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Evidence defied

Over a decade ago, when this journal was launched, evidence was just beginning to accumulate of the shortcomings of selection at eleven-plus, of the bipartite secondary system's denial of opportunity for self-fulfilment and of the disastrous perpetuation of a sense of failure that streaming created for the majority. Since then the evidence has reached irrefutable proportions and has included that from researches into the powerful effects on children's performance of their teachers' expectations of them –expectations which are often determined by streaming and bipartite segregation – and of the atmosphere and ethos of the schools they attend. New and hitherto largely unpublished evidence from Professor Himmelweit's research is contained in the report in this issue of a conference organised jointly by **Forum** and the Comprehensive Schools Committee. More recently Dr Douglas Pidgeon, deputy director of the NFER, has gathered further evidence of the significance of a school's ethos and of how streaming influences teachers' expectations and hence widens the gap in attainment between children: these researches are reported in his new book, **Expectation and pupil performance** (NFER, 30s).

Meanwhile positive evidence of the potential of comprehensive schools to foster intellectual, social and emotional development of all adolescents has been accumulating within the growing number of comprehensives: this was described by Tyrell Burgess in a paperback, **Inside Comprehensive Schools,** published in May and sponsored by the DES. It had been preceded by Dr Conway's positive guidance in **Going Comprehensive,** and was followed in July by a detailed study of the problems and achievements of comprehensive schools by Caroline Benn and Brian Simon, **Half Way There.** These are reviewed here.

Margaret Thatcher issued **Circular 10/70** in the face of this accumulation of evidence and, ironically, at a time when the already substantial evidence was being so massively reinforced. It is small wonder that her Circular has aroused fierce opposition from national bodies such as the National Union of Teachers, the Trade Union Congress, the Council for Educational Advance, the Comprehensive Schools Committee and the County Councils Association as well as many local organisations.

The onus for safeguarding educational progress from Mrs Thatcher's misdirection now rests heavily on determined and informed local organisations of teachers and parents, as those in Barnet and Birmingham have realised in mobilising their new campaigns. Though it seems likely that total comprehensive reorganisation will be delayed, as in Bedfordshire and Surrey, it cannot now be prevented: the issue has generally ceased to focus on retention of selection but has already become a matter of finding the comprehensive structure best suited to local circumstances. It was significant that the first plan Mrs Thatcher was called upon to approve was for comprehensive reorganisation in Leeds.

Forum has long recognised that a comprehensive secondary school structure is not in itself enough to ensure that all adolescents enjoy an education that offers them opportunity to realise their potential. Progress towards nonstreaming and curriculum reform has been uneven. Our policy has been to publicise encouraging experiences and experiments and to further discussion of the problems involved.

In this number we focus attention on those subjects which seem to present particular difficulties, because of their structured nature, with classes comprising the full ability range – the sciences, mathematics and modern languages. Don Reid of Thomas Bennett School shows how encouraging help has been made available by the Nuffield Resources for Learning Project, and Peter Prosser discusses how 'Nuffield (science) methods *can* succeed with children of all levels of ability'. Introducing a discussion of some of the key problems in the transition from primary to secondary school, Harold Hayling argues that streaming and a subject-centred attitude diminish that motivation for learning which the best primary schools foster so effectively. Roy Haywood shows that the Schools Council Humanities Project can, if sympathetically interpreted, help to win back some of the fourth year recalcitrants and, through CSE Mode 3, at the same time mitigate the harmful effects of the examination system.

Teachers for Comprehensive Education

Conference Report by Roy Waters

A large audience attended the Forum/Comprehensive Schools Committee conference on 'Teachers for Comprehensive Education' at the NUT headquarters in early June. The sun was blazing outside and by the end of the afternoon most of us were in shirt sleeves to hear the final contribution from the floor which consisted of an appeal to teachers to overthrow the power of autocratic heads. But despite this and spasmodic outbursts of sniping at Colleges and Departments of Education (which induced mainly defensively apologetic answering fire), the most fundamentally revolutionary statements were those made by the eminently respectable speakers from the platform during the morning.

The afternoon was given over to open discussion interspersed with short prepared statements from young and youngish teachers. Some valuable points were made. Eileen McEwan from Walworth School (ILEA) won applause with the suggestion that teachers in their first year should have light time-tables to permit continued observation and discussion with a school-based tutor, and Margaret Nandy described her work with students as a teacher-tutor at Bushloe High School (Leicestershire). The need for more and longer teaching practices during training, for lecturers to have continuous practical experience and for more help to be given during the probationary year – these were familiar pleas. Tony Crisp of Malory School (ILEA) wanted the probationary period extended to two years, with a highly structured system of training to be provided by the school.

The federation of Colleges and Departments in a unitary system of professional training for teachers was included in a report on the CSC's recommendations to the Select Committee given by Clive Chitty, Kentwood School for Boys (Bromley), and this was taken up in later contributions. The problem of finding enough progressive Comprehensives for students to practise in was raised by some, to which John Bell (AEO, Bath) replied that a group of students in a good school working on team teaching lines under a teacher-tutor could provide an answer. Bruce Bates of Thomas Bennett (Crawley) called for Colleges and Departments themselves to be run on lines more similar to those of the best schools. He also referred to an issue raised earlier and which recurred several times – the relative importance of developing **attitudes** and of training **skills** in the young teacher. Jane Thompson from David Lister (Hull) was strong on attitudes and spoke compassionately and convincingly of her own experiences with fourth year leavers.

Only Michael Tucker of Settle School (West Riding) wanted all Colleges and Departments abolished, but Peter Mauger of the Coventry college, while accepting their shortcomings and pointing out the difficulties – some presented unnecessarily by the schools – insisted on the importance of a sound basis in educational theory, a point repeated by others later. The need for more money was, naturally enough, stressed several times.

But to return to the morning session, when issues of fundamental principle were introduced. The Conference was opened by Raymond King who must now be well into his seventies and is as radical as ever. He acknowledged that during his own time as a pioneering Comprehensive head at Wandsworth we had been mainly engaged in establishing and consolidating the schools. However, in the last few years the revolution within these schools had gathered an astonishing momentum. The Conference was to deal with the effect of these changes on the role of the teacher and their implications for teacher training.

Hilde Himmelweit, Professor of Social Psychology at LSE, apologised for being an outsider but won the sympathy of her audience by deploring the effect on secondary schools of their function as a sieve for further education or career. She went on to give an account of her longitudinal survey of 600 children in secondary modern and grammar schools. This started in 1951 when the sample boys (in the third forms of their single-sex schools) were thirteen years old and had been taken up again twelve years later when they were twenty-five. Her conclusions were fascinating. Basically, neither the measured intelligence of these children nor their social class appeared to have the main effect on their attitudes and subsequent careers: the school itself was the important factor. Essentially, those children who felt rejected at thirteen, either by the fact of being placed in a non-selective school or by being placed in the C stream of a selective school, retained the resulting attitudes at twenty-five. Interestingly, two grammar schools in the survey streamed their children differently, one by ability, the other by effort. Yet in the two schools combined, 84 per cent of those in the A streams at thirteen stayed into the sixth, and 84 per cent of those in the C streams left. Both A and C contained children of different social class and intelligence, yet their behaviour was determined by their stream alone. It would appear that the expectation of their teachers was of the greatest importance.

Similarly, with regard to attitudes to school and life, the differences between the grammar and secondary

modern pupils were marked and cut across classifications of intelligence and social origin. Already by the age of thirteen the children's attitudes had been moulded. Twelve years later it appeared that their adolescent academic expectations had been fulfilled and their attitudes to life maintained.

These research findings in support of comprehensive schools and non-streaming were naturally well received by the Forum/CSC audience. Professor Himmelweit went on to list the qualities which teachers should aim to develop in their present pupils to fit them for their maturity in the year 2000. Among these were:

Initiative; flexibility; confidence that they are capable of learning; confidence that they have a role to play in society.

The ability to work on their own; the ability to cope with their own failure in some enterprises, and the fact that they will be less good at some activities than others.

Curiosity; adventurousness; a sense of priorities.

An acceptance of their responsibility to help others and a knowledge of how to do this.

Mature emotional development, with a chance of temporarily contracting out when the pressures become too great.

Acceptance of responsibility for social participation (partly through participation in running the school); independence (avoiding always seeking peer-group protection in time of stress).

Understanding that society can be changed by individual initiative.

The power to evaluate situations in terms of their advantages and disadvantages.

Answering questions later Professor Himmelweit referred to the need for teachers to seek a greater understanding of the social and cultural background of the children they teach. In their training they should observe other roles than that of teacher, and perhaps also play them – in health and social work, for example – and be shown the role that the local community can play in relation to the school. They should be trained to initiate changes of their own. Both teachers in training and experienced teachers needed to be given the skills to face new situations, since lack of knowledge leads to anxiety and this leads to a rejection of new ideas.

The fulfilment of the school's social role would consume time – this might at times mean less time devoted to teaching. Each year a school should draw up a list of its immediate priorities, possibly changing them each year as circumstances changed.

Pat Daunt, of Thomas Bennett School at Crawley, emphasised the need for changes in the attitudes of teachers. We should stop, he said, valuing children simply in terms of their ability or their potential for contributing to the nation's economy. This meant revising our attitudes to examinations (even the more liberal CSE with its cumbersome standardisation procedures) and to recording: lists of pupils and their comparative marks underlined our basically competitive approach.

We need, he said, to undertake a total pastoral responsibility for the child. It was here, as Michael Armstrong pointed out in introducing the afternoon session later, that Pat Daunt was at his most revolutionary. The implications were far-reaching. The total pastoral approach calls into question not only the streaming of pupils and our methods of assessment but also such issues as subject specialisation. The curriculum itself is involved. If the needs of the pupil as an individual are paramount, then what is learned and when will be different for each child. Teachers will need to be involved in the whole curriculum, not only their own subject, and our ideas of the balance of social and academic work will need to be revised. The introduction of school councillors, Mr. Daunt suggested, is inimical to this process, since they would encourage an abdication of the teacher's pastoral role.

Co-operation between teachers would be necessary not only for the new modes of teaching to be possible, but also to demonstrate to pupils the importance of co-operation rather than competition. Teacher participation in the running of the school would be essential since an autonomous spirit is vital for true co-operation. Those who are dependant on direction from above are unable to participate in fruitful co-operation.

Nanette Whitbread from the Leicester college tied together a number of the themes of the morning session. She agreed with the need for a fundamental change in teacher attitudes. From the colleges this required a process of de-indoctrination of students who were themselves still mostly the products of grammar schools. She referred to the need for teachers in comprehensive schools to be equipped to teach over the whole age and ability range; to teach their pupils to learn to think; to instil a co-operative rather than a competitive spirit. They needed to extend their own interests beyond their main subject, and to develop a positive attitude to comprehensive schools and non-streaming.

In all this there was much common ground between successful progressive ideas in primary education and the new demands of the secondary schools. The irrelevance of the binary concept of teacher training must lead to an acceptance of wider areas of interest and competence on the part of the teacher if children are to be given the choices they need. The teachers themselves must develop their own personal rationale with their own aims and objectives well beyond their main subject area.

In summing up the conference at the end of the afternoon, Brian Simon of the Leicester department referred to the inevitable development of comprehensive schools and the need in this transitional period to bear in mind the problems presented by inadequate finance and buildings and unprepared teacher attitudes. Hilde Himmelweit had shown that streaming in the secondary school was wasteful, immoral and a failure. The new schools would require differently trained teachers, with an autonomous approach and with a new philosophy and with new attitudes. In attempting to achieve this the relationship between college-based and school-based tutors must be worked out. In the schools, more teacher participation was essential, particularly because eventually the current period of rapid change might come to an end.

If this happened it would be necessary to avoid a period of ossification. It may be that only the schools themselves, conducting their own research and evaluation, could prevent this. Finally if, as had been several times suggested, non-streaming was fundamentally a question of changed teacher attitudes, it remained true that teachers needed help in making this change.

This is inevitably a sketchy report of a lively and provocative conference. Those interested in studying a full transcript of the proceedings may obtain one at a cost of 12s 6d from the Comprehensive Schools Committee, 123 Portland Road, London, W11.

Sheffield's Comprehensive Reorganisation

Caroline Benn

The information officer of the Comprehensive Schools Committee is a regular contributor to **Forum** with her reports on progress towards comprehensive reorganisation under various LEAs.

In 1969 one of the TV companies asked for the name of a local authority going comprehensive that September. It wanted to do a programme about what was involved in reorganisation. I suggested Sheffield, as did many others, and the TV cameras went to Sheffield and made their film.

It was never screened. The reason was not given but it was widely suspected that since the programme had turned up no protest parties, no furious selective schools, and no incredible muddle, it was not worth screening. This tells us about the mass media's real interest in education, but it also tells us a lot about Sheffield's reorganisation. To those who care about comprehensive reform it is exciting and encouraging that Sheffield is making the change with so little fuss, another example of an authority where practically all schools have been reorganised over a reasonable period of time with the resources that have been available.

What has enabled it to do this is first and foremost a firm commitment to do so. In this they have been lucky to have had relatively little political trouble. One party (Labour) has held control for decades, but it is also worth noting that for a single year recently the Conservatives were in control. The Conservatives thus had the choice of reversing the process, due for final changeover a year later, or going on. They decided not to disturb it and this has had the important and necessary result of committing all political parties to the reform.

It is true that a small local group of dissidents have objected to reorganisation, particularly of the King Edward VII grammar school, and that their latest plan is to found a new boys' fee-paying grammar school to balance the local GPDST school for girls which is not co-operating in reorganisation. What effect two fee paying schools would have upon reorganisation in the long run is still an open question.

