate workbooks. Only the discussants of pre-school use of computers seriously broached the issue Shirley Hill embodied in the title of her talk: 'Beware bandwagons: young children may not need microcomputers'.

Another presentation indicated that when three to eight year olds had a free choice to use the micro set up with LOGO in a quasi-school setting the four year olds chose not to; whilst in a contrasting home study with parents the four year olds were very keen indeed and this was attributed to the extra parental attention which they gained. In part of the same study by Peter Williamson the children's spoken language did not appear to be as rich at the computer as in other contexts. It was concluded that there should be further investigations in varying settings. Also, as LOGO does not suit them, there should be analyses of what three and four year olds want from the computer in developmental terms.

There was an overall view that computers are a good thing for education; and Karen Sheingold of the Center for Children and Technology at Bank Street drew attention to the fact that there is certainly not equality of access. Firstly, girls are less interested; secondly, economic levels vary and some parents and school boards cannot afford computers; and thirdly, 'average' children are neglected. She has found the adult's interpretation of the computer-based activity to be most crucial to the child's learning experience.

Some speakers had a very limiting view of school teachers. Contrasts could be noted across sessions: university professors were observed in their work and questioned about themselves in terms of their philosophical beliefs and values whilst the work of school teachers was explained in homely terms of how well their own babies were on a particular morning and whether or not they had spilt the milk. Other speakers, however, had a broader view and argued for there to be better understanding of school teachers' existing and developing values. Greg Jackson was in favour of this and he also proposed investigations of novel types of classroom structures to encompass the new technology comfortably. His Education Technology Center at Harvard is examining optimal conditions for tele-conferencing, for example, in a collaborative project with practising teachers from a spread of schools.

Hank Becker has completed a large scale survey of the use of micros in America and revealed some of the pressures outside of schools themselves that are important to curriculum change and absorption of the new technology. Amongst his conclusions about schools is that teachers will need to extend their curriculum knowledge as well as becoming familiar with features of computer technology, neither being sufficient on its own any more. It will be interesting to see the results of additional studies of American forays into schools' use of micros in the coming year. Perhaps new medals will be minted!

Information about future conferences can be obtained by writing to:

American Education Research Association,
Central Offices,
1230 Seventeenth Street, NW
Washington, DC 20036
USA

On the right TRAK...

As a result of work undertaken by teachers and children, the Walsall LOGO project has produced a handbook which investigates a variety of pre-computer activities for infant and nursery children using BIG TRAK. 'On the right track . . . with BIG TRAK' includes ideas and suggestions for developing effective learning strategies for both teacher and pupil. There are six chapters each focusing upon different ways of using BIG TRAK. An introductory section explains why we have BIG TRAK in our schools and includes some means of developing skills and fostering positive attitudes towards change. Four sections follow dealing specifically with understanding the keyboard; early work with young children; and activities to promote discussion and exploration. The final section is a resource pack of material which has been produced in conjunction with the ideas outlined.

The book costs £5.00 (outside Walsall LEA); cheques, made payable to Walsall Metropolitan Borough (Walsall Logo Project) should be sent to Busill Jones School, Ashley Road, Bloxwich, WS3 2QF.

Information Technology (IT), Artificial Intelligence (AI) and Child Development

Conference Organised by the Cognitive Development Section of the British Psychological Society

Heather Govier
Primary advisory co-ordinator, Capital Region M.E.P.

A conference held at the University of Sussex 6th–8th July, 1984.

In bringing together experts from three different disciplines this conference had enormous potential for a stimulating and productive cross-fertilisation of ideas. The hope that this would be achieved was voiced by Morley Sage in his opening address in which he criticised innovation without research or theoretical underpinning. He argued that much educational software is amateur and ill-conceived and that the cure is the development of a theoretical framework on the basis of applied research. Models of teaching and learning derived from the behavioural sciences should be able to help teachers to come to terms with change and allow average teachers to become as efficient practitioners as the best. For this to happen, the academics must be able to communicate research findings to people outside their own field.

Ironically, Tim O'Shea, who spoke next, entirely failed to do this. His presentation was a high speed review of A.I. work in education, essentially an hour long resumé of his book, which meant little to those of us unfamiliar with A.I. jargon. Taken more slowly however, the book should make interesting reading.

Saturday's sessions on LOGO were probably the most interesting parts of the course. In the morning Masoud Yazdani addressed the question: 'What are Powerful Ideas?'. He shares Papert's view that much more learning is achieved through programming than through the use of packages and he presented a catalogue of the generalisable skills which can be developed through the use of LOGO. The distinction between LOGO the language and LOGO the learning environment was clarified and a number of microworlds within LOGO examined (including Bob Lawler's 'Beach Microworld').

In his response, Peter Bryant argued that Masoud Yazdani had much enthusiasm but little evidence. Reasearch shows that logical problem solving abilities are very context bound with little transfer of skills. Further research is needed to investigate whether computer environments are any better at making thinking explicit or developing generalisable skills of planning or problem solving. LOGO cannot be evaluated in isolation from teaching strategies as it is the part played by the teacher which may be instrumental in promoting generalisation. A separate issue for investigation is the role of microworlds in helping teachers to understand the learning process.

The need for a theoretical foundation and an empirical approach to test the claims of Papert and others was also stressed by Martin Hughes in introducing the afternoon symposium. However, he argued that we should not underestimate the difficulties in testing for generalisation nor concentrate on this issue to the exclusion of all others. For example, investigation (i.e. the ways in which the computer can act as a focus for discussion, making thinking open and negotiable) and the question of why LOGO is so motivating has not really been answered.

Tony Simon again addressed the issue of whether or not LOGO was able to facilitate the acquisition of general problem solving skills, pointing out that specific transfer training and careful structuring of the use of LOGO might allow optimal benefit to be derived. He stressed the difficulties of research in these areas where traditional statistical approaches would obscure all important individual differences and standardised teaching procedures would detract from the flexibility and individuality of experience much lauded by LOGO proponents.

Helen Finlayson provided evidence that specific mathematical concepts such as angle could be developed through the use of turtle graphics. However, the fact that after a week, nine of her twenty-five nine year old subjects were still confused about the distinction between turn and forward movement, is rather worrying. In her current work she is exploring three stages of generalisation (extending an idea to another instance, recognising and extending a pattern, developing general laws) and investigating the ways in which children identify the relevant information when debugging.

In rounding up the symposium Ben Du Boulay argued that curriculum development has never had theoretical underpinning and that it is a vain hope to expect it in educational computing. He also expressed the view that there is little evidence (even from teachers) that there is another microworld as good as turtle geometry for learning mathematics either within or outside LOGO.

The wine reception held on Saturday evening was one of the most valuable parts of the course, providing a forum for informal discussion in a relaxed and congenial atmosphere. All conferences should have a session like this since a major function of any conference is to allow delegates to make new contacts and meet old friends.

Although one of the sessions was very interesting and thought provoking, the majority of presentations in the Developmental Cognitive Science Symposium were particularly disappointing. Lecturers were either overly theoretical or ill-prepared and only one lecture on the Sunday morning (that by Richard Young on the contribution of production systems) had any relevance to education. However, when questioned later even this lecturer felt that production systems were too complex and 'difficult' to form a useful model of the learning process for teachers. Feedback from other participants suggested that the MicroProlog symposium might have been a better choice as it illustrated a variety of applications indicating substantial growth in this field over the past twelve months. Certainly the session led by David Messer at the end of this symposium was a thought-provoking roundup of areas in which research and evaluation are required and served to highlight the problems of such research.

Sunday afternoon began promisingly with a report from Martin Hughes on children's views about computers. His surveys have shown that while attitudes are very positive and sex stereotyping remarkably low, many children have a very confused and anthropomorphic view of what a computer is. One four year old for example, when asked 'How does a computer know what to do?' responded, 'Cause it's got batteries in it'. and when probed further with, 'How does that help?' replied, 'Cause the batteries have seen other batteries doing it!'

John Morton's conference overview was a cynical and scathing attack on all parties for failing to communicate. The academics were criticised for failing to do enough research of an applied nature, and educationalists were berated for charging madly on without bothering to read the relevant papers which would allow them to build developments on a surer foundation of psychological understanding. Teachers were also criticised for failing to articulate their values and objectives. Much current software and educational use of micros was dismissed as totally useless. Even the value of LOGO was questioned.

To answer this criticism, I would argue that teaching is more of an art than a science. The majority of teachers are very sceptical of the findings of educational researchers and few would pay much attention to any conclusions which ran counter to their own hunches. Thus if the psychologists wish to have any direct effect on educational practice they will have to make a deliberate and substantial effort to persuade teachers that they have something valuable to say. This will mean the abandonment of technical language and the production of clear and pithy statements in the educational press. Erudite and wordy papers in psychological journals will inevitably continue to have little impact on the profession.

The conference as a whole was disappointing, containing too many sessions which were poorly presented, jargon filled and content free. On too many occasions, on this, the hottest weekend of the year, certain delegates would rather have been out sitting in the sun!

This paper has also been submitted to the BPS Journal.

CONFERENCE REPORT

I left my Turtle in Cambridge (Massachussets)

Julian Pixton
Primary Support Team, Walsall

Under the sponsorship of the MIT Laboratory for Computer Science, the first U.S. National LOGO Conference took place from June 25th to June 30th 1984 on the campus of the Massachusetts Institute of Technology.

