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FOR THE DISCUSSION OF NEW TRENDS IN EDUCATION

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Editors: ROBIN PEDLEY and BRIAN SIMON
Education Department, University of Leicester

Reviews Editor: GEOFFREY RICHARDSON

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The Primary School

THE primary school has always had the wrong end of the stick. From the late 1920's, when the establishment of separate primary and post-primary schools became official policy, it has been the schools for older pupils that have had the lion's share of public attention and finance. Today, having only recently emerged from one crisis of overcrowding, these schools are about to be plunged in another.

And yet the primary schools are the foundation of all education. Nearly all the great educational reformers—Rousseau, Pestalozzi, Froebel, Robert Owen and many more—have stressed the crucial importance of the child's earliest years for his later development. It is now nearly 150 years since Robert Owen showed in practice what an enlightened education from a very early age could mean to children.

There is something wrong here with our sense of values. In a rationally ordered society the key significance of the child's early education would mean that the schools for these children would be accorded a definite priority. But this is not so with us. It is to draw attention to the present situation that the Editorial Board of FORUM determined to devote an issue almost entirely to the problems of the primary school.

The articles in this number cover a wide field—from the status and conditions of the primary schools to problems of the content and methods of education. Inevitably many aspects of primary school education have had to be excluded. We hope, however, to be able to follow these questions up in later issues.

The Future of the Junior School

GEORGE FREELAND, EDWARD HARVEY AND MARGARET WILSON

Members of the Editorial Board and Junior School Headteachers

The division between primary and secondary education is so marked in our country that it is sometimes difficult to see the school system as a whole. It may well seem, therefore, that the discussion occasioned by the Crowther Report has little to do with the period before the eleven-plus. But however compartmentalised it may have become, education is a continuous process and secondary development has a direct effect on primary practice. This has been clearly evidenced in the experience of the junior school over the thirty years or so of its life.

As an integral part of a highly selective system, the junior school has had to devote a great deal of time to the classification of children, and this has limited both ideas and practice. Today, however, the selective character of our system is so strongly challenged by the demands of modern society for educated citizens, that the whole role and purpose of the junior school needs to be re-assessed. FORUM is glad to devote space to this kind of re-appraisal.

Though many press reports on the abolition of the eleven-plus have proved on investigation to be grossly exaggerated, public pressure has successfully forced changes and modifications in selection procedure in many parts of the country. This relaxation, however partial, has brought a new freedom to the junior school, opening up exciting avenues which progressive teachers are quick to explore. It at once focusses attention on the important responsibility of laying sound foundations for the education of all.

What we have to do is to replace the prevailing incentive of the eleven-plus, the public yard-stick of junior school achievement, by a wider and worthier aim—the attainment by the bulk of our children of a standard of readiness for a full secondary education.

This new aim involves an internal reorganisation. As Dr. Laybourn recently wrote: 'in seeking to realise the potential of every boy and girl, organisational systems that stifle opportunity at an early age must be repudiated and with them such devices as streaming for the seven year olds and rigid selection procedures at eleven-plus. While it will always be of great importance to develop the talents of pupils of outstanding ability it must be recognised that talent is often overlaid by environmental handicaps in early childhood and that its discovery may be delayed.'

An authoritative body of opinion is now on record against too early and too rigid streaming. The following three statements may be said to represent the Ministry, educational psychologists and the teachers themselves.

> 'A classification by any single criterion must be to some extent misleading and may cause the teacher to overlook the significant range of ability in different fields. Some Heads, in order to avoid the predicaments to which any rigid system leads,

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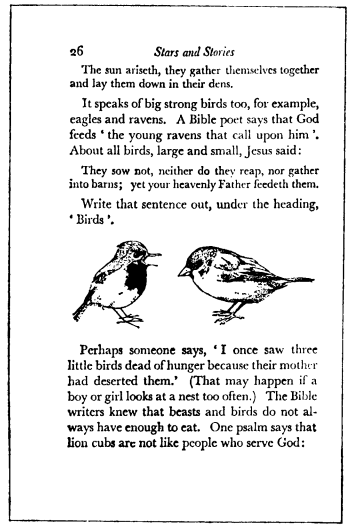
26 *Stars and Stories*

The sun ariseth, they gather themselves together and lay them down in their dens.