Background

In 1958 Sheffield decided to change over a new secondary modern school in-the-building to a 12 form entry comprehensive. This was Myers Grove, the first comprehensive, which opened in 1964. Sheffield took the decision to go fully comprehensive in 1962.

But the move was to be slow – 'The new system must be designed to grow naturally out of the old', said the original Education Committee document on the Reorganisation. In Sheffield's case this meant thinking of how best to use existing schools, when and where to build new ones and lastly, whether to tackle all areas simultaneously or one by one.

In the event the Committee went at it area by area. The Northern region – with one of the largest areas of council housing in Europe – was reorganised first. It had only one selective school. The Eastern region, with two selective schools, came next, and last, the South-west, with all the remaining selectives, including King Edward VII. It also had the fastest growing population, the greatest middle class concentration, and much of the bad classroom overcrowding.

The Changeover

Some of the comprehensive schools are new. Others are old ones extended; still others are combinations of two former schools, including a few on two sites. But Sheffield's major problem is not combined or two site schools, although no one would ever deny these present their own problems. Nor is Sheffield's problem really the change of secondary transfer age from 11 to 12, which it is now undergoing along with reorganisation. Not that some of the ex-grammar school staff in the new comprehensives have not got misgivings about this and feel pupils will 'lose' a grammar year by staying in primary schools until 12. A lot therefore depends on the use made of this 'extra year', and whether these same secondary school teachers are willing to accept some of the changes that are pushing up from primary schools in this country.

G M A Harrison, Sheffield's Chief Officer, says of the change to a 12-plus transfer:

> 'Our main problem at present is how to run parallel systems of primary education in which some children transfer at 7 and 11 and others at 8 and 12. Each of our secondary schools is likely to go through a short transitional period when it receives some children at 11 and others at 12. The incidental and perhaps major advantage is that co-ordination between secondary schools and their contributory primary schools is essential. Certainly one of the main advantages of changing the age of transfer is that both primary and secondary schools have undertaken a great deal of rethinking of their objectives and methods.'

This is yet again an example of the way in which reorganisation encourages rethinking in both primary and secondary schools, and it means that transfer

between the two will inevitably develop along feeder school lines. The Chief Officer again:

> 'Children will normally go to their local primary schools and . . . each primary school will feed a named secondary.'

In Sheffield then there is no need for zoning, for the neighbourhood nature of education is fixed at primary entry. There is then a continuous educational experience envisaged from 5 to 16 or 18.

Parental Choice

As in all authorities parental choice is also allowed. The form sent to parents in 1970 tells parents that a place has been reserved for their child at the appropriate upper school, and that this is theirs to take up. If the parents want another school, a second form is included upon which they may make a choice. A special committee of the Education Committee considers appeals and makes a great effort to see that parents are accommodated. Half of the applications are said to be granted by the authority immediately.

So far so good on parental choice, but it is not without interest that it arouses some disquiet. The local NUT, for example, wanted choice limited to school groups rather than to individual schools, a suggestion the Education Committee turned down. But since certain schools are oversubscribed and others not, there are still those who fear that too freely allowed choice may undermine the new reform. The case for restricting choice has not yet been proven, but it may well have to be watched in the long term.

While on the subject of choice, however, it is worth noting that one of the choices many would assume education committees are bound to make available to parents – between single sex and mixed schools – has not been offered. All schools are mixed. And there has been very little objection. Sheffield is the first of Britain's major cities to go mixed at secondary stage.

Although teacher organisations are suspicious of too much parental choice – with very good reasons – it is interesting that some head teachers favour it as a way of encouraging schools to experiment in different methods of running schools. They feel parents should be able to opt for a certain style of education. It is very hard to say how far 'competition' on these lines would help or harm the developing system, but it is certainly true that many of Sheffield's comprehensives are developing on different lines. A few, like Chaucer, and the new Earl Marshall are pioneering non-streaming and a generally more open, more experimental approach.

Others, like Myers Grove, have the reputation for traditional, though none the less exciting, success. Its head, W S Hill, put the contrasts as follows:

> 'There is no consensus of what constitutes a good comprehensive school, and the Tory monolithic myth is a nonsense. Comprehensive schools are far more individualistic than grammar schools and herein lies their real problems. Schools vary from the paternal to the fraternal; from streaming to non-streaming; from the pursuit of excellence to the pursuit of social engineering. Sheffield is no exception. Ethos varies from school to school, as does the method of internal organisation of the schools. This makes an exciting educational scene, but at some point the mortar will begin to set, and discerning parents will demand the school of their choice, which may cut across the neighbourhood principle. In the meantime, however, some form of consensus of what we mean by a "good" comprehensive school may emerge. Perhaps it is not surprising that there is little sign of this in Sheffield at the present time. It may get around the raising of the standard of secondary education and the closing of the quality gap between the grammar and the secondary modern schools.'

Anthony Bullivant, head of Earl Marshall, also agrees about choice:

> 'I would be inclined to give a considerable degree of choice to parents, and to accept certain educational reasons, eg, an option for non-streamed school, or one which is doing Modern Maths. Of course, this entails schools and the LEA being prepared to give parents *real* information about individual schools.'

Anthony Bullivant is one of those who wants the unstreaming issue brought more into discussion. Only three of the 31 comprehensives are as yet unstreaming, with two more partially. But making unstreaming a matter of 'choice', as others point out, is to assume streaming should always be retained in some schools, and this, they feel, could delay its spread.

Problems

So far we have talked of reorganisation as if Sheffield had few problems of any kind. But this would be overdoing it.

The first problem is money. To complete re-sitings and mergers of schools, to provide additions, and in particular to bring the ex-secondary modern schools up

to scratch. To make up, as one head put it, 'for a century of deprivation' in non-selective schools.

Closely connected to this is Sheffield's biggest long term reorganisation problem: some of its comprehensives have sixth forms, while most do not. Some too are good sized comprehensives, while others (most, though not all the ones without sixth forms) are on the small side. At the moment only 13 out of 31 have sixth forms. They are arranged so that three or four schools form one 'group', one of which has the sixth form for the group. Generally the ex-grammar schools have the sixth forms, the ex-moderns run only to 16.

Everyone in Sheffield is aware of the problem. The Chief Officer told me:

> 'There is no question that the schools with the sixth forms still have greater prestige than those without . . . the other schools will need time to demonstrate their quality.'

There are those in Sheffield, such as Sheffield's Teachers' Association, who wanted all schools to have sixth forms. On the other hand, there are even a small number who want all sixth form work to take place in colleges. At the moment, too, the whole question is being looked at by a working party studying the problem of co-operation between schools and FE colleges. The exact pattern of the future is therefore still developing.

Tackling the Problem

Meanwhile, what Sheffield is doing about this problem is very important. The 18 schools without sixth forms have had a great deal of 'positive discrimination'. For example, all have been given a minimum group 8 status, although some would not qualify for this. At the same time the Education Committee has accepted a new and very generous structure for heads of Departments.

None the less, many feel that the amount of such discrimination that a sympathetic authority is able to give is limited, for as one teacher put it, 'The real bugbear is Burnham.' The vast differential between the oldest ages and the primary creates a real problem for the smaller secondary school. There are too many groups, too many steps. In one of the smaller schools one head put it thus:

> 'I was formerly at a school with 1,000 pupils and we were group 11 with 43 graded posts points. Now I am at a school of 700 and only 13 points. Were it not for the Sheffield authority's generosity over Department heads, we should be nowhere. As it is, our Head of Maths has a grade C allowance, while heads of Maths in larger schools with sixth forms can get a grade E. And I am sure our chap has the worst headaches.'

This confirms what many feel is now urgently required nationally: guidance on parity of provision for each age range in each school, regardless of type of school, and a complete overhaul of the points and grades system.

Meanwhile, Sheffield faces a test: can the 12-16 school provide the same opportunities for the 12-16 year group as the 12-18 school can for its 12-16's? Schools within the 'groups' are co-operating together to try to see if this is possible, but so far it is impossible to say with what success. Can the 12-16 school get the intake, the staff, the parental support, the variety of subjects? Can they be as individual as the long course schools? The great importance of Sheffield's reorganisation in coping with the problem of two types of comprehensive – unlike so many other areas with two types and little pretence that it is the old system in a new name – is that Sheffield genuinely intends to see that all its schools are equally comprehensive. Should they be able to achieve this, their experience will be of the very greatest value for the rest of the country.

RC Schools

There is another way as well in which Sheffield's experience might be instructive: in the Roman Catholic sector. Roman Catholic schools are very often forgotten when one talks of reorganisation. In Sheffield the situation is typical of this sector where so many of the selective schools are not maintained, but direct grant. Sheffield had no maintained RC grammar schools, but three secondary moderns, all of which are now developing as comprehensive to 16. But its two direct grant schools are not comprehensive, so that selection continues for Sheffield's Roman Catholic pupils – although at 13 now rather than at 11. Talks are going on and many hope that the direct grant schools can reorganise as Sheffield's other grammar schools have done so that the same educational opportunity will be available to Roman Catholic children as to those in maintained schools.

The possibility is also being discussed of establishing a Church of England Secondary Comprehensive. I tried my best to understand why this is thought neces-

Mathematics with Mixed Ability Groups

Anthony Bailey
Mr P A Bailey teaches mathematics at Sir Leo Schultz High School in Hull. He has recently been involved in the writing and presentation of maths programmes for the local schools closed-circuit television.

Content and Approach

Before the changeover from setted groups to mixed ability groups in the first year the teachers involved were already familiar with the more 'modern' approach to mathematics. Consequently a first year 'modern' syllabus was drawn up and discussed, with a view to topic rather than linear approach. The basis of mixed ability teaching is individual learning, and topics are more open ended and independent, thus letting the child investigate, and work to his own capabilities. As far as possible all the mathematics was taught through the language of Sets, and at the end of the year the pupils were familiar with intersection, union, empty set, complement of a set and universal set. Some other topics introduced were:

Groups—Idea of Inverse, Identity, Concept of Closure, Commutative Law, Associative Law.
Computers—Punched Cards, Flow Charts.
Number—Various number systems (Binary, Ternary, Quinary, Duodecimal Systems).
Symmetry—Axial and Rotational Symmetry, and the relations between each.
Statistics—Pie Charts, Bar Graphs, Pictograms.

We managed to cover all the topics with a few exceptions, and during that academic year a draft syllabus for Year Two was drawn up and discussed. Some of the topics now being taught are:

Number—Farey Series.
Mapping—Idea of a mapping, one to one, one to many, etc. The concept of a function. Domain and range.
Matrices—An array of numbers (shopping lists, bus timetables). Addition and subtraction of matrices, multiplication by a scalar, the Identity Matrix, the Inverse of a Matrix, Matrix Multiplication.
Topology—The Idea of a Closed Curve, Jordan's Theorem, The Königsberg Bridge Problem and Eulers Theorem, The Möbius Strip, Map Colouring.

As our basis for mixed ability teaching is individual learning, we adopted a worksheet approach, whereas Brian Clayton at Settle High School chose Class Teaching for his first lessons in mixed ability mathematics. To produce worksheets is a joint effort because each one has to be prepared and the questions carefully graded. A worksheet has an introduction (teaching notes), and the questions then range from the easy to the more open ended. Here is the introduction to Closure that we adopted:

Sheffield's reorganisation (continued)

sary – since there is no urgent need for a new school and many of the existing ones are very much in need of all available funds, including the new one planned for the Wybourn Estate – but I did not get an answer from anyone on the point.

Official 'Servants'

Lastly, one word about the powers behind the throne. It is supposed to be 'not done' to mention permanent officials, either local or national. They are meant to be 'servants' of the people, only doing what their elected committees or ministers direct. But everyone knows this is sometimes mere polite form. Privately, it is known exactly which education officers in various authorities are personally opposed to reorganisation and argue against it. Privately, too, it is known which ones take little interest in the subject. But it is also known that wherever reorganisation is succeeding there is usually an officer who not only has taken an interest but who has worked overtime to smooth the way, to see to it that consultations with all interested parties have taken place, and who has balanced the conflicting claims of all interests in a way to satisfy nearly all, and disappoint hardly anyone. Sheffield's officers, particularly its present Chief Officer, must bear as much of the credit for Sheffield's success to date as its excellent education committee.

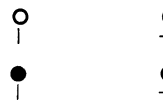
In the months that lie ahead – with a government barely concealing its hostility to fully comprehensive systems in our great cities – it is now doubly important that towns like Sheffield should continue to succeed in their reorganisation. More is therefore on Sheffield's shoulders now than ever before.

We are going to look at a property called *CLOSURE*, which as we shall see means that we do not get anything that we don't already have.

This may sound complicated, but you will see what it means later.

(1) *The Schultz One Step*

You will need 4 people from your class to do this, 2 boys, 2 girls.



INITIAL POSITION

(a) Stand as shown in the diagram above. When the teacher claps his/her hands, move to this new position by changing horizontally.

PROCESS A
(change **horizontally**)

(b) Go back to the ORIGINAL POSITION, and when the teacher claps his/her hands, move back to this position by changing vertically.

PROCESS B
(change **vertically**)

(c) Go back to the ORIGINAL POSITION again and when the signal is given to move, move to this position by changing diagonally.