Held in the magnificent Kresge Auditorium, a huge concrete shell of a building, the conference attracted people from all over the world to discuss the future of computers and learning.

It was organised by a formidable collection of thinkers, including Harold Abelson, Andrea di Sessa, Marvin Minsky (complete with freshly broken ankle) and Seymour Papert. Also involved were Cynthia Solomon, co-creator of Apple and Atari LOGO, Gerard Dahan from ACT informatique Paris, creator of Sinclair and BBC LCSI LOGO, Alan Kay, key member of the Learning Research Group at Xerox, Palo Alto who created Smalltalk and the enigmatic Brian Harvey from LCSI in Boston. The scene was set for some 'interesting group dynamics'!

Why so much fuss about LOGO?
What is so important about something that 'just draws pictures'? Isn't the language a computer speaks simply of academic interest to all but a handful of people? And what's the big payoff from programming?

Computers and learning
In February 1982, the Ministry of Education of the Province of Ontario issued a remarkable policy statement regarding the use of computers in teaching and learning. It stated that firm emphasis should be placed on 'the creative use of computers by children in writing, composing, designing, analysing and other extensions of original thought.' It added, 'all children should be given opportunities to use computers in this way'.

Because LOGO was seen as being central to the pursuit of these objectives, the computer specified for use in Canadian schools was a powerful 16-bit machine with a large amount of memory (a much more suitable instrument for education (and LOGO) than the machines we have access to in Britain). Importantly, the machine was created to match education's perceived needs, not vice versa.

'BASIC is the acne of computer science'
This memorable conference quote from Harold Abelson, Professor of Computer Science at MIT, threw into perspective the dilemma faced by the majority of schools in this country. Computers have arrived speaking BASIC, the language of flashy CAL and drill and practice.

Many of the people who are in positions of power in the educational world know nothing about computers. (Unfortunately, it seems that many of the people in education who do know about computers know exceedingly little about education.) It follows that if you are ill-informed in an area, your opinions and decisions relating to that area are likely to be less than adequate.

Please stop saying computer literacy
Just glance through the current crop of 'educational' software. The items that one could convincingly argue make any significant contributions to learning can comfortably be counted on the fingers of one hand. Many teachers and advisers use things on the computer that they would never look at twice in any other educational context. Do you come from one of those schools that proudly boasts 578 program cassettes in its resource library? Just how professional is it to advocate that young children should interact with computers in the restricting and ultimately alienating manner that has rapidly become the norm in many U.K. schools? Should we allow computers to simply mimic bad teaching and textbooks, replacing the second rate with the fourth or fifth rate? Surely not.

The sad thing about most computer courses aimed at teachers in this country, is that they are centred around BASIC. How silly to invest so much money and effort into teaching teachers a language which is fundamentally unsuitable for sharing with their children.

Instead of blindly wading through mammoth secondary school style 'computer literacy' courses, questions should be asked like 'Is an introductory course in BASIC programming really the most educationally useful experience for most primary teachers?' and 'How wisely are we using today's scarce resources to meet today's needs?'.

To develop worthwhile, innovative and helpful roles for the computer in schools, we must first tackle the question, 'what is the aim of education?' Whatever answers you come up

with, you cannot fail to notice that most peoples' stated aims are not met for many pupils in many schools.

It is in this area of education's neglected aims that computers can have much to offer. Despite the secondary sector enjoying the vast majority of government support, the lead in developing educationally far-sighted approaches lies within a growing number of primary schools. These schools are enabling quite young children to view computers as a medium to be used, rather than as a message in themselves, through activities which can loosely be labelled 'programming'. This involves using powerful text processing languages for a real purpose, interacting with data query languages to deal with information efficiently and, the gateway to all this, learning to program through LOGO.

Spot the odd one out

Quote 1: Teacher who is dabbling with BASIC– 'Children can't learn programming, it's too hard'.

Quote 2: Middle-aged educational administrator who knows little about computers (You've met him too?') – 'Programming is a technical skill, useful to only a few; it is a fad in schools; it has no place in a liberal education and, like the skateboard, will soon die out'.

Quote 3: Seymour Papert – 'The computer will change the way people think, the way people develop, very profoundly'.

Quote 4: Maths or computing academic – 'Why use LOGO, it's unnecessarily simplified; there's no problem teaching young children Lisp (or Prolog or BCPL or Pascal or POP II or APL or . . .), which is after all more computationally pure than LOGO'.

To clarify: ideas

But what is 'programming'? And how much are today's computer languages – and the contexts in which they might be learnt – representative of future languages and contexts of learning? We are only beginning to realise that these questions exist, never mind deal with the implications their answers might hold.

Create a system a fool can use and only a fool will want to use it.

What has this got to do with me, you say? This whole thing has crept up in a matter of minutes. We all know how slow the world of education is to adapt to any kind of change at the best of times, and just now certainly isn't 'the best of times'. Stand up the boy who shouted 'Dinosaur'!

Wasn't this article about a LOGO conference

Anyway, back to the conference. Manufacturers' stands represented everyone who's anyone in Computer Education, and provided participants with the opportunity to sample all the latest LOGO products. (Yes, terribly anxious to crack the American market, even Acorn was there.) A massive presence by IBM showed just how seriously they are beginning to regard the educational market.

Discussion kicked off trying to analyse the kinds of things children might learn from LOGO. Great importance was attached to the atmosphere within which children encounter LOGO. The fact that relatively few American schools are organised in ways which accord with the LOGO philosophy of learning was wryly noted. The role of a teacher using LOGO was acknowledged as being 'a complex and demanding enterprise which, if it is to be done successfully, demands commitment, sensitivity, stamina and a wide range of intellectual, social and organisational skills'. Many teachers were seen as not having a sufficiently strong scientific/mathematical background to initially fully appreciate the potential of LOGO.

Let's get some hard evidence

Much time was given over to debating research into the effects of LOGO. Many people argued that many classical methods of educational research embodied fundamental flaws and were unable to deliver conclusive evidence related to learning. Someone remarked, 'We can measure everything except those things worth measuring'. It was suggested that testing based around behaviouristic models of knowledge and intelligence was singularly inappropriate in dealing with the effects of a LOGO environment. Quantitively driven positivism was unable to even formulate the kinds of questions we needed to ask. 'What happens if we inject 5 mls of this substance into this creature' is a rather different proposition to that of 'What happens if this particular child is exposed to language X'.

Unfortunately, much existing LOGO research has been undertaken as if the question, 'What does a child learn from LOGO' was a proposition analogous to the first one. Joseph Weizenbaum's story about the drunk looking for his lost keys under a lampost 'not because this is where I lost them but because the light's better here' certainly sums up this dilemma beautifully.

Look Seymour, no hands!

Many teachers actively involved in working with children, other teachers and LOGO from all around the world, had formal and informal opportunity to present their experiences, opinions, problems, and ideas. Horacio Reggini from Argentina staged a spectacular link up between a MIT turtle and his school computer via a satellite communications link. His children sent their Apple LOGO procedures from Buenos Aires as we watched. Teachers from American schools talked about how they were unable to meet the community demand for computer education

with 'only three or four machines per classroom'. A colleague from Israel told how schools were opening again in the evenings to allow more children access to a limited resource. Teachers from Hawaii, Malaysia, Senegal, France, Canada, Britain, Belgium and Australia enthusiastically showed others the things their children were doing in their schools.

Advanced programming with LOGO
In further debate, a full implementation of LOGO was seen as an excellent tool for advanced students to explore and experiment with. Particularly impressive was some of the work done at Lincoln-Sudbury High School on their PDP-11/70 running LOGO over a UNIX operating system. It was felt that much more material needed to be widely published detailing the educational possibilities inherent in such activity. Simple language-processing and 'reasoning' programs and ways of manipulating lists structured as knowledge-representations were cited as particularly fruitful areas to pursue.

A vision of qLOGO
The warm hospitality extended to me during my stay in Boston by the staff and students of the MIT Computer Science Lab was sincerely appreciated. I greatly enjoyed the opportunity to experience a 'hackers guided tour' around their AI mainframe. Most rewarding of all, however, was the time spent after the conference had ended with Cynthia Solomon and her research team.

Cynthia has been a key member of the MIT Logo group since the mid-1960s. She was instrumental in creating LCSI, the Montreal company that first implemented LOGO on a microcomputer. Following that, she went to work for Atari (taking most of her team with her), and there produced Atari LOGO. For the past 2 years, she has been co-ordinating research aimed at answering the question, 'What should LOGO look like on tomorrow's not-so-micro computers?'

She has assembled a very talented team, young computer scientists working alongside artists, dancers and musicians, all developing qLOGO as a language for the future.

Enter Jack Tramiel
Cynthia's lab was funded by Atari Research. As Atari (U.S.) was being bought during the week of the conference by Jack Tramiel, former boss of Commodore Inc., there was considerable uncertainty about its future. Two days before I was due to leave, Cynthia found out that Atari were withdrawing funding from her lab as part of a massive, world-wide cutback. She was given one week's notice to move out. Fortunately, the rights to everything her team had developed remained with them. Atari had made a real blunder, because within hours of the news breaking, Steve Jobs, co-founder of Apple computers, was negotiating for the whole project to switch across from Atari's new machine to the Apple Macintosh.