It speaks of big strong birds too, for example, eagles and ravens. A Bible poet says that God feeds 'the young ravens that call upon him'. About all birds, large and small, Jesus said:

They sow not, neither do they reap, nor gather into barns; yet your heavenly Father feedeth them.

Write that sentence out, under the heading, 'Birds'.

Perhaps someone says, 'I once saw three little birds dead of hunger because their mother had deserted them.' (That may happen if a boy or girl looks at a nest too often.) The Bible writers knew that beasts and birds do not always have enough to eat. One psalm says that lion cubs are not like people who serve God:

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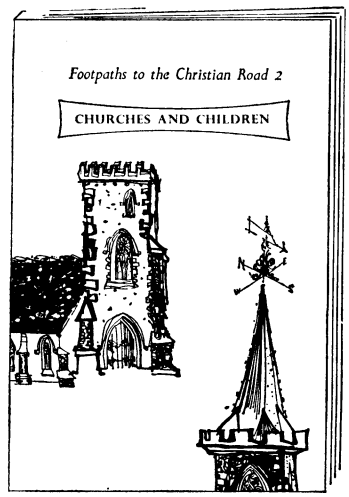

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prefer a flexible organisation that is not fixed throughout the day, and they may make different groupings for different kinds of work, or they may adopt, for example, a classification for the morning session that may be changed in the afternoon.' (*Primary Education*, the Ministry's suggestions for the consideration of teachers and others concerned with the work of Primary Schools.)

'The only reasonable conclusion would seem to be a compromise, namely that some grouping by ability is desirable when the range is very wide, but that in general it should be avoided in favour of grouping by age and should be kept as flexible as possible till a fairly late stage.' (*Secondary School Selection*, Professor Vernon.)

'Our general conclusion is that some form of streaming is advisable but that its channels should not be deeply or permanently dug. It should be very easy to transfer children at the end of each year and also to allow interchange of various kinds throughout the session.' (*The Curriculum of the Junior School*, Report of a Consultative Committee of the National Union of Teachers.)

Next in importance to organisation is the reconsideration of curricula and methods. The setting of new standards does not just mean ability to reach a certain mechanical level in the three R's. We need rather to think in terms of building up with care and patience the basic concepts fundamental to educational growth, and to match this aspect of teaching by transforming the young child's natural desire to find out and to know into enthusiasm to go on learning. We may well find the need to review our curriculum in this light and to integrate it to this end.

If the mass of the children are to be given a solid foundation we must take a more scientific attitude to the whole question of mental development. We need to know more about the way in which children form basic concepts in order that we may adapt our teaching accordingly. It is already clear that there should be less working with books and more purposive work with apparatus and illustrative material. The greatest impact on this front to date has been made in the teaching of mathematics, so that we particularly welcome the valuable article by J. B. Biggs in this issue, based on just this sort of approach.

In general we must adapt methods throughout the school. A flexible approach to the unstreamed class is needed, one which uses the collective aura of the whole body where possible and desirable but does not hesitate to break down easily into groups and individual work as the situation demands. Such an approach is described in this number by P. D. Houghton, a practising teacher in an unstreamed junior school.

If professional skill is to be properly directed towards the ends outlined, classes must be of a reasonable size. There can be no justification for pushing more children into a primary classroom than at the secondary level. It is deplorable that one quarter of primary classes should still be over forty in a period of declining numbers. It is quite preposterous that, having suffered the rigours of the wartime bulge and seen it safely on, primary teachers should now be told that they can only look forward to conditions of unprecedented crisis in the immediate future. It is no good talking about raising standards without taking action about teacher supply. For too long the primary schools have offset bad conditions with sheer enthusiasm and hard work. To do a proper job we want classes of thirty. Perhaps when we get them from the outset of school life we shall find it possible to dispense with remedial teaching. Until then we need sufficient extra teaching staff, according to the size of the school, to ensure assistance for that quite significant percentage of our children who, while not educationally sub-normal, require regular additional help at the individual level or in the context of the smaller group.