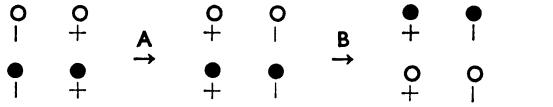
PROCESS C
(change **diagonally**)

(d) Go back to the ORIGINAL POSITION, and when the teacher claps, **don't move.** This is called *PROCESS 1.*

PROCESS 1
(remain in the **original position**)

So we have FOUR PROCESSES, A, B, C, 1.

QUESTION: What happens when *PROCESS A* is followed by *PROCESS B*?



You can see that we have achieved the same result as *PROCESS C*; in other words, A followed by B is C.

We write this: A f B C.

'f' means 'followed by'

QUESTION: What is A f A?
What is A f C? etc.

When you have investigated further, you should be able to complete the following table.

f	I	A	B	C
I				
A			C	
B				
C				

QUESTION: Do you notice any pattern in the table? (Hint: try shading A, B, C, 1 in different colours.)

QUESTION: Are there any squares in the table that cannot be filled in with any of A, B, C, 1? If not, this means we do not get any different positions in the table other than those we originally defined, ie (A, B, C, 1). This property is called *CLOSURE.*

Has your table got *CLOSURE*?

To spread the load we take it in turns to write a worksheet or series of worksheets. The person who volunteers to write a worksheet on any particular topic is usually interested in that topic and the interest is reflected in the worksheet. So the child receives from his teacher a self-explanatory worksheet which he keeps in his folder. This method of producing work releases a kaleidoscope of approaches from the maths team, much more so than would be possible with an expensive textbook, and certainly more interesting.

Classroom and Resources

So the worksheet is the basis for lessons, a normal lesson being an introduction and demonstration followed by individual work which may be extended over another 2 or 3 lessons. Of course the introduction pre-

ceding the written work is of the utmost importance, the concept having to be explained as precisely as possible. One way of improving introductions is by using a cassette tape recorder.

When a child has finished all the written work he is sent to the Resources Centre or the Maths Room, where a member of the maths department is timetabled. There he is given follow-up work in the form of workcards.

The teacher is at liberty to abandon the worksheet if he wishes, or he can supplement it with his own: the method of teaching is kept as flexible as possible. Team teaching was also introduced in the first year. Two classes were put together in a house block dining hall where one of the **Maths Today** film loops was used as an introduction. A follow up worksheet was prepared from the **Maths Today: Pupils Package** workcards.

Team teaching has been continued with second year classes using the TV programme 'Maths Today Year 2'. We watch it one week and the next week follow up with work relevant to our course using worksheets compiled from the Pupils Package. As there are two teachers introductions can be refined and teaching improved by watching and working with somebody else, provided that personality is taken into account when choosing somebody to work with. These film loops can also be used with single classes and there are facilities for doing this in the Resources Centre – a loop projector and a white wall.

By taking a class into the Maths Room one can instigate class activities. When we did a worksheet on fractions this was preceded by work using Cuisenaire Rods. Films can be shown here and made as suggested in the **A T M Supplement** 'Films and Film Making in Mathematics'.

So the work involved is not just slogging through worksheets but is much more flexible than that. The worksheet gives a central thread to the mathematical tapestry of work and activities.

What resources are needed for this type of mixed ability teaching? Among the most important I would put a Banda Machine and a plentiful supply of stencils to prepare sets of questions tailormade for your own particular approach. The secret in preparing worksheets is always to be prepared to tear them up and start afresh if they are not successful. There must be easy access to a television, and there must be a room large enough to take more than one class to see film loops and films. Particularly useful films and film loops are:

(1) Film Loops: **Pascals Triangle, Base Ten and a Problem in Base Six, Family Relations, The Right Connections** (Gateway Educational).
(2) Films: Interesting films for first and second years: (National Film Board of Canada) **Notes on a Triangle, Dance Squared, Boogie Doodle, Blinkety Blank, Hoppity Hop;** (IBM, UK Ltd) **Mathematical Peepshow, Donald Duck in Mathmagic Land.**

There is also a film for teachers about mixed ability and team teaching entitled **Into Secondary School** (Petroleum Films Bureau). A full list of mathematical films and filmstrips is given in the **A T M Supplement** of that name.

The Maths Room or Resources Centre contains the usual equipment and there is a small library of maths books for reference by both pupils and teachers. One series of books I have found particularly useful with first and second year groups is the **Making Mathematics** series by Paling, Banwell and Saunders.

In the maths room there is also a supply of workcards to help weaker pupils and extend the brighter ones. We started off with about thirty cards and have slowly built them up. Of course there must be a plentiful supply of scissors, felt pens, sellotape, paste and card. The most efficient way of actually producing cards is cutting up books or cards, selecting the questions you want and pasting them on card.

Problems

Everything in the garden may seem rosy but there are problems.
(1) All the children are working at different levels so marking is a problem. A certain amount of classroom organisation is needed here.
(2) Homework is the biggest administrative problem, because again the children are at different stages. So far as I can tell there are three solutions: a supplementary sheet, an activity, or marking each individual worksheet to show a child where he has 'to get up to'. The last method is the most tiresome but requires the least preparation.
(3) The hoary old chestnut is that mixed ability teaching holds back the brighter child. A maths room with additional workcards where the bright child can meet more abstract situations minimises this problem.

However the problems of mixed ability mathematics teaching are overwhelmed by its social and educational advantages, together with the excitement of this type of flexible teaching with keen staff and children willing to learn.

Modern Languages Unstreamed

Elizabeth Halsall

Dr Halsall taught for many years in grammar and comprehensive schools. As Leon Fellow of London University she undertook research into the teaching of modern languages abroad, and is now on the staff of the University of Hull Institute of Education.

Amongst hitherto purely academic subjects which began to be taught, often on egalitarian grounds, to children of all levels of ability in the comprehensive school, were modern languages, especially French, and the practice gradually became fairly commonplace in the early 1960s, the chief limiting factor being the shortage of suitably equipped staff. Modern language teachers hence learnt, in a streamed situation, how to modify their syllabuses to suit the capacities of less able children and they often discovered[1] that less able children, for their level of IQ, sometimes have more aural capacity than the more visually-orientated children of high IQ. The former, with a poorer reading capacity, are inevitably obliged to learn through their ears.

Now we are coming face to face with a new problem, due to the accumulating evidence on the effects of streaming. The International Evaluation of Achievement Study showed that countries streaming classes and promoting by age had the widest range of scores and that whilst the more able children do as well in a non-streamed situation as in a streamed, the less able do better. Countries operating a non-streamed system were doing so in the context of grade promotion, a child being promoted only when he reached the required standard, not the required age, a system with incentives for both teachers and pupils. More recently, an NFER study has shown that teachers' attitudes to straight streaming and non-streaming as we understand the terms are important factors in children's subsequent attainments in either of these situations.

Some international evidence already existed as to the effect of teachers' and childrens' attitudes and motivation with regard to modern languages, in a comparative investigation of attainments in French and motivation for French carried out by the writer in Holland, England and the Flemish-speaking parts of Belgium. English children in secondary modern schools came out with markedly inferior attainment results (as much as 20-25 marks on tests with a total range of 40-45 marks) compared with Dutch and Flemish children of equivalent IQ in spite of approximately the same amount of teaching by teachers mainly equally well qualified, a result not parallelled in the comparison of children in academic schools. There appeared to be three possible reasons for this result. It could be that the failure of English secondary modern school children to pass the 11-plus made teachers feel that they were less capable of attainment in French than they really were and that they therefore stretched them less than would be the case with Dutch and Flemish teachers, who often had to prepare children of these ranges of IQ (100-115) for clerks' jobs requiring a working knowledge of three languages. (Belgium and Holland have to conduct their export trade in other people's languages in order to survive.) Certainly in discussion with the teachers one was aware of differences of attitude between the three national groups as to what these children could learn. It could also be that the English children felt more rejected by their 11-plus failure than did their Dutch and Flemish equivalents, who had had to pass an exam – less severe it is true, than that for entry to the academic school – in order to qualify for the advanced primary school. A third possible reason, the Dutch and Flemish children themselves must also have been aware of their need to acquire a language qualification, in spite of the Dutch children's unexpectedly poor motivation results – no better than that of the English children, whose teachers made more efforts to vary the work and maintain interest, whereas the Dutch teachers did not. Up to now English children have not really needed a language qualification, but entry into the Common Market must change this position. It seems likely therefore that the English child's motivation, particularly that of the non-academic, will improve in the future and that for all the above reasons the standards of the non-academic child can be made to improve, especially as, with the raising of the school-leaving age, more of them will have the concrete practical aim of passing an examination.

Changes in modern language teaching and its aims may provide another starting-point for considering the two problems of the non-academic child and the unstreamed classroom. Views as to the aims of language teaching have moved from emphasis on the reading or the translation aim to emphasis on the oral aim. The four fundamental practical skills identified by the Unesco International Seminar on Modern Languages of 1953 were oral understanding, speaking, reading and writing – in that order. This order corresponds with the order in which children learn their mother tongue; it is in line with the increasing emphasis on the oral and non-bookish aspects of language and experience, as more and more people use radio and TV as their day-to-day sources of information; it responds to the improvements in transport and the resultant need for oral

rather than written communication between speakers of different languages.

During the same period increasing evidence has been building up on the question of the best method for teaching a modern language. The results of the research done seem to imply that a child learns what he is taught, that if he is taught to translate he learns to translate, if he is taught to speak he learns to speak, a result that would appear not unexpected until one recalls the years of furious controversy as to which method was best – the great non-question of the century for modern language teachers.

If the oral aim is to be emphasised, then the oral method of teaching must be emphasised. Yet it is precisely this aspect of modern language learning which the least able child finds it easiest to cope with. If less able children are to learn modern languages they can do so under no more favourable conditions than at a time when the main emphasis, especially in the early years of the course is increasingly on the oral aim of the subject. But can they learn a language, and can their brighter fellows learn it, in an unstreamed situation?

Evidence about the possibility of teaching modern languages in the unstreamed situation is available from various sources.

A study of the teaching of English to mixed ability classes in the USSR[2] shows that satisfactory results are achieved by the restriction of the amount of language to be learnt, whether vocabulary or structures, stress on drill and revision, extensive use of reproductive exercises, great stress on oral fluency and the consequent establishment of firm and confident habits within these limits. Interest is maintained by variety in the type of classwork. Any one lesson may contain within it, for example, a story told by the teacher, questions asked by the teacher or pupils, recapitulation of the story bit by bit by successive pupils and finally complete recapitulation by one pupil. Most pupils in the normal General Education School achieve fluency relative to their level of ability fairly early and by the ninth grade can speak the foreign language confidently, converse in English fairly easily and show great ease in their handling of vocabulary and structures.

The NFER interim report[3] on the teaching of French in primary schools, often in unstreamed classes, recorded encouraging oral achievements by children of low general ability, and high standards attained in small unstreamed rural schools.

Relevant to both the issue of non-streaming and that of modern languages for the less able child is a teaching situation to be found in the Flemish parts of Belgium. Many secondary schools have for many years taught in the same classroom town children who have already had two or three years' teaching of French in the primary school and children from the depths of the countryside who have been taught no French, for lack of qualified teachers, and who have heard little or no French outside school. Teachers coped with this situation, in the days before language laboratories or other audio-visual aids, by a method relevant to the problems of the unstreamed school.

The method used was as follows: The teacher began a story, giving two or three sentences of it, miming at the same time and explaining any new words or difficulties in the sentences. Books were, of course, shut at this stage. A question was then asked on some aspect of the first sentence and a child who had already learnt some French and had therefore a good chance of giving the correct answer was asked to answer it. When the correct answer was given the whole class repeated it. A less able child (IQs in the class varied by about 40-50 points) or one who had learnt no French was then given the opportunity to repeat the answer. Another question on the same sentence was then asked and the procedure repeated, with variations as might prove necessary, for example, to check comprehension.

The questions themselves were taken in an order which promoted automatically correct answering. For example, if one of the initial sentences had been 'A six heures Marie trouve une bicyclette dans la rue' the question order would be as follows:—

Qui trouve une bicyclette (dans la rue)?
Qu'est-ce qu'elle trouve?
Elle ne trouve pas la bicyclette dans le magasin, n'est-ce pas?
Elle ne la trouve pas.
Est-ce qu'elle trouve la bicyclette dans le jardin?
la trouve. à la gare?
(To give opportunity for negative answers and the use of other adverbial phrases.)
Où est-ce qu'elle la trouve?
A quelle heure est-ce qu'elle la trouve?
Qu'est-ce que Marie fait?

Not all of the above questions would necessarily be asked, but the above general order of questions was retained as promoting the greatest comprehension and the fewest errors, since the material for the answer to the current question was to be found either in the question itself or in the immediately previous answer.

Mixed Ability Science

John Darke
After teaching for five years in a grammar school, Mr Darke moved to Settle High School, a small rural comprehensive, where he has been teaching for seven years.

Mixed ability teaching presents problems for any teacher who has been used only to dealing with rigidly streamed classes. Although the problems are considerable they are by no means insurmountable. In the last five years these basic methods have been used at Settle High School.

(1) Teacher directed: the whole class follows the same course and does the same topics simultaneously.
(2) Pupil directed: free choice with teacher direction being limited to two instructions only (of which more later).
(3) Teacher directed area of study: children free to choose within this area.
(4) Teacher directed: work sheets provided but children free to follow up any side-issue which arises.

The main objective is that children learn how to observe and experiment. More particularly how to

(a) ask an appropriate question so as to have a limited and attainable aim;
(b) use a suitable method;
(c) record results;
(d) use these results and evaluate any answer which might have been gained.