This is where it gets complicated
Certain members of the Acorn fraternity were also seen visiting the lab, mumbling things like, 'qLOGO, hmm this looks interesting', 'have you seen our new machine?', 'can I ring you when I get back to England? . . .'.

qLOGO
The new quasi-LOGO that Cynthia has been working on, is very very different from anything I have seen before. For a start it is a compiled language rather than an interpreted one. That makes it lighteningly fast. However, to the user it appears to be interpreted, that makes it easy to use interactively. It embodies icons, windowing, mice, multi-tasking and 'object' programming. In qLOGO, there is a new entity, the 'object' which is both a package of information and a description of how to manipulate that information. The 'attributes' and 'meaning' of such objects are built up procedurally.

I think I'll make me a man
Michael Grandfield is a dancer. He is a member of the research team and has been using qLOGO to implement a dance microworld. This is, roughly, how he did it.

Firstly, he created a dancer's body using objects to create bones and muscles etc. Each object had a shape and was able to 'talk' to any other objects it knew it was connected to. Hence, when any object was asked to do something, it was able to tell others exactly what it was doing, allowing them the opportunity to react, if they wished. Michael then put away his anatomy textbooks and taught his dancer how to dance, by giving it a vocabularly of classical dance movements. Once one dancer had been created, any number could be duplicated with ease, each an exact copy of the first.

Michael wants his dancer microworld to experiment with the composition of dance, and he hopes to develop it into a means of recording and transmitting dance between choreographers and other dance professionals.

To see it in action was a quite stunning experience. Other team members were developing equally exciting microworlds around their own particular interests, including powerful text manipulators, robotic toolkits, music conductor arranger and composer environments, etc.

Me, I'm waiting for a large parcel to arrive in the next couple of weeks, marked 'Apple Macintosh'!

Singing Turtles — a musical mystery tour

Janice Staines
Delves Junior School, Walsall

'No wonder it sounds wrong, they're supposed to be F sharps not Fs. We'll have to edit Frequency and change all the 352s to 347s.'

No, not a conversation between two 'A' level music students discussing their latest competition -- simply two, ten-year old girls in my class trying to de-bug 'The Wombling Song' for inclusion in their latest program.

As part of the Walsall LOGO Project, we had received two Atari 800 computers for use in school and had been using Atari LOGO for about 5 months. The four dynamic turtles had been hurtling across the screen at break-neck speeds, performing seemingly impossible manoeuvres. They had taken on various disguises, ranging from King Kong to a Sopwith Camel. The screen had become a riot of movement and colour, constantly monitored by Demons on the look-out for collisions. We had certainly learned how to Talk Turtle, but up to now the Turtles themselves had remained strangely silent. We knew they had voices, indeed we found that their toots could sound like anything from the Q.E.2 docking, to 'Tiny Tim' having problems with his underwear! The problem was how to persuade them to use these voices.

The Atari manual told us that TOOT needed 4 inputs – a voice number, frequency, volume and duration. It also told us that 'A' has the frequency 440. This is it we thought, we only have to look through the index, find the table of frequencies and we'll be on our way! There was no table of frequencies – the manual had given us our first clue but now the rest was up to us. Fortunately, we had a music specialist on the staff, so we cornered her. 'There's a formula for working them out' she said, 'But I can't remember what it is.' 'Fantastic!' we replied. Undaunted, we tried the peripatetic violin teacher. 'I knew them years ago.' she said, 'But I've forgotten them now – I think 'A' might be 440!' 'Thanks very much!' we replied.

The musicians couldn't help us, maybe the computer experts could. We waited eagerly for Thursday to arrive, the day the Project co-ordinator came into school. 'We know 440 is an 'A',' we told him, 'But what are the frequencies for the other notes?' 'I haven't a clue!' he said, 'Have you looked in the manual?' Maybe dumb turtles weren't such a bad thing after all, I thought! Frustrated phone-calls to the Central Library and the Teachers' Centre followed, but all to no avail. Finally a technician suggested I should ask someone who used a synthesizer, as they would need to know the frequencies. Now, own up! How many of your friends play a synthesizer? – Mine neither! Were our Turtles doomed to a life of silence?

Two and a half weeks later, fate took a hand. I happened to find myself on the 5th floor of Lewis's in Birmingham (Accounts Dept., Bedding and Electric Organs). There on the shelf in front of me, a Beginners Guide to Synthesizers – £4.50. I opened it and there on page 17, a table of Frequencies!! You can imagine the excitement, can't you? I did what any self-respecting, under-paid teacher would do. I went down to the basement, paid 18p for a biro, went back up to the 5th floor and copied down the table onto the bag the biro had come in!

Using the superb list-handling capabilities of the Atari LOGO, writing a procedure which could read a list of frequencies and durations to play a tune was relatively simple. In no time at all I had giraffes, elephants, camels and bears marching into the Ark to the accompaniment of 'The animals went in two by two'. Next day I explained the Tune procedure to the class and showed them how to work out the frequencies. We experimented with the durations until they sounded about right. Before the day was over, strains of 'Old Macdonald had a farm', 'Twinkle, Twinkle little star', and 'Li' Liza Jane' could be heard coming from my classroom.

In the weeks that followed the children and I learned about crotchets, quavers and minims, rests, time signatures, sharps and flats. The children have since been experimenting by plucking strings to find how the length of the string, the rate at which it vibrates, and its thickness relate to the pitch of the sound produced. They are also experimenting with harmony, writing their own music and setting Envelopes which can make the computer sound like anything from a honky-tonk piano to the organ at the Royal Festival Hall. Their programs are now not only full of movement and colour, but are also alive with sound. We have a lady in pink pyjamas spiralling around a hill to the strains of 'She'll be coming round the mountain';

a footballer kicking a goal to the theme from 'Match of the Day' and, my personal favourite, a pirate on his ship going to bury his treasure to 'Row, row, row your boat' only to find the boat leaving without him. He jumps, misses the boat and sinks into the sea to 'We all live in a yellow submarine'!

If only the Atari publishers had included the table of frequencies in their manual we would not have remained silent for so long. To save you the weeks of frustration we faced in searching for the table of frequencies, you will find it reproduced below, together with the tune procedure we used and a tune for you to try.

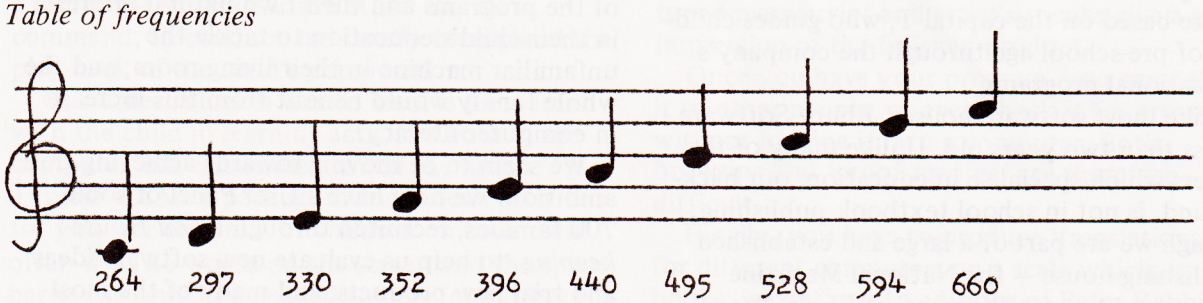
Finally, I must admit to being a little concerned by the number of 'Double Glazing for sound-proofing' leaflets which keep appearing on my desk – do you think my colleagues are trying to tell me something?

Tune procedure

```
TO TUNE :FREQUENCY :DURATION
IF FREQUENCY = [ ] [STOP]
TOOT ∅FIRST :FREQUENCY 15 FIRST
   :DURATION
TUNE BUTFIRST :FREQUENCY
   BUTFIRST :DURATION
END
MAKE "FREQUENCY [495 495 495 440
396 440 440 528 495 440 396 594 594 594
528 495 495 396 440 440 495 440 396]
MAKE "DURATION [10 10 10 10 20 20 10
10 10 10 10 10 20 10 10 10 10 20 10 10 10
10 10 10 40]
```

One thing is for sure though, our Turtles are not only talking now, but singing at the tops of their voices!

Table of frequencies



To calculate sharps or flats, you simply find the half-way number. So F sharp = 374, B flat = 467.5.

Micro-rhymes for the young

The King is in his counting house, counting out his loot.
He has to use his fingers, 'cause his micro's up the shoot.

Meet Mr. T

Linda Richardson
Ebury Software

We all know Mr T – that tough individual with the weird haircut who advertises car polish on TV – but at the offices of London-based Ebury Software, 'Mr T' means not the man who demolishes car doors but his tiny computerised namesake. Devised long before the mangler of cars appeared in his first ITV commercial, Ebury Software's Mr T is a small animated figure based on the capital T, who guides children of pre-school age through the company's educational programs.

Like most software houses, Ebury Software is less than two years old. Unlike many of the others which specialise in education, our background is not in school textbook publishing; though we are part of a large and established publishing house – the National Magazine Company. A sister company of Ebury Press (best known for the 'Sloane Ranger' series), Ebury Software launched its first range of 'Mr T Early Learning' software in the autumn of last year. These are available in BBC, Spectrum 48K and Commodore 64 format cassette tapes, and five new educational titles for the same machines have just appeared, making their debut at the Personal Computer World Show. Ebury plans to celebrate its second birthday next spring with the introduction of a new range of practical home and leisure software, published, like Mr T, under the *Good Housekeeping* name.