With the whole educational service crying out for more teachers it is easy to see the danger to the primary school. If it is to avoid becoming a professional back-water it must be given the means to attract a fair cross-section of the recruits to our profession. The present differential operates in the opposite direction, drawing particularly the men out of the primary schools. The primary school needs men and women, graduates and non-graduates, but all specially trained for the specialised work of primary teaching.

Improved staffing will help materially to end the attitude which regards primary schools as an inferior part of the educational system; one to be fobbed off with poorer conditions, smaller grants, tighter staffing ratios and lower salaries. The general case for enhancing the status of the primary school is put in the following pages by Mrs. C. V. Deslandes, past President of the London Teachers' Association and member of the Executive Committee of the National Union of Teachers.

Education, as we have said, is a continuous process in which all stages are interdependent and of equal significance for the child's development. Thus the crisis in the primary schools today is part of the educational crisis as a whole and can only be resolved by a forward-looking policy and long-term planning. Primary teachers thus see their own fight as part of the general campaign for educational advance.

Justice for the Primary School

CHRISTINE V. DESLANDES

Mrs. C. V. Deslandes first began her teaching in senior, central and grammar schools. She taught also in a junior mixed school and was later appointed head of a large infant school. She is at present head of a junior mixed and infant school in London. She was President of the London Teachers' Association in 1957 and was elected to the Executive of the National Union of Teachers in 1960.

The pamphlet *Fair Play for Primary Schools*, published by the National Union of Teachers, was very much in evidence in May last when the Commons discussed Primary Education. Members from both sides of the House were eloquent in pleading that more attention should be paid to the needs of this important stage of the educational system. References to 'firm foundations', 'vital importance of these early years', were re-iterated after the opening speech by Anthony Greenwood.

Here apparently was an issue which transcended party political allegiances, a subject free from Government Whips and Opposition Whips. The most innocent bystander might well remark, 'There is no smoke without fire', or ask perhaps, 'Is something rotten in the state of Denmark?' The reply can be neither a categorical 'yes' or 'no'. On the credit side, despite problems created by the pressure of large classes, bad buildings, inadequate equipment and materials, there is a firm consensus of opinion that primary schools today are providing better education than ever before. The Ministry of Education Pamphlet No. 32, *Standards of Reading*, makes improvement in this sphere abundantly clear, and the general evidence obtained from visits to schools, discussion of methods, the poise and self-confidence of younger children all lead to the inevitable conclusion. Primary schools are doing an excellent job.

THE FUTURE OF THE JUNIOR SCHOOL
(*Continued from page* 85)

This invokes gaining public understanding of the changing role of the primary school. It would be idle to deny that there are still social attitudes to be overcome in winning real co-operation between school and home and in building a genuine two-way parent-teacher association, particularly in the working class areas, but it is on this meeting of interests that support must be built up in the first instance. We must then seek to integrate this at a higher level into joint action by the professional organisations, parent-teacher associations, trade unions (in which so many of our parents find their most effective social voice) and all those sections of the community who are ready to fight for the advance of education on all fronts.

In the light of this undisputed success, why has this whole question of 'primary status' become so charged with dynamite? Why are resolutions 'deploring discrimination against the primary school', and calling for 'equality of treatment for all stages of education', reaching positions of high priority at educational conferences? It is in fact true that many teachers in the primary sphere are feeling a sense of frustration and disillusionment, believing as they do that they are assessed at a lesser value than their colleagues in other stages of the system.

A glance at the history of the development of primary education may throw some light on the present position. After the Education Acts of 1870 and 1918, the conception of primary education emerged very slowly and in blurred form, but was thrown into high relief by the Hadow Report in 1926. This Report, entitled *The Education of the Adolescent*, placed emphasis on the need for separate consideration for older children and made the recommendation, 'It is desirable that education up to the age of 11+ should be known by the general name of Primary Education'. Thus the concept of separate education for the group below 11 and the group above 11 was evolved from the principle of differing needs.