In order to get anywhere near these objectives children must become acquainted with a laboratory and how to use it; become familiar with various types

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Modern languages unstreamed (continued)

Reading of the actual script took place only when the sounds and structures were well learned.

This 'programmed learning' type of approach along with the repetitions gave opportunity to everyone to say something and to say it correctly, gave the teacher the possibility to check pronunciation easily and gave the ablest children the chance to overlearn a structure to the point where it became really automatic. It took cognisance of the need to provide conditioned learning for those children for whom conceptual learning is least possible and of the fact that language learning is largely a conditioning process, even for the most able. Although the teaching was to the whole class there was within the method real elements of individualised instruction. Along with readers of varying standard and graded written exercises, some only for the most gifted, based on the oral questions, it could provide the possibility of all-round advance for children of varying levels of ability and attainment within the same class.

In this country Dr F D Rushworth[4] has pointed out that the arrangement of fourth year options in the comprehensive school inevitably results in some classes of widely varying ability. As he indicates, oral practice can be a class activity fruitful for all for much longer than is usually thought if methods he used, similar to the method described above, are followed. Still, as he says, at some point pupils in mixed ability classes must be given the chance to work individually. This work should take the form of consolidating old speech patterns with new, or almost new, material. Programmed work is usable here, necessitating at least a tape recorder and preferably a language laboratory. 'With well-made self-correcting drills a vast amount of practice of speech patterns can be carried out even in the one period usually available weekly in the language lab. After the early stages there is a place for written programmes, except for remedial pupils, and these may need to be written by the staff to fit the course in use.'

It would seem clear that when there is a language lab in every secondary school there will be a significant move in modern language classrooms, with greater use of programmed instruction and large-scale decentralisation of the languages laboratory, towards emphasis on learning by the pupil rather than teaching by the teacher. In this situation teaching a modern language to a mixed ability group for at least some time is certainly feasible. Meanwhile recent practice in some of the primary and secondary schools in this country and long experience in certain other countries give guidance as to the way in which teaching modern languages to mixed ability groups in secondary schools may be approached.

1 Impressions supported by the interim report on the evaluation of the teaching of French in primary schools, which has shown by objective tests on a sample of 11,500 children that many below average children achieve competence in simple spoken French and that it is difficult to forecast, on the basis of a child's general ability, his capacity to speak a foreign language, at least in the early stages.
2 Foreign and Second Language Teaching in the USSR by E Glyn Lewis, HMI (English Teaching Information Centre. Occasional Paper No 1, 1962, pp 10-13).
3 **French from Eight: A National Experiment.** Clare Burstall (NFER Occasional Publication No 18, 1968).
4 'Modern Languages in the Comprehensive School', by F D Rushworth in **A New Look at Modern Language Teaching,** ed by G Richardson. (Aspects of Education No 6, 1967, pp 92-106.)

of apparatus with some idea of their limitations and possible dangers; most of all, enjoy themselves. I am *not* directly interested in their learning large numbers of facts: though such learning does take place on a considerable scale in concrete and accessible situations.

When introducing mixed ability work we took the opportunity to make other changes too. One teacher now had a first form for six periods each week: there were two twenty-minute homeworks per week, so one could get to know children well. The junior biology course lost its 'O' level orientation but physics and chemistry kept theirs. Each first form teacher had to attempt to reconcile different approaches. Furthermore, since 'O' level was in view with these junior classes there was ground to be covered, a vocabulary to be acquired and so on.

I tried to take all the necessary requirements and weld them into some sort of coherent course. The result was the first attempted method. Children grouped themselves according to two criteria:— (a) with people they had already known in primary school, and (b) with whomever they had been sitting in their first registration at the new school. I made no attempt to rearrange groups.

I stated the object of the lesson and gave a description of how to do it, writing a summary of the method on the board. (Instruction sheets would have been better.) Those who understood, or were in a group where somebody did, got on with it. Those who did not understand had further explanation and practical help. When people had got going I circulated, helping where necessary, asking awkward questions and chatting in general. I made frequent reference to what had been written for homework by individual group members, criticising, encouraging and suggesting.

The general atmosphere was very pleasant; relaxed, informal and with an air of purpose and interest. I made every attempt to discourage competition. There were no marks, grades, positions. Each child was constantly compared with what I took to be his better self. There was a genuine co-operation between slow and bright and a willingness to see others problems and try to help.

The major initial difficulty was of poor or non-writers. Later, mathematical difficulties increased, especially with decimals. It became clear that many children were out of their depth. They enjoyed the experiments eg playing with circuits and chemicals, but were lost when trying to use their results.

When it came to the third term with Form One I told the group they could do anything they liked about aquaria and was both surprised and pleased by the range of ideas and inventiveness shown. Some concentrated on a single organism – eg snails, others compared types of water or studied a range of organisms, successional changes, preference of larvae for different textures, effect of various factors like shade, noise, etc. Again I felt encouraged. More people were working more purposefully for more of the time. This led to an attempt to establish a second method with a succeeding first form.

I decided to lay down no formal course at all. In this way I hoped to avoid the problem of people working out of their depth or doing things which were of no interest to them. Children would be doing something because *they* had a good reason for it.

I refused to tell the first form what to do, with these exceptions; that it should be about water; that they should measure wherever possible. They were also shown how to use a bunsen burner. My real aim was to acquaint them with a laboratory and to introduce metric measurement so I was not particularly concerned about what experiments they did. This led to some peculiar situations. There was a first month of bewilderment with children sometimes virtually pleading with me to tell them what to do; children acting with something akin to despair. 'I can't think of anything to do about water'. But a pattern of work began to emerge which was encouraging. Increasingly the impulse came from them. They began using me more as a consultant than a repository of information and instructions. More or less successfully they began to find out about boiling point, solution, orange juice, water and detergents, etc. The most popular starting point was boiling. They also incidentally learned to measure in millilitres, millimetres and grams, how to use apparatus, etc.

Having used this approach for the first term we continued with a study of the river which forms part of the school boundary. We had a sort of conference where groups discussed what might be done. Their ideas were assembled as a blackboard summary and then people chose from this what they wanted. It varied from bridges or rocks in the river bed to animals in the river and the effects of man. Later on this work spilled over into co-operation with one of the English staff and a collection of stories and poems about the river.

My job had now changed considerably. I now had to recognise those aspects of their work which were of scientific value and to emphasise them, at the same

time playing down less valuable approaches, and to encourage, persuade, nag or demand as appropriate.

These children have an interest and intensity about science which none of my previous classes ever had. Their productivity in ideas and work done is unusually large. Visitors can come, I can leave the class or let them go out on to the school field and be reasonably sure that they will continue to work. They go out on three very clear conditions: That they have a precise job to do; that they do not dawdle; that they disturb no one. They sometimes let themselves down and then I have to keep them inside the laboratory for a while (a useful sanction to have available).

I tried a rather more restricted approach with a second form by devising a scheme of work based on the school field. I told them we would study plant distribution and structure, and then instructed them in ecological recording techniques – line and belt transects, frequency analysis. We investigated leaf structure, variation and pattern of growth. Then they were free to find out about any aspect of leaves which interested them using either the acquired techniques or some other method of their own design.

In every instance where a group is working on its own its members must be explicit in what it is they are trying to find out and how they propose to do it. They write a programme of their intended enquiry. We discuss this, sometimes altering it as a result, especially if it will lead to copying out of books rather than experimenting (for example wanting to find out about pets or other mammals to which there is no access in school time); or in which there are hidden difficulties. On the other hand I do not necessarily stop people from doing things which I can see will end abortively provided they learn from the experience to think thoroughly about an experiment beforehand to save time and temper. Sometimes I make suggestions about an enquiry or a technique which they would not otherwise get to know about, eg, using anhydrous cobalt chloride as a test for water. They are not required to find out *everything* about science for themselves. One has to evaluate each situation as it arises, taking full account of the people involved and use the drive from their interests to give access to new ideas and information.

There is a genuine discussion with all parties supplying ideas and comments. One of the good things is the new possibilities which arise, eg an 'ideas bank'. Many questions arise but become forgotten during an enquiry. These are written down in the back of their notebook so that there is something to do when they have 'run out of steam.'

The final method involves using prepared work sheets, These have been written together with a colleague (Gordon Hughes) to supply a basic course consisting of six topics which are 'Sand', 'Myself', 'Water', 'Life in water', 'Burning' and 'Energy'. The children choose a topic for which there is a work sheet. They usually work in groups and gradually follow each set of instructions. Having completed one topic they go to the other teacher and alternate between them until all six topics have been completed. In using this method we tried to prevent people from feeling helpless due to a lack of ideas, especially earlier on, and to give access to specialists yet to keep the science general. Gordon Hughes supplies physics and chemistry and I supply biology and geology. We hoped that children would use the sheets as starting points and go on to develop their own ideas but they have begun to rely heavily on the instructions and not enough on themselves. 'Please sir, I've finished this bit, what shall I do next ?' They no longer feel that the initiative is with them. We are considering doing away with these sheets altogether.

Of these methods my own preference is for very free choice. This seems to allow children to maintain their own drive and interest and to learn most. The danger lies in groups which are too small, so that one becomes a fetcher and carrier of materials and apparatus rather than a teacher. A group of three or four is best. One must also have very clear objectives to avoid aimlessness or confusion, and to maintain a feeling of coherence.

There is a price to pay. The work is much more tiring than formal class teaching because there is always another group who need, and demand, complete attention and interest from the teacher just as the previous groups did. It is difficult to prepare for each lesson since each group within the class requires separate treatment, so one has to be living constantly on one's wits. Homework which they set themselves has to be marked each week to enable a thread to be maintained in each group's work. Children sometimes have to wait for attention which can lead to restlessness. They sometimes become bogged down in a mass of problems.

It is interesting that we have reached a method of working very similar to that of many primary schools, not from copying them but from a natural series of developments. The biggest compliment to this method is that I actually enjoy marking their work which has a liveliness and basic interest that is really satisfying.

Discussion

Personal relationships

May I make a few comments on the one-day conference of 6 June?

First, I found it well organised, most enjoyable, and stimulating. Secondly, I thought there were too many prepared speeches, and contributions. Professor Himmelweit would have been enough alone, and the other two speakers could have been available to answer questions. Thirdly, the title proved, partially at least, misleading.

But I should like also to comment more generally. The background against which I do so is that of fifteen years' teaching experience in many kinds of schools and institutions, chiefly here but also in a Canadian school, four years' administrative experience in the Foreign Office, a first-class honours degree in Modern Greats at Oxford and as the mother of a 17-year-old daughter, who has been at the receiving end of many ill- and well-thought-out educational ideas.

First, my experience has led me very strongly to believe as much in continuity and stability in education as in change; and I am not at all sure that we are not currently getting too much of the latter and too little of the former. Certainly change is needed, but gradual, evaluated and assimilable change; not wholesale, insufficiently evaluated (if at all) and unassimilable.

Secondly, although I am personally in favour of comprehensive schools, it seems to me that there is considerable danger of comprehensiveness and unstreaming being accepted as desirable goals as uncritically as in the past the tripartite system of schooling and streaming were. I do not myself believe that we have found a final solution to our educational problems in the currently fashionable forms of organisation and methods of teaching. The latter are important, but an undue preoccupation with them and the tendency to follow current fashions uncritically, obscures what seems to me to be of far greater over-riding importance, namely the relationship of teacher and children as persons, the manner in which they go about their daily business in schools together, and how far everyone is treated as an individual worthy of respect in their own right. In my own experience these vitally important aspects of schools have often been very satisfactory under the least favourable external conditions and very unsatisfactory under the most favourable ones.

Thirdly, in my work at a College of Education I do not consider I have a duty to propound as gospel any *one* doctrine or philosophy of education, but to put before my students many different philosophies, to encourage them to think seriously and critically about them, and then to form their own tentative conclusions to be modified later in the light of their own experience. At the same time I hope to help them to understand and like children and so be able to help them to meet life with confidence and to learn both at school and later in as many different ways as possible.

May I say finally how much I appreciated the tolerance, interest and friendliness that was so striking a feature of the conference, and, in particular, the airing of so many differing viewpoints, especially those of young teachers?

MURIEL COLLIER,
Loughborough College of Education.

Skills too

At the Forum Conference we heard a great deal about the attitudes required from the teacher in a comprehensive school but the skills they require were largely taken for granted. This, no doubt, was the right emphasis for the conference, but we must not underestimate the importance of the skills required by the teacher nor the importance of explicitly stating that if we care to gain the confidence of the general public in our comprehensive schools.

It is no use a teacher having an exemplary attitude unless he also possesses the skills and techniques to control his pupils and to win their respect and thus be in a position to influence them by his attitudes. In a comprehensive school we need 'comprehensive teachers', that is people with the knowledge and the skill to be able to teach their subject over the whole range of age and ability covered by the school from the first form to the sixth.

The role of the school as the imparter of academic knowledge and the guardian of scholarship is still of great importance and many people are still waiting to be convinced of the ability of the comprehensive school to fulfil this role. Two years ago this school was a secondary modern school in a bilateral system under which 25 per cent of the pupils were selected for the grammar schools. Now we are an all-ability school and among our intake each September are included about 30 pupils who in previous years would have gone to the grammar school. The parents of these pupils are sympathetically inclined towards the comprehensive system, but they have a genuine and very proper concern as to whether we shall be able to extend their children academically as well as the former grammar schools would have been able to do. I firmly believe that in the freer atmosphere of an (unstreamed) comprehensive school the pupils will reach higher standards of academic performance than they would have done under the competitive pressure of the old bipartite system. The challenge we face over the next few years is to put this belief into practice and so win and deserve the confidence of the parents, but this will only be done by devoted teachers with the right attitude and the necessary skill to go with it.