Ebury Begins at home

Software and *Good Housekeeping* may seem an unusual combination. The link arises from National Magazine Company's other areas of activity and expertise. Our colleagues within Nat Mag publish, not computer journals as you might expect, but magazines on topics of particular interest to families and especially women – *Good Housekeeping, Harper's and Queen* and *Cosmopolitan* are three of our titles. Our sister book imprint, Ebury Press, also publishes on home-based and leisure topics, as well as chronicling the lives of Sloane Rangers.

When we came to publish software, we naturally looked to our experience in writing for women and their families, and decided to produce software for the home, aimed in the first instance at three to six-year-olds and their parents. We wanted to produce software of high educational and technical quality, to introduce young children to the computer as a 'learning tool' and to skills and activities which would prepare them to get the most out of school. And we also had in mind introducing parents, as well as children, to what computers could do, through the medium of the friendly 'Mr T' character. Mothers in particular, we hoped, would be encouraged by the ease of use of the programs and their own natural interest in their child's education to tackle the unfamiliar machine in their living room; and the whole family would benefit from this increase in computer literacy.

We seem to be moving towards achieving this ambition: we now have a User Panel of some 700 families, recruited through *Good Housekeeping*, to help us evaluate new software ideas and trial new products; and many of the most enthusiastic replies to our original ad came from women readers.

A target audience of young children and their mothers, neither of whom might ever have used a computer before, raised certain interesting design questions. How could we cope with the fact that most of our young users would be unable to read instructions on the computer screen, or even, in many cases, the letters of the keyboard? How could we overcome mothers' possible fear of computers, and take account of their natural reluctance to place their toddlers in the clutches of a 'cold, inanimate object'?

Lively colour graphics and sound, with, in many cases, no words at all on the game screens, was part of the answer to the first question. We rejected keyboard overlays after a lot of thought, and concept keyboards with reluctance: not enough home micro owners have the latter, and when the former is lost or eaten by the dog, the accompanying program becomes useless. Starting with the standard keyboard, we designed the programs to use the minimum number of keys, and chose the large, distinctive space bar as the 'child's key' – the only key needed to control the games designed for younger children on their own. Similarly, we chose a single parent's key which gave access to the menu of games within a program, and to a control screen which could be selected to adjust colour, sound and the difficulty level of the games. The aim was to make the games as simple as possible to control

and use, while allowing as much flexibility and 'tailoring' as possible.

We tackled fears of the child's isolation in front of the computer – the prospect of a three-year-old video junkie – in two ways. Mr T is the friendly face of technology: and the child isn't sitting isolated in front of a machine, but playing games with Mr T, who's there to guide, encourage, and applaud success. Several of our new games also involve Mr T as a player, so that a child can enjoy the games without needing a partner. In *Mr T Meets His Match*, you can even choose to play against 'Clever Mr T' or 'Forgetful Mr T', and in *Mr T's Simple Sums*, he scratches his head before giving the answer to an addition or subtraction problem – which needs to be checked carefully, since, like CRANKY or the OOPS! program, he isn't always correct! In *Mr T Makes Music*, he's there to strike the notes of a rainbow-coloured octave at the child's command, to conduct and finally to applaud the play-back of the child's composition.

Our other solution was to involve the parent with the child in learning activities both at the computer and elsewhere around the house. Typically, a Mr T package includes both activities for younger children, or children on their own, often with no words on the screen and the space bar as the only key needed to play, and others which are designed for older children, or for child and parent together. The Parent's Handbook is an important part of the package, with suggestions on how to get the most out of the programs and ideas for other activities away from the computer. Learning about height and length with a piece of measuring string, drawing letters and numbers in a sand tray and practising subtraction with a home-made game of skittles, making music by banging pots and blowing across bottle necks are some of the ideas. Such 'extension' activities may be familiar to teachers, but observation at our trials suggests that parents are less certain of how best to help their child learn. We hope the Handbooks will help.

Mr T in the Mystery Maze is the first of our Mr T products for older children (7 upwards). It comes with a Player's Handbook, written for the child, with a page or two of notes for parents. Our most ambitious project for this age group is a computer literacy and programming package, due out next spring.

Those of you who were at the MAPE Conference may remember the lively debate, raised by John Coll in his lecture and continued in one of the workshops, on educational software in the home. One of our aims has been to produce software which is designed in the first instance for use in the home (where there's a better computer-to-child ratio and often an adult able to give a child individual attention as well) but of which teachers will approve; and which supports and enhances the core skills of the school curriculum, rather than duplicating a teacher's work. Our authors are themselves teachers (as well as parents!) but you will be the best judges of how well we've succeeded in this aim, and I'd be glad to have your comments if you have used the programs.

It's not like books

In spite of the background in paper publishing which most educational software houses share, publishing software doesn't have a lot in common with book or magazine publishing. If you work, as we do, with authors who present their ideas on paper for professional programmers to translate into code, you don't see what the finished program will look like until almost the end of the process – unlike a book, where typed manuscript and artist's roughs give a good impression of the finished product.

Once you have your program, you can't show it to other people, or even check it for errors, without loading it into a computer. Both browsing and 'proof reading' are therefore difficult.

Finally, you have to produce 'translations' for different computers on a scale which, in books, is confined to editions of Peter Rabbit and the Gideon Bible.

Indeed, publishing software is more like producing a film than a book: translating the 'filmscript' of an author or program designer into colour, animation and sound. What sort of noise does an elephant make slurping water and munching buns? How many seconds does a child need to respond to a moving arrow, allowing time to think and talk about the choice without being bored? What colour combination will be bright and attractive, within the limitations of the computer's capabilities, and still be clear on a black and white television or to a child who's colour blind? Usually, the result's a pleasant surprise . . . but never quite as you imagined it would be.

There are other challenges . . . trying to produce software which exploits what computers do well, and seeking innovation in a world in which, as one jaundiced American publisher reported, 'I ask for new ideas, and they give me Donkey Kong with Pacman characters' . . . remembering how to operate the five or six different computers (and three different word-processors) I use at home and in the Ebury office . . . testing and checking for errors that you 'can't see' because they're hidden in the code, and trying to make sure that the tapes are so reliable they will load on anybody's recorder, even Mrs Smith's which is 15 years old and has misaligned heads.

But of course, there are satisfactions too.

Computing is a new field, and the people in it are lively and enthusiastic: attending conferences like MAPE 84 is not only fun, but also energising – I come back full of bounce and zap, and full, too, of admiration for teachers using computers in the classroom in a variety of exciting ways. It's a great thrill seeing a game come to life for the first time on the screen, and an even greater thrill to introduce it to a child for the first time. One of the very nicest moments came at our first press launch last September. The press were invited to bring their young children along, and did. The children neglected even the Good Housekeeping Institute party lunch, complete with Mr T biscuits, to play the games, and even those who had never seen a computer before dived straight in. One four-year old watched enthralled as Mr T gave her a friendly wave, then waved back happily. 'Hello, Mr T!' she said.

Mr T Titles

1983: *Mr T Tells the Time*, *Mr T's Money Box* (coin recognition and values), *Mr T's Alphabet Games* (letter formation and matching), *Mr T's Number Games* (counting and number symbols), *Mr T's Shape Games* (geometric shapes), *Mr T's Measuring Games* (comparing sizes, heights and lengths).

1984: *Mr T Meets His Match* (memory, matching and sequencing), *Mr T in the Mystery Maze* (puzzle-solving, grid co-ordinates), *Mr T's Jungle Stories* (story-telling for early readers), *Mr T's Simple Sums*, *Mr T Makes Music*.

All for BBC B, Commodore 64 and Spectrum 48K at £9.95, except Mr T Makes Music: two-cassette pack for the BBC/Electron and Commodore 64, at £9.95.

PODD —

Britains answer to the Fifth Generation Computers

Don Walton

Just in case you have not been keeping up to date with the computer press, which is in turn trying to keep up with what is really happening, I had better try and explain what a Fifth Generation computer is all about. You can, of course, buy a couple of a thousand books on the subject and then come back to this article, or you can accept the more simplistic description which follows almost immediately. A Fifth Generation Computer can understand and be programmed in ordinary everyday language. I have a feeling that there is more to it than that but that is the part that sticks in the mind.

The Japanese are pouring millions of yen into this project which has begun with an enormous analysis of linguistics, semantics and other like areas of research. If you have done anything of this kind you will know what a can of worms it is to sort out. Britain is of course doing brave things in dusty little rooms with the kind of computer power that every boy dreams of and usually gets.

PODD is the first fruit of this enormous British effort. Children of five or one hundred and five can communicate with PODD as long as they know a smattering of the English language. After they have succeeded with one word there is a frantic search for more. Asking friends, looking in dictionaries, even thinking hard. If the adults around have any sense they will not give information too easily. Once a new word is found it must be remembered, spellings and all. If you are going to enjoy your new friendship with PODD, it's a good idea to write them all down.

Not so long ago I saw a book called 'LOGO and Relativity'. Looks good on the bookshelves. How about 'The Psychology of Linguistic Interaction with PODD' or 'Methodology and PODD in the Classroom'. Somehow PODD doesn't seem to fit in. Perhaps it's because PODD is for fun first and learning second, if you want to separate the two that is.