Just as the Hadow Report in 1926 outlined the organisation and made suggestions about the curriculum of the secondary stage, so in 1931 the Consultative Committee, chaired again by Sir W. Hadow, reported on the 'courses of study suitable for children (other than those in Infants Departments) up to the age of 11 in Elementary Schools'. There followed the Education Act of 1944 which made it mandatory for all Local Education Authorities to 'afford for all pupils opportunities for education offering such variety of instruction and training as may be desirable in view of their differing ages, abilities and aptitudes'.

Thus far the emphasis had been on different requirements of primary and secondary school children—so far no suggestion had been made that primary needs were inferior to those of the other stages of education. Regrettably, when the maximum size of classes was decided, the Minister accepted 30 as a normal maximum for children over eleven, but 40 for those below the age of eleven. This first

discrimination against the primary school passed unnoticed in the general approval that was given to an Education Act which embodied so much that was excellent. When we realise that in January 1960 more than twenty thousand (20,066) classes in primary schools are over this 40 maximum, it is not difficult to share the view of teachers in the primary field that classes are far too large.

The requirements of the 1944 Act in relation to secondary education involved local authorities in heavy expenditure. Since the total sum allotted by the Treasury for the education service consistently falls below the estimated expenditure, any emphasis on provision for the secondary service automatically operated against the primary stage.

When the birthrate increases began to be felt in the infant schools, the effects were disastrous. Plans to meet the teacher shortage, and the shortage of school places, were either non-existent or had been formulated with such haste that there was chaos. Some children had to be refused admission until they attained the age of six, others were crowded into classrooms without regard for the statutory maximum of 40. Many were housed in church halls, prefabricated huts, and within my experience one class of seven-year-olds spent a term in a tent so dilapidated that any self-respecting scout troop would have disowned it.

With the evidence before them, local authorities took steps to hasten their building programmes, but in many cases, provision could only be made in time for the secondary stage. It is no over-statement to say that the primary teachers had to 'bear the heat and burden of the day' while they watched the splendid secondary schools under course of construction.

But worse than over-large classes, worse even than derelict buildings, was the action taken to remedy the teacher shortage. Advertisements appeared in the national press recruiting people to teach in primary schools who were without qualifications of any kind. This influx of untrained personnel, despite its temporary nature, struck a severe blow at the status of primary education.

The implication that kindly motherly souls were reasonable substitutes for trained teachers, provided they were employed with younger children, has not been fully eradicated from the public mind. Indeed, a letter appeared in the 'quality press' this very month from a 'lady of quality', embodying the doctrine that there is no mystique in teaching, especially in the earlier stages, but that when children reach a certain age teaching becomes a higher art and one that is worthy of generous remuneration. A fallacy, no doubt, but Burnham

awards since 1956 have been based on this same absurdity. One primary child equals half a secondary child, and ten primary children equal one sixth-former. Now the Minister, having consistently rejected the advice of the Advisory Council as to the necessary expansion of teacher-training, finds that in 1962 the number of teachers required for primary education will fall short by 9,000. Among the suggested remedies is a directive to training colleges to concentrate on training for the primary schools, and to increase the proportion of women students. Such a policy can only widen the gap between primary and secondary teachers by increasing the proportion of graduates in the secondary spheres and depleting the ranks of men teachers in primary schools.

The true solution, like the fault, lies 'not in our stars but in ourselves'. The profession must find the answer, and this can only be achieved by joint effort of teachers in all types of school. To be fair, our secondary colleagues are making their contribution by insisting that future Burnham negotiations shall reverse the discrimination policy. By a concerted effort, too, we have ensured that three-year training shall apply equally to teachers intended for primary schools and for secondary schools. In avoiding any clear-cut dichotomy within the profession, training is the key factor. It is essential to rid ourselves of the notion that academic qualification is the prerogative of the secondary teacher.

All too often, even the training colleges tend to influence their 'A' level students to the teaching of older children. This should not be. High academic standards are equally necessary in the primary schools. As the field of recruits increases it should be possible to ally the minimum qualifications for entry to the training colleges with those for university entrants. The extension of training to three years should secure exemption for qualified teachers from part of the B.A. or B.Sc. degree. As soon as feasible the teacher-training courses should be of four years' duration, and include a degree on the successful completion of the course.