R W ATTFIELD,
Barnwell School, Herts.

Beating staffroom cynics

Everybody knows that young teachers have trouble – ranging from mere anxiety to complete breakdown – in their first few years of teaching. Some leave, others adapt.

The loss, one suspects, even amongst the adapters is great. Under the strain, without sympathetic support, many will settle for survival – something less than teaching.

The implications of failure, messy, demoralising personal failure, are often too great to discuss within one's own school.

So we, a group of young teachers of English in Bristol, formed a group to help ourselves. We first met last summer, once a week for two months, and again from January at fortnightly intervals.

We intended to provide practical help and group support for each other from our own resources. We also invited experienced teachers to join us on several occasions.

Most of us, fresh from Departments or Colleges of Education, had met the cynical staffroom jeer: 'You'll soon get over those silly theories and get down to the real teaching.'

We helped each other over such practical operations as setting up a free drama situation; stimulating creative writing; speech work; group work; projects out of school; tape recording and film.

More importantly, we showed each other that these could be done – despite the sneers – and were worth doing.

We had succeeded, all of us, in one lesson here, part of a lesson there. We pooled our limited successes, working through the insights of the group to establish how these could help each member.

Relief from anxiety was the first benefit of pooling our failures. We discovered, for instance, that everyone else in the group, except the drama specialists, had stopped teaching regular free drama lessons.

With our limited training, in crowded, thin-walled classrooms, week in and week out, our ideas and nerves ran short.

We all felt guilty about this shortcoming, especially since drama was so much praised in all current educational theory: more praised than performed, it seemed.

So we worked out ways in which drama was feasible in our classrooms and we also established what part it should fill within the whole curriculum.

The group was set up under the auspices of BATE (Bristol Association for the Teaching of English) though not all members were BATE members. We met at the newly-established Teachers' Centre where, with the financial help of the Bristol Inspectorate, we started a library of reference books for teachers of English.

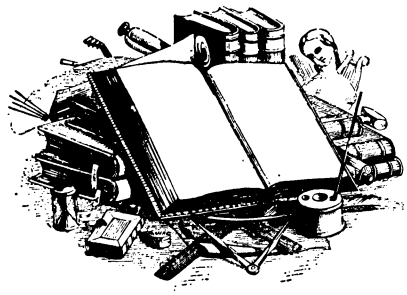
The groups have been small – from four to twelve members. The first group – last summer – was convened by sending circulars to Heads of English at every Bristol school. In January we sent circulars to Headmasters and individually to teachers whose names we had got from Departments and Colleges.

Most of those attending the group appear to have gained something: one suspects that there are others for whom this sort of in-service training might be even more useful.

Not much is known about the progress of teachers once they have been trained. It seems likely that a great deal of personal misery and educational reaction is built up for the lack of suitable help in the first few years.

We have found that the best people to help young teachers are other young teachers.

JOHN LLOYD,
Bristol.



New Books

Our book reviews in this issue consider recent evidence of comprehensive reorganisation and what goes on in comprehensive schools.
The editors would also like to draw attention to the following new case studies:

Becoming Comprehensive,
edited by E Halsall. Pergamon (1970), 286 pp, 45s hard, 30s flexi-cover.
This looks at fourteen schools.

Going Comprehensive, by R Batley, O O'Brien, H Perris. Routledge (1970), 99 pp, 25s.
Accounts of LEA reorganisation in two boroughs.

Primary into Secondary

Harold Hayling

Some of the problems of carrying the best features of primary school teaching into the junior-secondary years are discussed here by a District Inspector of the ILEA, in the first of two articles giving his personal experience and opinions on this important issue.

Problems of transition in children's education as they move from their homes to the local primary school, from the primary to the secondary, and the secondary to the tertiary stages of the school system are recognised by parents and teachers as well as administrators. Teachers of reception classes are frequently exposed to the physical and emotional outbursts of young children who find the new social organisation, of which they are to become a part, daunting; but individual attention and good home-school relationships overcome these initial difficulties speedily in most cases, and the possibilities of a wide range of interesting activities and experiences reassure the children who feel insecure and stimulate the educative process in those who have not been undermined by the break with the home environment. The transfer from infant to junior school is not usually so dramatic in its physical manifestations as that from the home to the infant school, but social, emotional and intellectual demands which are placed upon first year juniors in some schools do give rise to emotional difficulties for a proportion of the children. Fortunately ever since the movement to abolish eleven-plus selection procedures has gained momentum and non-streaming together with new approaches to organisation, methods and the curriculum have been introduced the incidence of these difficulties has diminished. It is in this context significant that it is common for juniors to find their schools good places in which to be, and, of course, writers of reports, books and articles on primary education do not fail to reflect this liking by the children for their schools. Transition from junior to secondary education, however, gives rise to more difficulty for children and teachers than at any other stage and elicits such comments as, 'we must cross the Great Divide that has so often seemed to separate primary from secondary education . . . too often this divide has been regarded almost as a frontier where a passport, or even a visa, is required.' (**Crossed with adversity**, p 62). The boundaries of this Great Divide may vary from school to school and area to area but that it exists and has existed for many years cannot be doubted. In **Children and their primary schools** the Plowden Committee added their weight to this finding which is reflected in para 444 of the report, 'There is even more danger of setbacks and standstill at the transition from the primary to the secondary schools. They are particularly demoralising to 11 year olds who expect transfer to a secondary school to bring the challenge of new work.' What are the characteristics of this Great Divide and can it be bridged ?

For a very large number of juniors some of the most striking characteristics of the Great Divide will confront them on the first day at their secondary school. The size and complexity of the buildings, the movement from place to place within the buildings at approximately forty-minute intervals, the large number of staff confronted and the hierarchy of adolescent and adult group forces to which they are exposed cannot fail to undermine in some degree even the physiologically well adjusted. Given time these first-year secondary children will master the ramifications of the building/timetable complex, although this cannot be taken for granted for all these children even at the end of the first term. Greater difficulty and bewilderment is likely to arise for them from their attempts to grasp the differing roles of the adults and the older adolescents of their new school. The Form Master and the Year Tutor, the Senior Mistress and the Head of Department, the Deputy Head and the Head, the Head Boy and the Prefects will provide a bewildering array of interacting roles unknown to most junior children. The expectations of each of the subject specialists to which the newcomers are exposed in turn may be the most confounding of all the new experiences in that the Geography master appears to be interested only in the level of work achieved in Geography, the History master in the History and so on for all the subjects. The possibilities of being involved in one or more aspects of Art or Craft, History or Geography in the making of a frieze, a chart or a model, for example, as was the case in the junior school will now be most unlikely. The most damaging of all these early experiences, however, can be the realisation that in the junior school you are amongst the oldest and most respected of children, but in the secondary school you are the youngest, perhaps the least valued and not infrequently treated as an incapacitated infant. As time passes these more obvious and striking features of the secondary school will be absorbed by most of the newcomers, but other more subtle pressures from their new school environment will influence them.

Whereas large numbers of junior schools are now unstreamed all but a handful of secondary schools retain streaming in one form or another. The newcomers from junior schools will either be streamed by ability and will rapidly come to know whether they are in 'A', 'B', 'C' or 'D' stream, or they will be 'broad-banded' or 'setted'. In one way or another they will learn to work with a 'homogenised mix' of the year's intake rather than, as in their earlier stage of education, with

a broad cross-section of the school community. In addition it will not be long before the influence of the examination system will be felt by these newcomers for it will be adding its own unique signals to all the others emanating from the organisational structure of the school system. The importance of academic success and the need to compete for no very clearly defined goal will be registered by many of these children, but others will be bewildered by these signals and the ensuing pressures. These then are some of the more characteristic features of the Great Divide. If there is to be continuity between junior and secondary education, can the Great Divide be bridged – and if it can what will be the problems ?

The Plowden Committee was amongst the first to make a series of suggestions which would go some way towards bridging the Divide. It was recommended that there should be contact between teachers of primary and secondary schools, one-day conferences to help such contact, at least one visit during the term before transfer by junior children to their secondary school, their parents should be known at the secondary school, records of each child's progress should be passed on to the secondary school. Initial and in-service training should help to keep all these issues alive, it was recommended. None of these recommendations is particularly difficult to operate, and they can all be brought into being rapidly in any urban area if the will to co-operate exists. The most far-reaching recommendation, however, appears on p 146 of the Report. It states that secondary teachers concerned with children of eleven to thirteen 'must develop further the curriculum, methods and attitudes which exist at present in junior schools.' This advice has been supported directly or indirectly in **Working Papers 12, 22** and **26** of the Schools Council, and there are moves in the schools to bring these proposals into being.

What are the best features of primary teaching in our schools today which should be transferred to the children of the first three years of secondary education ? Clearly any group of teachers discussing this problem would be at variance over detail, but it is possible that they would agree with each other about the characteristics of good primary practice listed below under five headings.

The children's attitudes

Good primary practice brings into being . . .

Eager, lively, enthusiastic, out-going junior children
Who are active participants in learning.
They have strong drives to be creative,
And are strongly motivated to be successful.
They appreciate opportunities for making of choices in learning tasks
As well as the responsibilities which self-direction brings.

The teachers' skills

They are educators not instructors who . . .

Have a non-specialist approach to learning,
Understanding that the collecting and storing of information plays only a minor part today in the educative process.
They are aware of children's individual needs and interests.
They know how to guide and develop children's talents.
They work with individuals, small groups or large groups.
They work without difficulty in the presence of adults.
They are willing to experiment with new systems of learning.
They are interested in the continued development of their skills.

The organisation

In good primary practice . . .

Nonstreaming is common.
The timetables show a balance of directed and free-choice times, and time allocated for thought, planning and discussion amongst the staff.
Materials and resources of a wide variety are freely available.
Records of children's progress are kept.
Schemes of work are constantly reviewed and developed by the staff.
Conferences on work and progress are held by the staff.
Visits to see work in progress in other schools are organised;
Links with secondary and primary schools are cultivated.

The methods

Within good primary practice may be found . . .

Integrated studies in the form of projects, centres of interest and environmental studies.
Children who are not confined to specific spaces for learning but make use of both covered and uncovered spaces of the school.
Co-operative teaching techniques involving two or more teachers who work together with large numbers of children.
Individual and small group interests being encouraged.
The use of audio-visual and programmed techniques of learning.
Learning oriented towards problem-solving rather than information retention.

A variety of children's interests in the Arts, Sciences, Crafts and the Humanities being explored at one time.
A 'democratic' rather than an 'autocratic' social environment.
An absence of corporal punishment.
The free movement of children from one space to another.
Children who are treated as responsible beings.

The curriculum

The flexibility of good primary practice arises from . . .
The bounds of the curriculum not being restricted by examinations.
Knowledge no longer being forced into specialist compartments.
The curriculum being inspired by human concerns and experiences of worth.
The recognition of the necessity of learning how to learn.

These five categories of good primary practice, which in reality form an inseparable whole, would, if transposed to the junior-secondary years, present a series of challenges to the majority of secondary schools. In the resolution of these challenges would lie the problems to be solved. This is the case because the secondary school staff who may consider adopting the curriculum and the methods of good primary practice are immediately face to face with fundamental questions about the aims of secondary education and the means by which these aims are to be achieved. Are examinations to have any influence upon the curriculum of the junior-secondary years ? If they are not, should 'competence, confidence and co-operation' (Schools' Council **Working Paper No 27,** p 65), be the guides to the formulation of the curriculum ? What of subject compartmentalism ? Are subject specialists to continue to dominate the work of the whole school ? If they are not to do so, how are they to be persuaded to take part in other approaches to teaching and learning ? Should the curriculum be essentially social in character and in consequence inspired in the main by human concerns and experiences ? Should learning how to learn be the corner-stone of the school's work in view of the fact that human knowledge and information are multiplying at ever faster rates ? These and a host of other questions confront secondary school teachers who plan to introduce change to the work of the first two or three years of secondary schooling. Limitations of space here make it impossible to examine fully this fundamental problem of aims, but it can be explored fully in the publications listed below.

If, then, it can be assumed that the teachers and administrators having examined their objectives, have arrived at agreement about the introduction of good primary practices into secondary schools and in consequence have decided to abandon many conflicting secondary practices for at least the first two years of their school it is possible to examine the problems which are likely to be encountered.

Changes which will have to be brought to methods of teaching if they are to reflect good primary practice will have to be undertaken gradually because they will require changed attitudes from the teachers. One of the most important changes in teachers' attitudes and in the practice of secondary teachers will arise from the need for teachers to be prepared to become teachers of 'general subjects' rather than, as is the case now, subject specialists, at least during the first two years of secondary education. It is now traditional practice to be a subject specialist in secondary education, and not only is this hallowed by practice and specialist qualifications but it is reinforced by status and salary differentials which totally undermine the importance of a 'general subject' teacher in this stage of education. Other consequences of subject specialisms arise from subject demarcations which provide no major administrative difficulties in the traditional secondary setting, but they become obtrusive as soon as there is even the mildest attempt at integrated studies. This problem can be more marked when dealing with subject specialists teaching sciences rather than those involved with the arts, but in practice this generalisation may be reversed or in particular schools all Heads of Departments may cling to their territories and refuse to make bridges to cross the boundaries.