PODD is one of the latest programs from ASK. PODD can perform 120 actions but the user has to discover what these are. It is designed to be used by children between the ages of 5 and 10 years and will run on the BBC Model B and Electron machines.
Don Walton was a Consultant Editor for ASK.

Software for primary education broadcasts? How and why

Rod Smith
BBC Education Officer

There are remarkably few primary teachers who do not rejoice at the offerings – and more than occasional benefits – of school radio and television. It was inevitable therefore that with – or even without – a BBC microcomputer, software support would eventually be considered.

However, not wishing to run before walking, the answers to key questions had to be sought. What kind of broadcast extension, if any, was attractive to teachers and pupils; – where were there apparent gaps – where was there already a superfluity of material? And how, when produced, should the new software be distributed – and in what form?

Consultation advised us to be cautious – to prepare a minimum of high quality programs either linked to whole series or units – or, indeed, forming the basis of a new series. One such is School Radio's *Introducing Science Extra: Using Your Computer*. For those of you who have not yet met this novel series it seeks to introduce children *and* their teachers to the marvellous workings of micros. For the latter, it will be out of a job quite soon – for the former, not for a long time, if ever, as new generations come forward. It is based on an idea put forward by its presenter, Fred Harris, of linking together synchronously a radio broadcast and a computer program It works – and is fun.

Observant ones amongst you will have already noticed a sequel in next Summer Terms' *Introducing Science Extra: Computers at Work*. There will be two Radiovision broadcasts *Message and Memory*, and *Calculations and Control*, and one radio broadcast linked with software of, in the new jargon, a 'content free' style.

Our first foray into *Simulation* software linked to a school radio series is the summer term broadcasts in *Introducing Geography* for 10–12 year olds. Four programs entitled *River* (to aid understanding of maps) *Flight* (a round the world planner!) *Summit* (anyone for Mount Everest?!) and *Nomad* (drought stricken living) are currently on trial with very favourable reactions from pupils and teachers.

In an earlier edition of *Micro-Scope* (number 9), Ron Gatfield referred to Telesoftware (via Teletext). The full service and the Brighton trials have now been operating for a year with mainly favourable reactions. The telesoftware *adaptor* is widely available and proving reliable – and the software, far from running out of good quality material as feared, seems to be improving all the time.

Increasingly, LEA's are quite legally incorporating into their banks of software available to schools in their areas, programs downloaded from Ceefax, whether as part of the Brighton Project or not. Long may this continue – the third age of Broadcasting is already with us. For more information please write to:

Rod Smith, BBC Education Officer, Midlands, BBC Educational Services, Reference 30/S, Broadcasting House, London W1A 1AA or contact your regional BBC Education Officer. Addresses and phone numbers are on the inside cover of the 1984/85 Annual Programmes.

* * *

Transmission Times:

Introducing Science Extra: Using Your Computer
11.40 Tuesdays Autumn Term
11.40 Wednesdays Summer Term
Software Cassettes for BBC B, Sinclair Spectrum and RML 480Z available from BBC Publications, each £7.00.

Introducing Science Extra: Computers at Work
11.40 Wednesdays Summer Term from 12 June
Software will be available from BBC Publications

Introducing Geography
11.30 Fridays Summer Term.
Software discs for BBC B from BBC Publications

CWDE Software

Centre for world development education computer software programme

Patricia Shepheard
Coordinator

The Centre for World Development Education (CWDE) aims to improve the knowledge and understanding in Britain of the problems and processes of world development, and of people's interdependence – particularly that between Britain and the developing countries of Asia, Africa and Latin America.

Development education is an ideal area in which to use the microcomputer. It often involves extracting information from large amounts of data; and it is most effective if the children identify with the people being studied, and explore the 'What happens if . . .?' approach to learning of highly interactive computer simulations.

In 1983, CWDE decided to support the establishment of a programme to produce material for use with microcomputers which would:

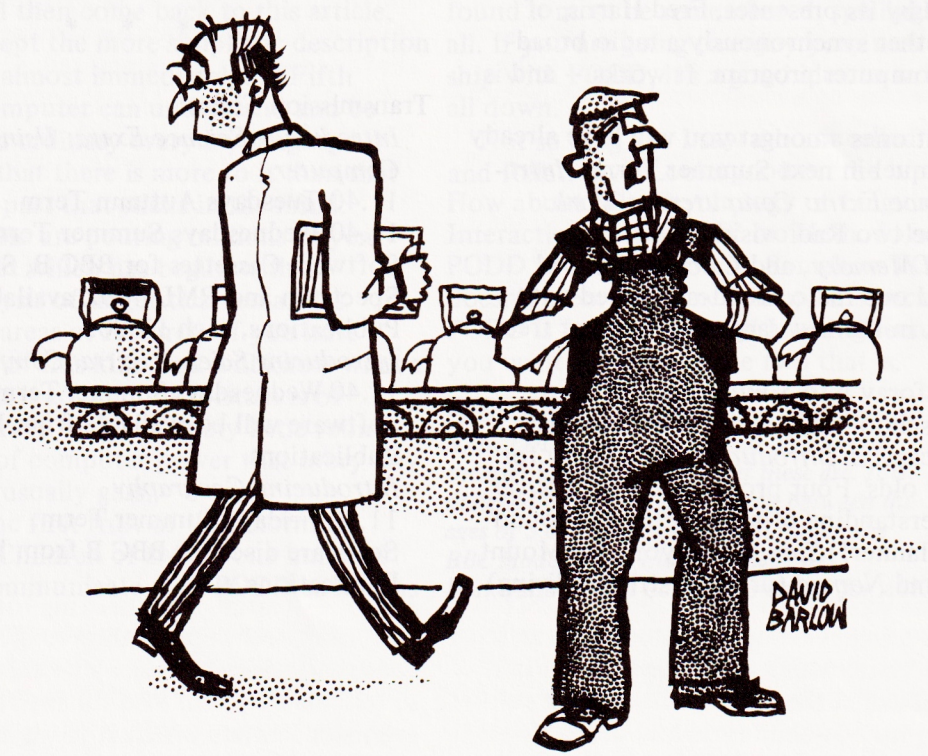
(i) help teachers to increase the awareness in 8–13 year old children of interdependence and of some of the problems and challenges of development for both the developing and the developed countries;

(ii) encourage these children to make informed moral and critical judgements on various developmental issues in ways appropriate to their ages, interests and abilities.

There is now a working team of London people with expertise in teaching, computer assisted learning and development education – all of whom give their time to the programme on a voluntary basis. Sources of support include the Gulbenkian foundation, Oxfam, Traidcraft, ILEA and Brent ITEC.

The team has now chosen a selection of projects and is working on them in small groups. They range from writing support material for existing programs, through ecological games, to sophisticated information retrieval and simulations.

Further information about this software programme may be obtained from Patricia Shepheard, CWDE, 128 Buckingham Palace Road, London, SW1W 9SH.



'OK, so its the age of the computer but I still don't trust 'em!'

Book reviews

Databases in the Classroom
Derrick Daines (Castle House Ltd, 1984, £6.95)

I didn't like this book. It was like reading a workshop manual for a car. Most people don't want to know about big ends, cylinder head gaskets and whatnot; they just want to drive the thing. So it is with data-handling programs in the classroom. Most primary teachers don't want the technical insights this book offers; they want ready-to-run programs, with good documentation, which give the children the experience of using databases.

This may seem defeatist talk, but advance publicity claims the book 'forms essential reading for all those involved in children's project work' – and that means us all! – and that the market for the book is 'primary school teachers and parents'. If the object of this book is to persuade these two groups to start work in this sphere, to break away from the more comfortable drill and practice programs, then it is far too theoretical and will only succeed in confusing and putting people off the whole idea. An illustration:

> The differences between what we have termed semi-random and true random access lies with the DOS. With semi-random the DOS is able to keep track of individual blocks only, whereas with true random access . . . the DOS is able to keep track of individual bytes. A byte pointer called PTR . . . obtains a number that indicates the next byte position.'

As a textbook for a course involving data bases it is a different proposition. The first chapter serves as an introduction on the ways and the reasons why data has proliferated. We get to grips with the subject with a chapter on the management of data and the appropriate computer skills. Sections of the former are devoted to data capture, input and storage. Data organisation uses the card index as its starting point and the chapter concludes with a section on searching, manipulation, retrieval and interpretation. The Venn diagram models introduce the reader to work by children and this is followed by a system of punched cards.
The chapter on classification uses the *Micro Primer* program *Animal* to introduce this topic, and ideas for development are explored using *Factfile.* (I'm not sure about the idea of taking fingerprints using vapour from superglue as part of a classroom project!) These are the only established primary school programs that are mentioned in the book. There is no mention of *Quest, PQuery* or *Inform,* which seems surprising. The main parts of the book reverts to a technical analysis of tape and disc as storage media and a discussion of serial and random access. The final chapter presents program listings which allow the reader to make routines to input, double check, sort and retrieve serial data, binary search and merge two files.

This is fine for a textbook for a course on this aspect of computer education, but as a means of turning the practising primary classroom teacher towards a more enlightened application of the computer it leaves much to be desired. For too long the world of the computer has been dogged by the technical expert and the enthusiast's magazine and book. Essential reading for the teacher of primary children needs much less technical fog and much more on the application in the classroom.