Meanwhile, it is imperative that the number of graduates serving in primary schools be increased. At present there are about 6,000 graduates in primary schools, as compared with 46,000 in secondary schools. While I agree wholeheartedly that untrained graduates are not the answer in primary schools, it is well for us to be precise and not appear to think graduates *qua* graduates are out of place in this section of the service. If Ministry policy were allowed to pass unchallenged and the total of training college output diverted to primary schools, there would be an increase of graduates in secondary schools and the new figure might well be 84,000 graduates in secondary schools, and still only approximately 6,000 in primary schools.

In the post-war years the total number of men in the teaching profession has risen sharply. The 1959 Report on Education shows that there are approximately 117,000 men teachers and 175,000 women teachers. About 40,000 of the men teachers were employed in primary schools, as opposed to 100,000 women. When the figures for men and women teachers in the primary service approximate more nearly, the position will be analogous to that in the secondary sphere. It is particularly interesting to note that 48 men teachers were employed in infants' schools. This, too, is a figure I would like to see increased. The more it can be shown that status is not dependent on either the sex of the teacher or the age of the pupils, the more we can hope to equate the importance of the two stages.

Other factors which have contributed to an apparent disinterest in primary education are varied. The close proximity of the school-leavers with the world of commerce and industry tends to highlight the section of education concerned with those about to enter employment. Insistence on the unity and indivisibility of the educational system is the best guarantee against this form of accidental neglect. Press publicity also accentuates the importance of secondary education. Such publicity is not always favourable, but even the adverse press comment in relation to juvenile delinquency, high heels, and drainpipe trousers, keeps the problems of the secondary sphere in front of the public eye. The primary school all too often hides its light for fifty-one weeks of the year, and only in the 11+ week makes headline news. Again there is an answer, and in some respects the profession is seeking to supply the right kind of publicity as evinced in the film 'I want to go to School'.

So long as we restrict ourselves to fact, and try to sift truth from what is mere opinion, the case is a good one. Wisdom requires that we do not overstate it, that we maintain that 'all stages of education are of equal importance' rather than claim a special importance for primary education. Our salvation lies in maintaining our own criteria. The primary school is not a mere interlude between home and the later stages of education, nor is its quality to be judged by its success in preparing children to proceed to the latter. Its criterion must be the needs of pupils during these formative years, not the exigencies of 11+ examinations, or the demands of secondary education. If the teachers in the primary service remain single-minded in this respect, if they hold out against the attractions of 'secondary prestige' or secondary salaries, continuing to insist that the job is worth doing well, the prestige due to such service will surely follow.

Recent Developments in the Teaching of Mathematics

J. B. BIGGS

Mr. J. B. Biggs took a degree in psychology at the University of Tasmania. On coming to this country he first taught in a secondary modern school and is now Research Officer at the National Foundation for Educational Research.

It has become almost a truism to say that all is not well in the state of mathematics teaching. Despite the excellent work done in many grammar and public schools, there is a widespread concern that present techniques, particularly at the primary level, might be missing something—something which may account both for the very general dislike of mathematics and arithmetic amongst children and adults, and for the present shortage of scientists and mathematics teachers. Perhaps the problem itself is not particularly new: it is, however, only recently that the combination of circumstances has been such that the practical means of dealing with it are becoming available.

There are two major factors, neither of which is as important as its influence on the other. The first is that professional mathematicians have become interested in school mathematics *below* the sixth form —indeed many are now vitally interested in the 'mathematics' of the infant school. There is, for instance, one experimental programme (under the guidance of the University of Illinois) where the whole school curriculum, from bottom to top, has been reformulated in terms of the Theory of Sets—a mathematical language not normally met with outside the university. The second, and equally significant factor, is that the psychological principles of learning, and particularly of concept development, are beginning to be understood. There is still a very long way to go in this, but due largely to the work of Piaget, Dienes, Wertheimer and others there is now sufficient evidence available to suggest how, in fact, children do learn.