The Schools Council Working Paper No 27, **Cross'd with adversity** (HMSO 1970).
The Schools Council Working Paper No 22, **The Middle years of Schooling** (HMSO 1969).
The Schools Council Working Paper No 12, **The educational implications of Social and economic change** (HMSO 1967).
Central Advisory Council for Education, **Half our Future** (HMSO 1963).
A D C Paterson, **The Future of Education** (Cresset Press 1968).
W A L Blyth, **English Primary Education** (Routledge and Kegan Paul 1965).

Opinions expressed in this article are those of the author and do not commit the ILEA.

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Education of Handicapped Children

Course for Experienced Teachers (Session 1971-1972)

Applications from serving teachers are now invited for this one year, full-time course of study which, from September 1971, forms one of a number of options leading to the Diploma in Educational Studies of the University of Leicester School of Education.

This particular option is intended to cover the needs of teachers concerned with problems arising from subnormality, educational sub-normality, physical handicap and maladjustment in either special or ordinary schools. It includes a core of academic study in Education, common to all the several options, in addition to the specific study of handicapped children, with a wide range of visits and practical work. Room for individual specialisation is provided in terms of a major dissertation.

Further details and application forms may be obtained from the Chief Administrative Officer at the college, to whom they should be returned as early as possible, and certainly not later than 1st March, 1971.

Non-streaming and independent learning in biology

Donald Reid

Previously Head of the Biology Department, Mr Reid is now Head of the Science Department at The Thomas Bennett School, Crawley. Since 1967 he has also been Joint Organiser of the Independent Learning Project in Biology, initiated by Nuffield's Resources for Learning Project. The school is a large, uncreamed comprehensive.

The project began three years ago, in 1967-8, but it grew out of a controlled experiment in non-streaming, run without outside help, during 1966-7. At that time, our Science Department consisted of the three virtually separate departments of Biology, Chemistry, and Physics. Four periods of Biology were taught in the First Year, four periods of Chemistry in the Second, and two periods of Physics were also taught to both years. Prior to 1966, all classes in the Science subjects were streamed.

However, in September, 1966 it was decided to try non-streamed teaching in the First Year Biology course. No great effort was made to prepare for this, and we plunged cheerfully in, full of good intentions.

Fortunately the watered-down Nuffield Biology course which we used, proved quite successful, and after discreetly omitting a few awkward-looking topics, we ended the year with a distinct feeling of achievement. We had used essentially class teaching methods, but these proved satisfactory for a course consisting mostly of open-ended, non-structured, practicals.

We had also set up a control experiment – so that 200 of our First Years were in streamed groups for Biology, and 200 in non-streamed groups, during that year. Furthermore, 100 children from each group were taught by the same three teachers. Comparative results showed that rates of progress and standards achieved were about the same for each group.

However, the distribution of marks was very different in the two groups. The least able third of the non-streamed pupils were significantly ahead of their streamed peers in the 'bottom sets'. But, since the 200 pupils in the streamed groups had achieved the same average score as the 200 non-streamed pupils, it followed that the average and higher ability non-streamed pupils had not been so successful. Non-streaming had, in fact, retarded the progress of the most able by about five per cent. Our gains on the less able 'swings' had been lost on the high ability 'roundabouts'.

Meanwhile, plans were already being made for a more ambitious project. In December, 1966, when the controlled experiment in non-streaming had only just begun, we were visited by Tim McMullen, then Co-ordinating Director of the *Nuffield Foundation's Resources for Learning Project.* He offered us financial support for a one-year experiment in independent learning to start in September 1967, and to involve, once again, our First Year Nuffield Biology course.

Consequently, in 1967, with the enthusiastic encouragement of our headmaster, Pat Daunt, two of us (my colleague Phil Booth and myself) were released part-time from teaching. An extra teacher was provided to compensate the school, through the joint support of the Resources for Learning Project, Heinemann Educational Books Ltd., and International Computers Ltd.

We then set to work to prepare versions of the Nuffield First and Second Year Biology texts, which would be suitable for pupils working at their own pace. The bulk of our First Year intake in 1967 then worked their way through about 80 per cent of the topics in the original Nuffield texts, as modified by us, both for independent learning and for a much wider ability range. All were in totally non-streamed groups, but while 300 pupils worked with the independent learning materials, the remaining 100 worked conventionally. Once again, three teachers took 100 experimental, and 100 control children between them, in classes averaging thirty-three each.

During this year, the experimental group worked almost entirely from the duplicated, mainly programmed, materials provided by us, for four periods per week. Virtually no class teaching took place during this time, so that it was possible for the ablest pupils in a class to be studying earthworms, for example, while their slowest classmates were still tackling movement in fish, two topics behind. This occurred despite the provision of some further work to be tackled only by the ablest.

The conclusions from this were rather mixed. On the credit side, we found that while learning was about equal on the material covered by both groups, the ablest independent workers had completed up to 15 per cent more topics than their class taught peers. In fact, they frequently worked faster than we could write.

However, we also discovered some serious drawbacks:

1. Less able pupils, and most staff, eventually became bored by the monotony of the method.
2. It proved to be impossible to supply the necessary apparatus, including living materials, for several topics at once. (This conclusion, of course, probably applies only to science courses.)

The spread of marks in the end of year exam also gave rise to some doubts. Although the two groups were equal on the topics they had covered, the distribution was once again distinctive. The independent learning classes, on average, had produced scores which varied much more widely than the class taught controls, though all classes were non-streamed. In other words, the effect of independent learning was to restore group performances to their previous, streamed pattern, with the least able trailing far behind.

After digesting these conclusions, we decided to continue the work, still with the encouragement of Pat Daunt, and the generous support of Heinemann and ICL. However, we now realised that independent learning was a technique which should only be applied to certain parts of the course. Fortunately, independent work had proved to be most successful with the structured topics which we had always found to be the most difficult to teach to non-streamed groups.

So, after a further year's trials at Thomas Bennett School (1968-9), we have begun trials in other schools of the best of the materials produced for the original experiment, by now much improved with experience. These have been produced in the form of booklets, with the text laid out in a basically programmed form, though with plenty of open-ended suggestions, where relevant.

Full instructions for the carrying out of practicals, and the use of visual aids, have been included, together with self-marked tests and summaries. Each trial text has been copiously illustrated with line drawings. Restrictions on the setting available for this article make it impossible to show the illustrations, but this example from the text on Surface area/mass ratio may give some idea of the layout of a typical programmed section:

28. So, in general:
larger animals have a *smaller* surface area for their mass and keep warm more easily.
Which person shown here has the smallest surface area for her mass?
(*Drawing of mother, ten-year-old girl, and baby.*)
29. the mother (*answer to previous question*).
Which of the people shown in frame 28 is the most likely to die of cold, in an unheated room in the winter?
30. the baby (it has the largest surface area for its mass).
Which of these birds is likely to have the largest surface area for its mass?
(*Drawings of a wren, a humming bird, and a sparrow*).

However, much of the text is not programmed but instead takes the form of well-illustrated worksheets. The materials in each text are graded, so that virtually all pupils in the relevant age group can tackle the first part of each booklet.

The later parts of each topic become progressively more difficult and are intended only for the ablest. The example above has been successfully used with average thirteen year olds.

Each text is accompanied by a Teacher's Edition, in which we stress that independent learning should only be used for limited periods of time, and for selected topics. We also emphasise the need for the teacher to take an active part in the work and to adapt the materials to local conditions, whenever possible.

Trials in some 50 schools of all types, and with both streamed and non-streamed classes, have revealed widespread enthusiasm for this approach. Consequently, we are about to start publishing final versions of the materials. Each topic will appear in booklet form, with copious photographs and other illustrations, priced at between 7s and 10s (35 pp - 50 pp) from Heinemann Educational Books Ltd. Each of the books can be used independently of the others, and they could each be used with the relevant part of any elementary science course, whether Nuffield or not, where appropriate.

We cannot pretend that independent learning is some kind of instant solution to all the problems of non-streaming. Our approach, as it stands, does nothing for the non-reader – though locally produced tapes might help.

Nevertheless, we feel that this type of approach, judiciously used, will help to remove any doubts about retarding the performance of the most able pupils when dealing with structured topics. We have certainly found it possible to tackle even the dreaded 'surface area/mass ratio' concept with confidence – at worst, the least able can simply be set different work, while the ablest race ahead.

However, independent learning should always be interspersed with class teaching, for maximum success. This presents no great problem in Biology, since there

(Continued on page 27)

Nuffield Science and the average secondary pupil

Peter Prosser
Formerly a head of department in grammar and secondary modern schools, Mr Prosser is now a Senior Lecturer in Biological Science at Redlands College, Bristol.

It is often claimed that 'Nuffield Science' is stimulating and successful with clever children, but proves to be less suitable for the average and less able children in secondary schools. If this is true, or believed to be true, there are important implications for the move towards non-streaming in the early years of secondary schooling.

By 'Nuffield Science' is often meant the published 'O' Level courses in biology, chemistry and physics[1] that can provide a sequential five-year course. The material in these courses is carefully structured and demands a high standard of literacy, comprehension and manipulative ability in the pupil. There is also the need for at least a minimum of expensive apparatus. Few schools are fortunate enough to have anything like the full facilities necessary, so that modification and adaptation has to take place; in these circumstances, it would hardly be surprising if attempts to work through these courses should prove to be unsuccessful.

The 'O' and 'A' level materials are the only Nuffield publications to be structured as courses. The remaining material, published and in preparation, is intended to provide the background and current source material from which teachers can select and modify according to their needs. In these circumstances, 'Nuffield' is not a course, but an underlying philosophy and a mode of study that arises from it. It is not clear whether the difficulties said to be experienced by average and less able children stem from the mode of learning, or from the particular courses followed.

Even superficial analysis of the 'O' level courses will show that a considerable level of abstraction is reached early in the work, and that concrete props are often less in evidence than empirical models. One might suspect, if Piaget's developmental theories are correct, that these courses as they are produced are likely to succeed only with a minority of our pupils, as indeed they were originally intended to do.

What do we mean by 'succeed'? If success is measured by examination passes, fewer are likely to succeed by taking the 'Nuffield' courses and examinations than might have done by the old methods with their heavy emphasis on memory and recall, rather than on understanding. I suspect that the complaining teachers do not measure success in this way, but in terms of pupils' attitudes and motivation, and of their own and the pupils' estimates of progress. When pupils give up easily, are frustrated, and have to be pushed along – when a number of them appear to be making no progress – the teacher suspects that his methods have been unsuccessful. It is often the method, rather than the material that the teachers suspect.

The essence of the Nuffield approach lies in heurism: putting the pupil as far as possible in the role of the discoverer, who is revealing patterns and relationships by thinking and acting in a particular (scientific) way. The objective is an understanding of principles and methods *at a level appropriate to the pupil,* rather than the verification of an accumulation of facts for subsequent recall. If this approach fails with average children, there are three possible causes, namely

(a) the method and materials may be unsuitable in terms of the psychological development of the pupils;
(b) the material itself may be inappropriate;
(c) the teaching may be at fault.

These can, of course, occur in combination, and it is possible here to look at each possibility in outline.

Underlying all the Nuffield secondary course material is an assumption that the five year course will consist of two sections, respectively lasting two and three years, presumably in line with the way in which Piaget's stages of formal development are supposed to occur, and on a similar time base from age eleven through to fifteen. Piaget's theories concern the way in which children can learn, and this is independent of the way in which they are taught. Thus our teaching can conform with what is known of development towards total abstract thinking, or it can run counter to it when, if Piaget is to be believed, failure is inevitable. Unfortunately, Piaget's work with adolescents is less clear, and less thoroughly worked out than are his conclusions with younger children. A very great deal of work remains to be done on adolescent concept formation. Significantly, the work of Lovell,[2] Tisher[3] and others suggests a time lag of two years or more when compared with Piaget's Geneva subjects, so that a pupil may be *ready* for the kind of abstraction he is assumed to be able to handle at 13-plus, at age 15 when he is about to leave school. Topics selected from the published material, whether from the Combined Sciences, the 'O' level courses or others, need to be analysed in terms of the degree of abstraction involved, the kind of concrete experiences, the props and bridges provided, having regard to what is known of the individual's (or group's) development. Few teachers have yet the time or expertise to analyse quantities of day to day material in this way. It may be that some are successful

partly because they have an intuitive ability to match topic approach and pupil appropriately. The 5 - 13 project has attempted to show the way in the evaluation of objectives and criteria. It also reveals the difficulty of doing this above an empirical level in the light of present knowledge. It certainly cannot be assumed that all pupils will have reached even the intermediate stages of formal operations by 15-plus; therefore unstreamed groups must provide a variety of parallel paths at different levels of abstraction, indicating a group work or individual topic approach.

Many less able, but hard-working children gain a kind of substitute satisfaction for intellectual achievement in making orderly progress through a book, recording work neatly even where the experiments are pre-designed as verification and no great intellectual effort is involved. It can be urged that while much of this work is *about* science, it is not science, and a justification of the Nuffield approach is that, in however limited a way, it gives the pupil genuine, not vicarious, scientific experience. Clear bounds need to be set and paths charted if many pupils of limited ability are not to lose their way through an open-ended investigation, and become disheartened through losing their former security and gaining nothing in its place. Again, a skilled, sensitive teacher can supply the right situation in the first place, and subsequently, the right kind of encouragement at the proper time – provided he has sufficient time, and sufficiently few pupils.