S. J. Booth
Newman College

Exploring English with Microcomputers
Ed. Daniel Chandler (CET, 1983, £4.00)

This is not a tome of dogmatic instruction, nor even a 'waffle' of hi-tech theory, but a collection of viewpoints and practical experiences clearly and interestingly described by contributors from various 'English' fields including university departments, sixth-form colleges and language centres.

The fairly slim volume of 123 pages is packed with ideas, thoughts and descriptions, and the variety of style and theme results in an enjoyably stimulating read. There is much of interest here for the specialist and non-specialist alike, whether one's concern lies with the teaching of English or the use of the micro.

Jan Stewart of ITMA poses the question: 'Does the use of the microcomputer inhibit the development of language in children?', then shows that in the hands of good teacher the opposite is possible, but sounds a warning note too. Dr Jon Coupland, also from ITMA, looks at the development of 'English' software. Creative language and writing resulting from work with simulations and adventure games are considered by several contributors, and the possibilities afforded by the use of word processors and database systems are aired in Richard Knott's article 'Computer awareness and creative English – mission impossible?'

The book is well supported with diagrams, examples of children's work, screen displays and discussion transcripts. In addition to each named program being printed in upper case, there is a separate program index as well as a

detailed text index, and a plethora of bibliographies and references.

Exploring English with Microcomputers is published 'in association with NATE by CET on behalf of MEP'. Even if you don't like acronyms, at £4 it is still a good buy for any primary or secondary English department.

Graham Smith
Newman College

Making Connections: developing the primary school curriculum using a microcomputer for information retrieval.
Alistair Ross, MEP Case Study 5 (CET, 1984, £6.50).

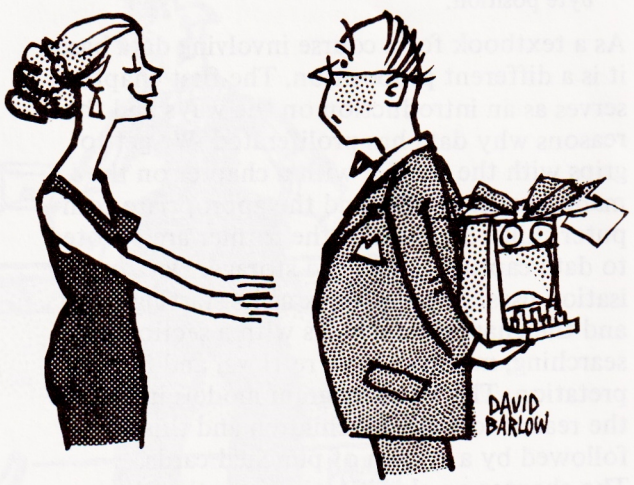
That's a rather long title for a rather small paperback of less than 80 pages. However, packed within the two covers is a very concise and useful summary of the place, and potential, of information handling in the Primary School. The emphasis, throughout, is on the children actually using such information and 'making connections'. The skills involved are by no means exclusive to micro-electronic technology, but as the author states, a computer makes possible 'much deeper levels of analysis and understanding'. The value of using information retrieval programs lies in the way they enhance the learning process itself, in the interactive nature of the inquiries, the language and the skills they give rise to. The aim of the book is to show how such programs can help children 'look at and think about the real world about them.'

By way of some simple examples with such programs as FACTFILE and Micro-SCAN, Chapter 2 offers a very good explanation of what information retrieval means, what it does, and particularly what terminology is involved. Chapter 3 then deals with the ways in which it could profitably extend children's learning skills, with the emphasis placed not on the content as much as on the process of analysis, hypothesis-making and hypothesis-testing, based on direct experience of the real world. There are examples of likely problems and also some handy tips which come from Ross's own experience with both infant and junior children. Indeed, in Chapter 4 almost half the book is devoted to applications rights across the curriculum and contains many good, practical ideas, both tried and untried, for a whole range of (mainly junior) projects from using an 1881 census to finding 'the strongest conker in the world'. In Chapter 5, the importance of displaying such findings and results in a variety of ways is not forgotten. Chapter 6 re-states the author's view of the fundamental importance of using information retrieval programs and discusses a whole range of thinking and social skills which they encourage. Finally, the appendix looks at hardware and software, specifically FACTFILE, MicroQUERY, LEEP, SCAN and the author's own DATAPACK (which sounds interesting, particularly in its graphics facilities).

Obviously, in a book this size, something has to be left out, but it appears very strange that programs such as QUEST, SEEK and CUP's new PICFILE do not rate a mention, let alone viewdata or interactive-video systems. Indeed there is no look to the future at all, and neither is there a bibliography for those teachers who wish to take things further.

So – value for money? MEP books often seem over-priced and at £6.50 this could appear to be no exception. However, this is certainly a book that usefully combines some coherent theory and practice. There are all too few books around that would qualify for 'essential reading' for a Primary Educational Computing Course, but in the area of information retrieval this would have to be one of them. 'Making Connections' may be expensive, but for any teacher wishing to delve further into some of today's 'basic skills' it is well worth a good, and close, read.

Barry Wake
Birmingham Primary Computing Team



'Let me guess, Darling . . . . it's that mink coat . . .

Video cassette review

Flowers for the teacher
Videotext Educational Publishing
Price £16.95 plus VAT, post and packing.

This thirty minute video has been produced by Mike Matson (of 4MAT now 4Mation) and Tim Arnold. Mike Matson believes that 'when children are using computers in education it is the 'children' and 'education' which are far more important than 'computers' and this video demonstrates how a micro can be used as an exciting and stimulating educational tool.

Flowers for the Teacher shows how one school incorporated Flowers of Crystal into its learning environment. Questions which teachers are likely to ask are answered as the video unfolds. The organisation of computer usage within the classroom is explained. We see how the program links in with art, drama, movements and environmental studies. We listen to children debating moral issues and watch their responses as they are subjected to propaganda as one of their peers takes on the role of a character from Crystal. The class teacher describes how he sees his role, and reveals his own (fairly minimal) level of experience with a micro-computer. Parental fears that micro usage might replace reading and writing are demonstrated to be unfounded as we see children reading, writing and recording both alongside and away from the computer.

This video is a valuable resouce. It puts the micro into perspective and also puts it into the context of a working classroom. If you get the chance – do watch it. If you are responsible for an element of in-service training, either within your school or within an LEA, then it will prove a very useful talking point. If it serves to stimulate teachers in the way it aims to, then it is a worthwhile investment.

Senga Whiteman
Newman College

Software reviews

LANGUAGE DEVELOPMENT PACKAGE

This language development package consists of three programs for the BBC Model B micro-computer OS 1.0 or above. They were designed by Michael Trott, programmed by Navin Solanki and developed by the MEP. They are published by Learning and Training Systems Ltd., Warwickshire. The package is suitable for cassette or disk and retails at £12.95, although to schools it is available for £9.50.

The disk package comes in a strong folder with a comprehensive documentation booklet and a strip of card to fit above the function keys.

The package offers, and I quote 'a fresh approach to the acquisition and development of language skills'. The programs are 'SENTENCE CORRECTOR', 'WORD STOPPER' and 'SAY THAT AGAIN'. Although the programs are similar in their general format in having a menu with three options, each program may be used on its own. The first option is the main program, the second allows the teacher both to specify the sentences or words that are to be used or to change or edit sections of existing sentences. This option also allows the teacher to save and load programs of her own. The third option allows the use of the sentences and words previously saved. With all three programs the child needs to know how to use the keyboard, and must be able to read the prompts and sentences provided.

Sentence corrector

This program gives practice in recognising, firstly, words out of context, and secondly incorrect spellings. It gives the user an opportunity to solve problems and test hypotheses. It also aims to extend his/her vocabulary.

In option 1 a sentence containing an 'incorrect' word is displayed. This word may be 'incorrect' for a number of reasons. The user has to find and type in this 'incorrect' word. Three attempts are allowed after which the word is given. Words typed in which are similar to the required word are recognized and the message 'do you mean *****' appears on the screen, and the option given to retype the word. Next the user is required to enter an alternative word that can be used instead of the 'incorrect' one. Alternative words are checked against a list of 'correct' words, and if the word is found the user moves on to the next part of the program by pressing the space bar. If the word is not found in the list, the message that the word is not known appears and the user is asked whether another try is required. There is no limit to the number of attempts that can be made. Each time the user can opt to place his chosen word in the sentence and add that word to the list held by the computer. This sequence of events is repeated with ten sentences after which the

session finishes.

At any time the teacher can access a report option which presents the words chosen and the number of attempts made. These entries can also be edited by the teacher.

Option 2 allows the teacher either to specify new words and sentences or to view and to edit existing ones. These words and sentences may be saved and reloaded later. Up to 15 new sentences may be specified and up to 19 alternative words for each sentence may be supplied.

Word stopper

The skills practised by this program involve language development and creative writing. Children must be able to copy or write simple text and it is suggested that very young children write out their story on paper and then redraft it using the program. Option 1 allows the user to type in his own story. It begins with a clear screen with the line and column number given at the bottom. The child then begins typing in his story. However the program will prevent certain words being used. For example if the word 'nice' is typed the program stops, the word is removed and alternative words are presented to the child who may then use them. The child may still use his own word, but it appears red in the text. The screen allows a maximum of 18 lines of text and the only confusing thing I found was in the use of the delete key which will only delete letters above the cursor.