Technique or understanding

But first, what does this upheaval and dissatisfaction with present practice boil down to? The answer to this is simple. Mathematics can be regarded as having two aspects—a technique aspect, which deals with the actual manipulations we have to do whenever we 'do a sum' or solve a set of simultaneous equations. This consists simply of following the rules, whether we understand them or not, and obtaining an answer—we hope, the correct one. Secondly, there is the understanding aspect. This has nothing to do with rules and manipulations: here we are concerned solely with coming to grips with the nature and meaning of mathematical concepts themselves. Of course, the rules arise in the first place out of the logical structure of mathematical concepts simply as computational shortcuts—the 'dozen rule' is a very quick way of saying that when I multiply a quantity by its base, I am in fact raising it to its next power. Naturally the rules are easier to remember and much more succinct than their underlying structures, in any case one might ask, I get the right answer by using them so why bother trying to understand what it is all about?

'Quick returns'

An example of how this attitude has affected the quality of teaching in schools is to be found in prevailing methods of teaching subtraction. The method of decomposition is undoubtedly the most meaningful and most easily understood: however, the equal-additions method has slicker and quicker rules, although it is extremely difficult to attempt to explain to a nine-year-old *why* we can add 10 to the units and 1 to the tens without violating the laws of conservation. This method is quick and it is accurate—it is also incomprehensible, but compared with the first two virtues, this last one is deemed unimportant by the vast majority of junior school teachers in the country.

This then, is what is wrong with arithmetic and mathematics teaching. The 'quick returns' policy of teaching the rules is the one which has prevailed in many schools, not only in this country but virtually throughout the world. However, for years there has been an uneasy feeling amongst many educationists that the technique approach is wrong. There are many adventurous and sincere teachers who, shudder, for instance, at the thought of rote-learning the multiplication tables, and who eschew the practice in their own classrooms; substituting instead 'real life' activities. While this may certainly be a step in the right direction, it may also be the case that children who have been through certain 'progressive' activity courses do not even have the satisfaction of 'automatic accuracy' (to use Schonell's ominous phrase) in their techniques to fall back upon. Although it is true that children's concepts, mathematical and otherwise, develop out of their experiences, unfortunately all but the very simplest mathematical concepts are not to be found in real life—they are far too complex and 'artificial'. Thus,

purely environmental approaches are necessarily mathematically impoverished. However, far from saying that the child's own experiences are to be neglected, this means rather that we have to create artificial situations for him, in which these complex mathematical structures are embodied, so that he can then immerse himself in them and find out for himself something about their structure.

Concept formation

There are several important reasons—psychological, utilitarian, social and even aesthetic—for stressing concept learning. In fact it is doubtful if anyone would dispute this as a general statement. What many *might* dispute is the feasibility of doing so, particularly in the case of the average and below average child, and particularly too, where there are extrinsic but apparently binding reasons for doing so, such as the 'technique-loaded' selection examinations, whether at 10+, 13+ or 18+. Taking the last point first, it is frequently overlooked that if we teach for understanding, the rules will take care of themselves; a child who understands the concepts of place value, bases and raising to a power, won't *have* to try and remember the dozen rule. Secondly, attempts at trying to make average and below average children[1] understand basic concepts have failed because such attempts have been psychologically at fault.

Now as indicated previously, there are some findings about both concept development and concept formation which are relevant and very suggestive for classroom practice. Taking the developmental side first, the most important contribution here comes from Piaget. In various books and articles he has described the manner in which children's concepts of space, number, causality, time, etc. develop, which, if true, make nonsense of current mathematical practice in many primary schools. Very briefly, he is important educationally for the notion of stages in intellectual development, which we may interpret as 'readiness levels'. Until the age of six to seven years, the infant is in what is called the perceptual stage—things are what they seem. Even if he has counted the objects in two piles and found them to have the same number, if the piles look different in size, he will insist that the 'bigger' pile has more objects in it. We can only surmise, then, what meaning the sums he does in infant school have for him, since he evidently is incapable of grasping the notion of the constancy of number. From the ages of seven years to early adolescence, he passes through the 'concrete' stage of thought. He can build up systems of concepts and can carry out quite complicated operations of thought, but only if he remains tied to his own experience—he cannot fly off into the abstract realms of logic or think in a formal, analytic way. These last achievements come only with maturity, at what Piaget calls the formal operational stage. As it happens, these stages correspond roughly with the stages in our school system and it doesn't take much imagination to see how important it is that the content and mode of teaching should be geared to these developmental levels in children's thought.[2]