Ordinary children are impatient. They want to bring an investigation to a conclusion in one sitting; a series of starts in a number of disjointed lessons is frustrating. The development of a satisfactory conclusion is very important to most children. It takes time, involves discussion, and if it is done properly, it cannot be hurried. Few secondary schools yet have the kind of flexible timetable that would make this kind of thing easy, so again, the successful teacher is likely to be the one who can structure his activities so that at least some intermediate conclusions are reached within the conventional double period.

We are building up a picture of carefully chosen topic material, available on a group or individual study basis, but with skilled help always at hand. We also assume a ready supply of apparatus and materials, efficiently dispensed and serviced.

Since meaningful science can be derived from a large number of sources, the topics to be investigated will probably arise out of a compromise between the particular interests of the children at a given time, and the teacher's conviction that experience should be gained in a number of fields. The various Nuffield resource books provide topics in great variety, often with a mass of supporting information, so that the provision of suitable topics, if on a trial and error basis, is unlikely to present difficulties. **Science for the Young School Leaver** (Schools Council)[4] provides the kind of outline framework within which topics can be selected.

The teacher's attitude is all important. At a time when it is fashionable for schools to claim the existence of Nuffield courses in, among other subjects, science, it is revealing sometimes to see exactly what goes on. Traditional science teaching – demonstration based and book reinforced – is cheap, almost the cheapest kind of teaching there is. It is economical both in time and in

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Non-streaming and independent learning in biology (continued)

are many topics, eg locust growth, which are not suitable for independent learning, but can readily be class taught to mixed ability groups with the aid of worksheets. Consequently, we feel that a mixture of independent learning and worksheet based class teaching may serve as a basis for developing non-streamed methods in elementary Science as a whole.

Meanwhile, similar developments in many other subjects have been pioneered by the Resources for Learning Project. In general, these seem to have led to the same conclusions as we obtained, especially with regard to the need for an actively involved teacher.

In some areas, locally supported projects have also achieved good results. For example, the West Kent Independent Learning Experiment in Maths, under the direction of Bertram Banks, has now produced materials for independent work from the first to the fourth year.

We can therefore conclude that there are hopeful signs in many directions. Nevertheless, one must hope to see increasing national and local aid becoming available for the development and evaluation of mixed ability work in the 12 - 14 age range.

Otherwise, the danger exists that unsupported local efforts may lead to a measurable drop in standards in the structured subjects. The resultant backlash could well hold up progress for years.

resources. Nuffield science teaching is just about the opposite, needing time, room, and resources if it is to succeed. It is rare, therefore, to find a school that is totally committed in its organisation and disposal of staff to a discovery approach at all levels. In these few schools, always with dedicated staff, the Nuffield approach succeeds in terms of children's motivation and achievement at all levels of ability. It might justifiably be argued that with similarly dedicated staff, *any* method would succeed.

More commonly, Nuffield texts and resource books will be used in one or two, often the earliest years, of the course; that is, until external examinations loom large, and engage the attentions of the available staff, and major use of facilities. In some schools, there is an element of self-deception, in that they believe they are attempting discovery work. In one such school, the first volume of the 'O' Level Biology text was being worked through on a theoretical and demonstration basis !

All degrees of involvement are to be found, from the token acknowledgement referred to, to the development of original topics in terms of the childrens' abilities, leaving wide scope for individual investigation (eg, Holes, by J A Lewis)[5]. Here, rooms are equipped with card indices, adequate reference material, and apparatus placed for maximum pupil use.

The demands made on teachers are great. The ideal science teacher possesses, in common with all first-class teachers, a broad knowledge of his subject, and the ability to get his pupils to interpret it in terms of their own needs and abilities. Science teachers of any kind are scarce. Teachers of the quality and dedication to succeed in the kind of work I have described are very rare. By their success they tend to be rapidly promoted. Many teachers, without appropriate background and training, possibly not science teachers at all, faced with large classes, unsuitable rooms and inadequate time, may be forgiven for retaining the security of the traditional teaching pattern. All too often the most experienced teachers work with the examination classes, using the best facilities – at the expense of less able children and less experienced and less effective teachers.

I have found nothing in the psychological development of children, nor in my teaching of the less able of them, to suggest that Nuffield methods could not work, at an appropriate intellectual level, with all but sub-normal children. Strong motivation is vital; the case for discovery learning rests on it. The role of the teacher is central; his attitude is the key to success.

I have suggested some possible reasons for the apparent failure of Nuffield Science with ordinary children. We have to distinguish between knowing *about* science and *doing* science. The need for the former is clearly recognised; its progress is easily noted. Could it be that sometimes while teacher and pupil worry about the pupil's apparent failure to know enough *about* science, success, even momentarily, in *doing* science is going unrecognised ? We have yet to see what will happen when a generation of children, nurtured from the first by discovery methods are taught by a generation of teachers trained from the start in the discovery approach.

Nuffield methods *can* succeed with children of all levels of ability; the implications for non-streaming are clear.

1. No single course will be suitable for all.
2. A group or individual approach should allow a topic to be followed up at an appropriate intellectual level.
3. Selection must be made from the material available, as the writers intended (eg Nuffield Combined Science)[6] using the criteria of significance and availability.
4. Time-patterns and facilities should allow the children to work individually and in groups, and teachers should be freed to work with these groups.
5. 'Success' takes many forms. It needs to be recognised in individuals and reinforced.

Note: My grateful thanks are due to the large number of colleagues in and out of school, with whom I have been able to discuss this problem.

1 **Nuffield Biology Texts**
Nuffield Physics Texts
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The Humanities Curriculum Project in Practice

Roy Haywood
Having previously taught in two boys' grammar schools, Mr Haywood was on the staff of Exmouth Grammar School when it was amalgamated with two other schools to form a Comprehensive School of 1,800 boys and girls. He is now Head of the Middle School which comprises the fourth and fifth years.

Exmouth School was one of the original thirty-two schools involved with the Humanities Curriculum Project. This article is an attempt to record what happened in this school – which may not be typical of what would happen in another school or even in this school now. So first, a few essential background facts about the school. In September, 1968 Exmouth School was formed by an amalgamation of a boys' secondary modern, a girls' secondary modern and a mixed grammar school to form one large coeducational comprehensive school. At the same time a team of teachers undertook to teach the Humanities Curriculum Project after attending a short induction course, mainly because we felt committed to innovation and needed what we thought must be an expert ready-made Schools Council Project for the 'average and below average ability pupil' on the cheap.

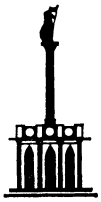
For teaching it pupils were divided into two groups. The large one of some 90 boys and girls was made up of the traditional fourth year leavers. It was taught by a co-ordinator (who left for personal reasons after one year) and four other very competent teachers. The smaller group, mainly girls, would follow a course leading to some external examinations during their fifth year and was taught by myself and the co-ordinator, and by one of the original team for the second year. Within six weeks the former group was in difficulties and by the end of the autumn term the Humanities Curriculum Project *per se* had been abandoned; whilst the latter group did in fact continue and eventually the pupils sat a Mode 3 CSE examination.

Therefore the Project was both a failure and success in this school. Before examining 'Why?' I will assume readers are familiar with the materials but often have a distorted version of the methods Stenhouse advocates. What I think Stenhouse saw in schools was teachers using instruction and discovery methods too much. To supplement these he suggested teachers use the material the central team collected as evidence for 'enquiry based' learning to develop critical faculties, initiative and creative and divergent thinking. Consequently he was advocating an enquiry method which required a reappraisal of the teacher's role. Instead of a teacher dishing out infallible words of wisdom for the pupils' passive assimilation and subsequent accurate regurgitation by playing John Holt's 'guessing games', he would not be able to continue doing so since the issues chosen for study would divide teacher, pupils and parents alike. To give coherence and integrity to the work the 'teacher' must become instead a 'neutral chairman'. He should be neutral – not negative – in the way a pupil defined it as 'one who does not take sides and treats us all alike'. He should be a chairman rather than a teacher because he is not *an* authority, but *in* authority.

The reasons for failure and success within this school are complex, but I would like to put forward factors for consideration as they may help other schools contemplating using the Project.

The failure with the traditional fourth year leavers group was mainly due to lack of training in, or understanding of, any sort of innovation by teachers. We all tend to become aware of a need for change as a result of past performance or achievement and try to produce remedies to help cope with past experience instead of planning to meet the future. The new materials and methods of the Project demanded that the teachers should replace old, comfortable, predictable habits with new anxiety-making ones. Judged by past criteria the teachers in the new situation were not equipped to cope. When they needed outside feed-back, constant encouragement, or even tips of the trade they did not get it since the Project was so new to everyone – the Central Team included – that no ready-made answers had been formulated. So the teachers could not even rely on a well thought out theory and objectives to counteract the unpredictable simply because these were not known or worked out.

Consequently the teachers began to criticise the Project, the material and methods. The material was said to be 'too difficult' and presentation 'dull and uninteresting'. The methods will 'destroy preconceived notions and do nothing to build up new personal views', or be 'unpracticable unless bright, highly motivated pupils were involved; or unless used within a strictly authoritarian school context; or unless led by a disciplinarian'. These actual teachers' comments illustrate



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why traditional methods and topics on an *ad hoc* basis of the old familiar Humanities as she has always been taught, were quickly used again. In short, then, failure was due to a lack of an underlying philosophy to sustain persistence when the expected responses did not materialise; the importance teachers attached to order from the start; the implied threat to the teachers' status; the lack of an on the spot practical rescue service from the Project Team or an evaluation process to reassure the teachers that they were making progress.

One might add that all this was understandable in the context of the reorganisation of the school – the going comprehensive and coeducational at the same time, the very status conscious aura of the new school, the use of teachers with no secondary modern school experience, the general confusion over aims and objectives – so that, simply, the teachers expected too much too soon.

Fortunately with the pupils who followed a two year course leading to CSE there was success (and I shall try to define this word in a moment) which needs looking at since many of the conditions mentioned as contributory to failure were common to this group also.

By 'success' perhaps I mean that the following results were obtained by the twenty-eight pupils examined in the Mode 3 CSE.

Grades					
I	*II*	*III*	*IV*	*V*	*Unclassified*
4	5	4	7	4	4

Or was it successful in terms of what the pupils thought they had achieved? On tape and in writing the pupils have said: 'we examined things we had not thought about before'; 'we changed our views'; 'If I were a teacher of Humanities I would like to feel that my pupils had gained a more objective reasoning to world problems covered in the course and less prejudiced views, I would like them to be able to think for themselves, and have individual opinions on topics, instead of relying on other people's views'; 'I would like them to know when to listen and when to speak'.

By these criteria there was some success, and I offer tentative suggestions as to why.

Perhaps it was because the composition of the groups was different. The examination group was mainly girls (25 girls and 3 boys), and it was said that since they were examination orientated they would therefore be 'brighter'. We could argue for ever whether it is easier to teach adolescent boys or girls, and so I merely record it as fact. I am not so sure that the charge of the pupils automatically being brighter since they were staying on to the fifth year is altogether substantiated when the VRQ of 18 of the group was examined (the others transferred into the area and we have no 11-plus record of this). It ranged from 107 to 79 with the majority being in the 90s.

Another factor needing scrutiny must be the kind of teaching the group had since it is obvious that pupils often do well or badly because of, or in spite of, the influence of the teacher. In a tape recording with a Project Team interviewer the pupils said that 'in the group the teacher loses all authority and becomes one of us, as far as being able to talk to him' and 'we felt free not to agree'. I interpret this to mean that the pupils were describing my colleague and me as teaching in a democratic way, and perhaps this is where we differed from the teaching method of the other group. Their teaching began in a laissez-faire way and too much freedom was given. The pupil interpreted this as softness. The teachers over-reacted to this and switched to the other extreme – authoritarianism and then having gained what they thought was control, were very unwilling to let go again. So the time my colleague and I spent in becoming accepted as part of the group, as members who would not leave them to their own devices or coerce them – in essence the necessary 'neutral chairman' – was very well spent.

Finally, the fact that the group was doing examinations may have helped. If we had not examined perhaps the work would have lost status in the eyes of the pupils, parents and the school. I would like to stress we did not emphasise the examination 'threat'. We made no attempt to examine classroom discussion or direct follow-up work as this would have inhibited the very thing we wanted to encourage. Instead we received the utmost co-operation from our local CSE Board and had a fairly conventional Mode 3 examination consisting of a written paper, an oral and an entirely unaided project. The results of some of the work was mutually satisfying for the pupils and us.

So we felt there was some success. The Humanities Curriculum Project has now to stand up to examination by an independent evaluation unit of its effects on schools and pupils. It has a difficult task ahead. The changes we noted in our pupils and ourselves over two years may not be the result of being involved with the Project at all. Perhaps they were merely due to us both becoming more understanding as we grew older, fairly gracefully, together!

Counselling—An Overview

A. W. Bolger

Counselling, when considered as an attitude towards people, a caring attitude, or what is termed in education 'pastoral care', has a long history. When we use the term, however, to refer either to the process by which individuals can be helped towards a solution of their own problems or to the role adopted by specialists in guidance working within the school, then, as far as this country is concerned, our history stretches back scarcely five years.

Pastoral care and the counselling attitude had their origins long ago. They found their way into the writings of educational reformers from Quintilian to Montessori. Sometimes they took the form of practical suggestions for helping individual children, more often they were general exhortations to teachers not to forget the welfare of the pupils they were teaching. The latest in this pastoral care tradition of writing is the only full length book on Counselling published in this country. **Teachers as Counsellors** (Holden, 1969) is imbued with the caring attitude and should be a source of inspiration to many teachers. It emphasises the need for empathy in the teacher-counsellor, minimizes the need for training and does little to extend the professionalisation of counselling. It fits firmly into the earlier pre-1965 tradition of pastoral care.