I liked the way the text automatically justified itself on both left and right margins.

As with the first program there is a report option which screens the text and gives a list of words where the program 'stopped'. In addition, from this option a hard copy of the text can be obtained providing the printer is set up beforehand. This can be done from within the program. The printed copy is 40 characters wide thus allowing a copy to be kept in an exercise book.

This has 'got' to be a program that can show how equivalent words or synonyms can be used for those 'nice' words that are over-used or imprecise. It could also be used to correct misspellings if the same old hoary chestnuts keep occurring (whoops).

Say that again

The skills practised in this third program involve language development, vocabulary extension, and variety of expression. Option 1 gives a sentence which the user is asked to retype using different words, whilst attempting to retain the same meaning. The program does not check the meaning of the sentence, but if more than three of the words in the original sentence are used, then the retyped sentence appears with the original words in red and the child is asked to try again. The program will accept three or less words from the original sentence and a new sentence will appear. Therefore if you type spaces or rubbish the program will move on to the next sentence. Up to two lines are allowed for the retyped sentence and six attempts are allowed. The words automatically overflow at the end of the first line and a bleep is given as the second line begins. As in the other programs the report facility allows the teacher to look at the sentences which have been typed, thus the work may be assessed and discussed. The value of the program would be diminished if the report facility had not been included.

Option 2 allows the teacher to enter her own sentences, or view or edit those sentences already there. These sentences can be saved and reloaded. Up to twenty sentences are allowed.

The final three pages of the documentation give a list of the example sentences used in each program.

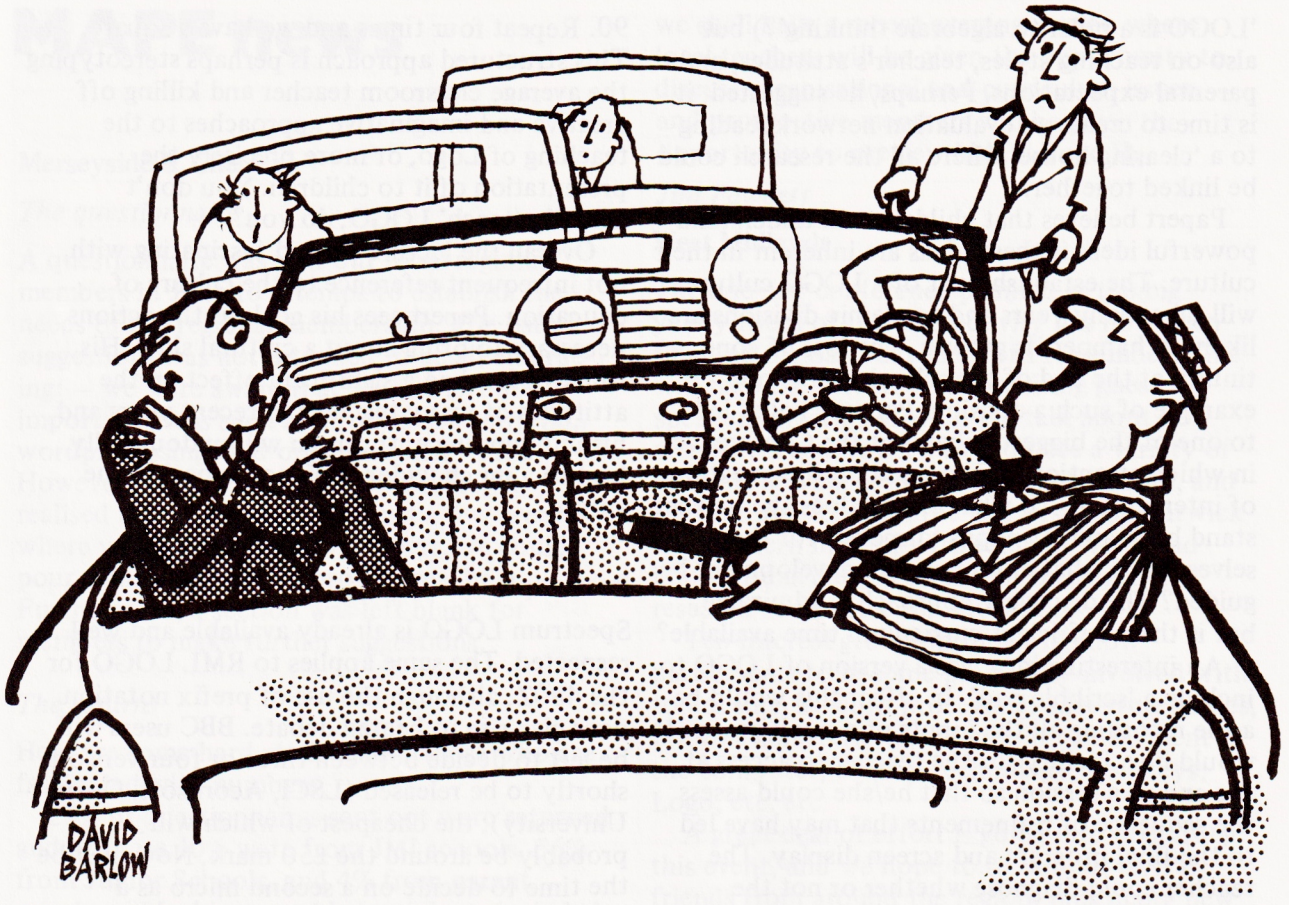
When I first looked at this program I thought it would be very much like the many 'Cloze' type programs that are available. However, the more I used it, the more I liked it.

This pack will aid language development, but it is certainly not a stand alone package that will give results for the mark book. The report facility is the section of most use and that needs the teacher's time, but it does allow the teacher to discuss the answers given with the children.

These programs will support what is already being done in the good primary classroom by promoting discussion and allowing consideration for the use of alternative words. They will also promote the thought that the child's answer is not always a right answer, but at the same time the child can 'teach' the computer some of the more worthwhile words that he knows. The pack does allow some teacher-guided development of creativity.

No two children develop at the same rate and these programs allow the teacher to enter sentences or words which are appropriate for individual children; and here lies the potential of the program. It is here also that the program may fall down – not through any inherent fault, but because lack of time or inclination may well mean that teachers will use the sentences already included and not those most suitable for their own children. As with all but the most structured type of program, the teacher's enthusiasm is the vital factor and the success of the program depends upon this enthusiasm. This package of programs is worth using the right way by the teacher. The ball is in our court, I only hope we hit it in the right direction.

Bert Askins
St Laurence Junior School,
Birmingham.



'I just popped in the program and it drives us home . . .'

BLUG Conference '84

R Keeling
Newman College

The first weekend in September saw the launch of the new academic year with the second annual British LOGO Users group (BLUG) Conference at Loughborough. The weekend was well planned with a variety of lectures and seminars appealing to all tastes. Particular interest was shown in those projects aimed at developing good classroom practice and teaching support materials; both the Walsall LOGO Project and the Chiltern Project were very well received. These may be indicators of future practice in the use of LOGO, but what about future goals for LOGO?

Everyone had come to Loughborough to hear Seymour Papert, and they were not to be disappointed. He shared with the audience his hopes for the future years and discussed those areas in which he would like to see LOGO develop. His first and most controversial point was that in Britain, as in America, the LOGO movement is essentially white. Why are there no black faces in the audience? Needless to say, question time led to several hypotheses but Papert would definitely like to see a move towards a more representative ratio.

As for the potential of the language; we have turtles and multiple turtles and children can create their own microworlds using sprites. Papert suggested two further microworlds, one concerning motion and one concerning data bases, statistical investigation and hypothesis fomulation. I for one, could not quite see the latter in a LOGO context, but the idea of motion is attractive. What could be the effect of giving a body (or turtle) an acceleration and/or a charge? What if you could create a planetary system where you could determine relative gravities? The potential is exciting. Children could start to experiment with their own laws of motion. Papert thinks that the presentation of scientific concepts would be vastly improved if it included an element of play. If only Newton had had this microworld as a child!

Papert then moved on to the subject of evaluation and he suggested that more work was needed in this area; not just an investigation into what children are learning (is it true that

'LOGO is a pillar to algebraic thinking'?) but also on teaching styles, teacher's attitudes, and parental expectations. Perhaps, he suggested, it is time to create an evaluation network leading to a 'clearing house' where all the research could be linked together.

Papert believes that children will understand powerful ideas if these ideas are inherent in their culture. The establishment of a LOGO culture will take many years and academic divisions are likely to hamper its growth. The loss of continuity at the end of the school year is one example of such a division. Papert's belief led to one of the biggest debates at the Conference in which attention was focused on the question of intervention. To what extent does the teacher stand back and let pupils 'discover' for themselves, or to what extent should development be guided? The discovery approach is admirable, but is there sufficient curriculum time available?