Counselling in the second sense made a late start in this country. Perhaps the very strength of the pastoral care tradition hindered its development. School counselling in the USA goes back, in some form or other to 1909 and developed rapidly after the last war. The form it took in that country seemed in those days alien to our small single-sex selective secondary school system and while Birmingham University before the war and Manchester University after the war began courses with Guidance and Counselling components they were not aimed at training school counsellors. Many teachers who took these courses, however, went on to use their skills in senior positions in schools. The demands of secondary re-organisation were the main stimuli for a re-assessment of welfare provision in schools but increasing awareness of the importance of careers and vocational work, the development of child welfare services and the growth of student services in colleges and universities all played their part. In 1963 the National Association for Mental Health held a conference on the subject of counselling and, in 1965 full-time courses were commenced at the universities of Keele and Reading.

Since then there has been a rapid increase in the number of publications on the theme of counselling and guidance and over sixty titles have appeared in Britain during this time. These publications may be considered in four main categories:

1. articles concerned with defining the scope of guidance and counselling services in schools and the role of the school counsellor.
2. articles concerned with the field of guidance and counselling in colleges and universities.
3. articles concerned with the scope and function of vocational guidance and counselling.
4. articles concerned with the methodology of counselling.

The first category is by far the biggest and reflects the present preoccupation with role definition. The school counsellor, as a newcomer into child personnel services, needs to define the scope of his work in relation to other teachers, careers officers, educational welfare officers, child care officers and child guidance workers. Perhaps most of all he needs to be clear in his own mind as to the extent and limit of his role. These articles are largely descriptive and are important both in disseminating information about counselling and also in helping all those concerned with it to work out the limits of the counselling role and in what ways it interacts with both pastoral care and agencies outside the school.

Among these articles the most important appear to be the 'Educational Research' symposium (Daws, Rayner and Atherley, Fuller and Juniper 1967), the Schools Council Working Paper No. 15 (Schools Council 1967), the 'New Era' Horizontal Notebook (Gill, Jones, etc. 1967) and, more recently 'Guidance and Counselling in British Schools' (Lytton & Craft 1969).

The second category of articles illustrates the parallel development of counselling services in colleges and universities. The most generally useful of these is by Miller (1968) but the needs of education students in particular have been discussed (Kay 1967) as well as the vocational needs of university students (Newsome 1967).

Vocational guidance and counselling in schools appear to have been dominated by the name of Daws and in particular by 'A Good Start In Life', (Daws 1966 and 1968).

The final group of publications touch upon the questions of counselling techniques. The American literature on this topic is very full indeed but in this country there is at present no comprehensive work although one or two are promised early publication. The most specific article on the subject in a British Journal is by an American (Woody 1968) who describes behavioural counselling and its relevance to the

British scene. Zahran (1967) has published an interesting article on the self-concept in guidance. The use of tests in counselling and guidance is one aspect covered in a comprehensive way (Hopson 1968). A small book that may fall into the category of methodology is **Tutors and Their Students** (Sim 1966) although this is aimed at the equivalence of pastoral care in universities.

Research in the field of counselling is only just beginning to take on momentum. The Vocational Guidance Research Unit at the University of Leeds has been investigating the field of careers guidance in schools under a Gulbenkian grant.

At Keele a research project into the role of the counsellor is nearing completion and an interim report has been written (Thompson 1969). Various aspects of counselling have been the subject of research for diploma dissertations and MA theses. The topics dealt with include studies of the setting up of counselling services in particular schools and in a youth club setting, the counselling of anxious children, the use of various testing instruments in counselling, the attitude of pupils towards study and the attitudes of teachers towards counselling. None of these, to the best of my knowledge, has been published.

One year full-time courses in counselling now take place in Reading, Keele, Exeter and Swansea. The Schools Council Working Paper includes a summary of the courses as they were in 1967 and shows their similarity in objectives and content. A few changes have taken place in the course at Keele and the course now covers four main areas: Guidance and Guidance Services, Counselling Theory and Practice, Educational Psychology and Design of Educational Investigation.

Many counsellors are employed in schools at present. C J Gill has calculated that 30 of those trained at Keele were acting as educational counsellors while Thompson estimates from his investigations that 50% of those trained on all three courses are actually employed as counsellors in schools or colleges. Some are fully engaged in counselling; others spend a proportion of their time teaching, either general subjects or social education. This term is being used as an umbrella term to cover a wide range of topics concerned with guiding the personal development of pupils. Many schools are conscious of a great need in this aspect of education and counsellors are often the best equipped members of the school staff to develop a curriculum and to organise its teaching. With this we are coming closer to the idea of preventive mental health which was the concern of the National Association for Mental Health when it called the conference in 1963 which provided the stimulus for the whole movement.

Thus in five years a new profession has been born into British education and is now showing itself to be a healthy infant. Problems of identity are being solved and already there is a strong concensus of opinion on what a counsellor is and what he does. There is great potential for educational progress in this development and it is confidently expected by those concerned with counselling in schools that, alongside the increase in the number of teachers employed as counsellors, will go a development of pastoral care and social education which will ultimately be of great benefit to all children.

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Reviews — Comprehensive

Going Comprehensive, by E S Conway. Harrap (1970), 173 pp, 23s.

E S Conway, Headmaster of the JFS Comprehensive School in Camden Town, needs no introduction to readers of **Forum,** and those not put off by the dust jacket (which appears to represent in abstract a shatteringly harsh system for streaming children) will find much to interest them in his recent book **Going Comprehensive.** True to his subtitle, 'a study of the administration of comprehensive schools', Dr Conway gently and with patience steers his reader through all the problems of organisation likely to beset the new comprehensive headmaster. Like Leonardo's elephant 'he knows the dangers'; but, in helping us to avoid them, he invariably prefers to suggest rather than dictate. His occasional rebukes, though firm, are mild and dispassionate: for example, to have launched the comprehensive system without first training heads for the new task was, he reflects, 'somewhat odd'! Alternative approaches to problems are fairly and painstakingly described, and often the reader is left entirely free to make his own choice; JFS's own solution is not always given, and where this is done the effect is all the greater for the modesty with which the example is presented.

So consistent and Spartan a refusal to be either pretentious or polemical is almost forbidding and, though many will find the absence of jargon refreshing (if Dr Conway has internalised any good concepts lately, he's not letting on), this formidable effect is increased by a certain austerity of style. The evenness of tone adds too to a difficulty hard (I should guess) to avoid in a book of this kind, so much nearer to a handbook than to an essay or thesis: I mean a tendency for matters of very different weight to receive comparable treatment. It is important for the reader to know what his author regards as essential, what he really cares about; this vital information is, I believe, in the book, but it does not as it were, draw attention to itself and could easily be missed.

The point is well illustrated by Dr Conway's handling of academic groupings in the first three years. Though the subject is touched on twice in the book, both discussions are short and cool to the point of frigidity. Mixed ability teaching, commended with the thumping argument that it 'does for a pupil within a teaching unit what the comprehensive school does for him within the educational system' is at once almost dismissed as 'probably unworkable by the majority of teachers'. Yet when, with a deprecating air, Dr Conway comes to describe his own solution to this momentous problem, he unfolds a scheme not only of consuming subtlety and interest but also far more radical than the reader could have guessed, involving fully mixed-ability teaching for all subjects in the first year, full use of the house system as a learning organisation, an enviable despecialisation of teachers which should bring a blush to Lady Plowden's cheek and a complete freedom from banding. And now, gentle reader, this reluctant angel seems to say, I invite you to consider the School Keeper.

But perhaps this lack of highlighting is unimportant, since, whereas Garibaldis don't read books and Mazzinis won't read this one, the Cavours of the comprehensive movement will read Dr Conway with sufficient care to search out his deeper message. If they do, though they may find him somewhat conservative in his approach to the authority structure of a school, and may be critical of a static quality which seems to discourage any reaching out towards a changing future, they will find majestic common-sense and humane professionalism informing every page of this meticulous study.

P E DAUNT.

Half-way There, by Caroline Benn and Brian Simon. McGraw-Hill (1970), 421 pp, 45s.

McGraw-Hill, publishers of **Half-way There,** would do a great service to education by sending a copy immediately by special messenger to Mrs Margaret Thatcher. All members of local education committees should each receive their copy.

If such profligacy should seem unfair to their shareholders, let them be assured that Mrs Benn and Professor Simon have produced what may well be the standard textbook on comprehensive education for many years to come. It could be, and deserves to be, obligatory reading for every student of education (by which is meant everyone interested in education), and this would prove no hardship.

The meticulously annotated and thoroughly documented text is a model of what such a work should be. The carefully organised research is evident in the numerous tables which support the text. But the authors have not fallen into the error of compiling a mere compendium of dry facts and figures. This is a very readable, down-to-earth, well organised book, suitable to the widest of readerships – educationists, administrators, teachers and parents. Above all, one is conscious throughout that all the information relates to the living children and the practising teachers inside and outside schools.

A brief reference to the organisation of secondary education in Western Europe, America and the USSR is followed by its post-war history in this country up to the issue of the now famous ('infamous'?) Circular 10/65. This section makes entrancing reading, especially at this time when our new government has made its intentions only too obvious and has been so quickly off the mark. How true then that ' . . . the real barrier to reorganisation has not been finance, it has been policy. Circular 10/65

Schools examined

made reorganisation permissive rather than mandatory. Some authorities rushed to reorganise . . . some stalled, a few balked; but many more remain locked in indecision and stale controversy'.

And again hopefully, but so sadly betrayed by political turnabout – '. . . the need for the writing of the comprehensive principle into law has at last been generally recognised as necessary. No country can tolerate permanent pockets of selection . . . a system half comprehensive, half not'.

There follows an all-embracing study of comprehensive education in the United Kingdom at present – the types of schools, their academic and social organisation, their difficulties (for the review is nothing if not frank) and their successes.

A great deal has been written and a great deal more said about comprehensive systems of education over the last ten years. Many official and unofficial statements have been made (some in the highest of places). The majority of the pontifications have been mere expressions of opinions based on hearsay at worst and very sketchy information at best. Here now are the facts, painstakingly gleaned, carefully sifted and most suitably presented. This publication is well timed; enough schemes have run for a long enough length of time to allow our assessment and it therefore satisfies a great need and fills so many gaps in our knowledge.

This is no strident trumpet-call for an all-out advance of the forces for comprehensive schools on the broadest of fronts, although there is certainly provided the commissariat and 'materiel' for such a campaign. Rather is it an up-to-date 'Enquire Within' on the Subject. All teachers will find much of interest in the reports of progress in such fields as internal organisation, streaming, arrangements for pastoral care, counselling and sixth form development.

It is the openly avowed intention of the present government to allow the decisions on reorganisation to be taken at local level. Through the book laymen and parents can at last be given the opportunity to weigh the evidence and judge the issue on this basis.

Two such authors were obviously not to be content with a historical review and a mere catalogue, interesting and informative though it indeed is. Their 'Conclusions and Recommendations' betray their frustration due to the cautious progress normal in any educational reform and the procrastination and conservatism of some administrative bodies. There is a feeling of implied criticism of both DES and NFER, of a barely controlled outburst against the refusal to accept the principles inherent in comprehensive education and to drive ahead. 'Historically, the concept of two types of school for two types of pupil is now dead. The only real outstanding argument is that of pace.'

So the recommendations are for legislation and an all-out national commitment of resources to produce a fully comprehensive system of education. In addition, they call for a new look at teacher-training, abolition of GCE 'O' level in favour of CSE, an 'open' sixth form and democratisation of school government.

The country may be half-way towards the goal of comprehensive education. This book offers sound advice on how to complete the journey with speed. Unfortunately the events of 18 June last may slow down the rate of progress but such is the weight of evidence produced here that the reader must perforce agree with the authors that

'Despite what looks like a rather discouraging picture for the development of genuine comprehensive schools in many areas or of *any* comprehensives in *some* areas, it is still possible to be sure that by 1980 the majority of secondary age pupils in England, Scotland and Wales will be receiving their education in some kind of comprehensive school.'

I S GAYLON.

Inside Comprehensive Schools, by T Burgess. HMSO (1970), 204 pp, 6s.

Tyrell Burgess's report and discussion of what goes on **Inside Comprehensive Schools** was commissioned by the DES and published in May. It was intended to help parents understand contemporary secondary education on the assumption that this must increasingly mean comprehensive. Though the sections on how the government was furthering progress towards a nationally comprehensive structure through **Circular 10/65** and proposals for a new Education Act are now sadly out-of-date, the author's assumption is not. For he explains how 'by the middle 1950s parents as a whole had decided that selection was wrong', and states in his Introduction: 'I believe that the present reform of secondary education owes a great deal to parents. Comprehensive schools are their schools.'

This is an informative and very readable little book. Mr Burgess provides succinct explanations of the new approaches to teaching most subjects and integrated studies. There are illuminating sections on various aspects of adolescent development and the problems of transition from primary to secondary school. A critical note is struck in the chapter on teachers, who 'are often surprisingly unaware of what is being discovered in education, . . . can often give very little convincing explanation for what they do' and 'seem not to be very well versed in the arguments for and against some powerful controversy, like streaming by ability or even secondary reorganisation'.

In view of the local battles that are likely to be fought following **Circular 10/70,** teachers and parents should find the informed discussion of assumptions behind selection at eleven-plus very useful. 'In recent years it has become clear that all these assumptions are false.'

NANETTE WHITBREAD.

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