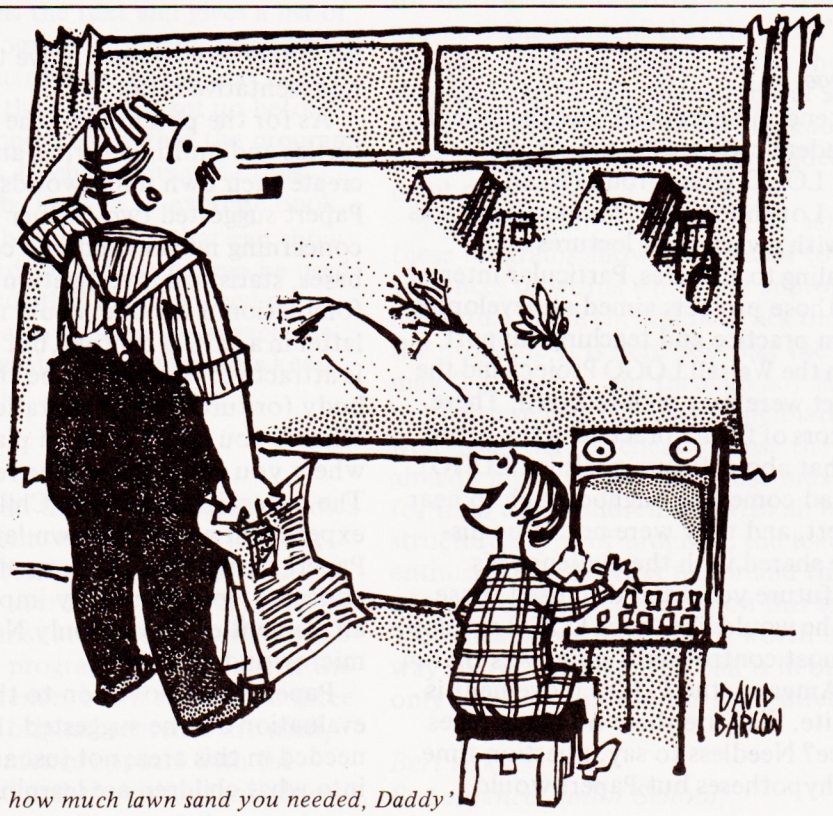
An interesting idea was a version of LOGO to include a 'scribble pad'. In effect this would be a file recording all the inputs of a pupil/group. It would be a facility for the teacher to access at the end of a session so that he/she could assess the sequence of refinements that may have led to the final program and screen display. The teacher could diagnose whether or not the children appear to have fundamental misconceptions. Unfortunately such a file could be open to abuse and would need a wise and experienced teacher to use it properly.

Papert's final goal concerns a different approach to the writing of LOGO textbooks. They all start with FORWARD 100 and LEFT 90. Repeat four times and we have a square. This structured approach is perhaps stereotyping the average classroom teacher and killing off creative and imaginative approaches to the teaching of Logo, or more precisely the presentation of it to children. You don't actually 'teach' LOGO, do you?

Overall the lecture proved fascinating with not infrequent reference to the culture of education. Papert sees his goals as the actions necessary to bring about a cultural shift. His thinking has had a significant effect on the attitudes of many teachers in recent years and his unbounding enthusiasm will undoubtedly lead to a much wider audience appeal in the future.

Postscript:

Spectrum LOGO is already available and well respected. The same applies to RML LOGO for the 480Z, although the use of prefix notation does give rise to heated debate. BBC users will be left to decide between three or four versions shortly to be released (LSCI, Acornsoft, Open University); the cheapest of which will probably be around the £50 mark. Now may be the time to decide on a second micro as a dedicated LOGO processor; in which case the Atari 600 or 800 looks one of the most promising for the price. Also from the States the Apple Macintosh and IBM PC boast complete versions of LOGO but are more upmarket (cheap British LOGO processor – Spectrum or the new Amstrad machine?)



'I could have told you how much lawn sand you needed, Daddy'

MAPE news

Merseyside & Cheshire

The questionnaire

A questionnaire was sent out to all regional members in June to attempt to establish the needs of the regional membership. The list of suggestions was not intended to be all embracing: – we were aware that we had left out important areas such as information retrieval, wordprocessing, and organisational issues. However, as part-time MAPE workers we realised that if we identified just a few areas where we could help our members, we could pour some energy in to provide real help. Furthermore, a section was left blank for members to make further suggestions.

The returns

Here are some hard statistics for those who are fascinated with numbers.

23% of questionnaires sent out were returned, and of these 40% were from JMI schools, 56% from Junior Schools, and 4% from parent members. Machines used by recipients included

BBC model B	80%
Spectrum	30%
Commodore PET	20%
ZX 81	10%
RML 480Z	5%
Apple	5%

A large percentage of recipients use more than one type of machine. Unfortunately, one omission from the questionnaire which may have answered some of the questions now occurring to me, was that of LEA.

When the questionnaire was envisaged, I felt that most of the areas suggested were already being catered for by the local MEP and computer education centre, individual LEAs, teachers' user groups, and colleges. From the replies however, it appears that this is not the case.

The results

The figures overleaf refer to the percentage of those commenting on each point.

Having uncovered these indications of the feelings of the members who replied I feel that our next committee meeting should prove interesting and will point the way for the future.

This term

In the meantime, a newsletter is currently being drafted, which will contain reports from each of the LEA committee representatives, a regional day conference (including the AGM) is being planned for late November, and also this term we shall have a repeat evening session where local teachers will be given the opportunity to discuss organisational and curriculum issues, and prospective members will be given the opportunity to preview MAPE Tape II.

Jim Fawcett

West Midlands

The one-day conference planned as the big yearly focus of regional activity has now been finalised for Saturday the 17th November. This will take the format of two visiting guest speakers. Heather Govier will talk about how computers can be used to promote a variety of problem-solving activities in the classroom, and Dr John Barker from the University of Warwick will concern himself with some of the broad implications current Artificial Intelligence research could have for education.

Ten interest group options will allow participants to become practically involved with topics such as word processing, adventure games, information retrieval, classroom management of the computer, control technology, quinkeys, Logo, etc. etc.

A great deal of effort is going into organising this event, and we hope to see all our MAPE friends from around the region, plus many new faces too.

Future events in the pipeline include an Information Retrieval evening some time after Christmas, to follow up the Information Handling special MAPE is issuing free to all members in the Autumn term. Also, we hope to stage some software events, centred around public domain material, where people can participate in a demonstration/workshop, and take material away with them afterwards on their own disc.

Julian Pixton

West and North Yorkshire

Plans have been made to contact members in this area with a view to holding a meeting at which this group may be formed.

Marjorie Briggs

Chiltern Region

We held our travelling roadshow 'Kids Computers and Classrooms' in Maple School, St Albans on Saturday June 10th. Children were seen using a variety of software which included data bases, LOGO, and some commercial software at the 'smaller' end of the continuum. There were also examples of control technology. There were plenty of visitors dropping in during the day.

Our next venue is the Teachers' Centre, Stevenage on Saturday November 10th.

Bill Bailey

	very important	fairly important	fairly unimportant	unnecessary
Day conferences	39%	44%	17%	–
Talks by 'national' speakers	33%	39%	28%	–
Local teacher's presentations	53%	47%	–	–
Publishers' exhibitions	39%	35%	26%	–
Inter-authority teachers' meetings	35%	41%	24%	–
Inter-authority information exchange	59%	35%	6%	–
Sessions for local groups of schools	41%	41%	12%	6%
Specialist sessions – LOGO	39%	56%	5%	–
– electronics	17%	44%	33%	6%
– control	18%	53%	29%	–
– language applications	33%	61%	6%	–
– hardware	11%	67%	22%	–
– simple programming	26%	47%	16%	11%
– program specification involving teachers & programmers	45%	33%	22%	–
– program evaluation	56%	39%	5%	–
Negotiating discounts on hardware	39%	44%	11%	6%
Negotiating discounts on software	44%	39%	17%	–
Regional MAPE tape of programs	40%	50%	5%	5%
Regular newsletter	42%	58%	–	–

MAPE National Council Meeting, Oct. 5th/6th

The first Council meeting of the new academic year was well attended with thirteen of the fifteen regional representatives present. Much of the discussion was devoted to planning next year's activities, with a summary of the main conclusions outlined below:

a) A first draft of a Regional Constitution was discussed. This will not be forced upon those Regions who do not feel the need for a Constitution, but is intended as a basis of operation for those who want to be more formally structured.

b) Renewal notices for membership sent out after January 1st, 1985 will show an increase in subscription to £10.00. The Council felt that members were getting good value for money but the present commitment to publication accounted for most of the present subscription leaving little room for expansion. The extra income would allow more flexibility, one important option being that of increasing the financial support to Regions.

c) In addition to three issues of *MICRO-SCOPE* in 1985, there are at least two Specials in the pipeline. One has been put together by Anita Straker and the MEP Primary Project. The second is intended to concentrate on the area of Infants. Anyone who has ideas to contribute should contact Anne Liddle at Pentland Primary School, Pentland Avenue, Billingham, Cleveland.

d) The Council also decided not to maintain a back issue service of *MICRO-SCOPE*. The magazines do become dated fairly rapidly and it was felt that existing back issues could be distributed at Regional functions as general publicity material. The Treasurer will continue to hold a stock of the last but one issue only. As for those members who are still trying to acquire MAPE Tape 1, the Chairman will shortly be writing to LEA's advising them that they may freely distribute the software to all schools within their area.

The next meeting is due for February 1st/2nd, 1985. If you have any points that you want aired, do write to your Regional Representative.

R. Keeling
Vice Chairman

MAPE National Commitee Members 1984/85

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