While it is important to know the manner in which children develop in their general thinking, it is just as important to know the dynamics of the formation of specific concepts. This involves the process of abstraction which, as has been known to psychologists and philosophers for many years, means that the one common property which is exemplified in many experiences or percepts becomes recognised and later formulated. It follows that the more different the experiences are in appearance, the sounder will be the concept when it is abstracted; otherwise the process known as association, not abstraction, will occur. For example, the word 'car' to the young child will mean Daddy's blue Austin at first—and will not include the red Anglia down the road. He has merely associated the sound pattern 'car' to a particular object. Only when he has had experience of many makes, colours, shapes and sizes of cars can he be said to have made an abstraction and formed a genuine concept of 'car'. The concept forming process can be seen to proceed in stages—from a random play stage, through an intermediate 'feeling for' stage where there is some insight and a deal of tension, to the final 'aha' stage when the penny drops.

Teaching or learning

With even this meagre psychological background, it is clear that this individual and dynamic concept forming process is not going on in many of our schools—or if it is, it is by accident rather than by design. Thus, when teachers admit with a sigh that it is not much use teaching mathematical concepts to most children because they are too difficult for them, the point is being missed. Psychologically, one doesn't 'teach' concepts: they are learned from the individual's own experience. Indeed, verbal explanation can actually stand in the way of genuine abstraction.

There have been introduced in recent years many methods of teaching number and mathematics which do claim to provide children with materials appropriate to the psychological principles of concept formation. The majority set out to teach no more than the basic elements of number itself, leaving other branches of mathematics untouched—such are the Stern, Cuisenaire and Shaw methods. There is, to the author's knowledge, only one

method available in this country which attempts to go beyond this—this is the Dienes Algebraic Experience Material (his Multibase Arithmetic blocks cover the work in pure number)—although there are experiments going on in Belgium and in the United States in which unorthodox methods of presenting secondary school mathematics are used.

New methods

Let us take a quick look at some of these methods. The Stern apparatus, recently published in this country, consists of coloured articulated blocks of $\frac{3}{4}''$ section—unlike the Cuisenaire, however, the Stern colouring serves no other than a decorative purpose. The blocks range from one cube (the unit) to ten units (the ten block). There is also the Number Track, which is a series of ten sections, each of ten units length, which when placed end to end can represent the number scale from 1 to 100, and several boxes and number cases used mainly for representing concretely the number bonds and number combinations. The scheme of work covers the introduction of number names and symbols, then later the four rules, with carrying, to one hundred. Problems can be and are introduced before notation itself is mastered since the appropriate blocks can be used concretely to represent given quantities. It is also claimed to be possible to cover the same concept by using the apparatus in different ways. The children work at their own pace, individually or in small groups.

The Cuisenaire material consists of 241 coloured rods of 1 cm. section. The rods are unarticulated and vary in size from 1 cm. to 10 cm. The unique feature about the Cuisenaire rods is that the colour of a particular rod depends upon its size—the unit is white; the factors of two (2,4,8,) are coloured in varying shades of red; the factors of three (3,6,9,) being in shades of blue; 5 and 10 are the yellow family; and seven, the next prime, is black. There are, in addition, cards and games used mainly for learning and memorising number combinations without resorting to table learning. The scheme covers the basic infant work and beyond—the rods, because of their small size and unmarked surfaces, are well adapted to representing fractional quantities.

The Shaw materials are in principle the same as the Stern and Cuisenaire. The major difference is that the rods are cylindrical and are structured upwards, on pegboard bases, whereas the other two methods are structured horizontally on the table top. Shaw's rods are articulated and, again like the Stern, arbitrarily coloured. With the use of many charts, some 11 and 12 rods, and large pegboards, Shaw's materials are intended to cover most of the junior school curriculum, including decimals and percentages and operations with money.

A further development

There are, of course, certain rather important particular differences between these three methods but both their use and general principles are similar. The Dienes materials are radically different from these in actual fact, although the basic psychological principles are supposedly common to them all. It is evident that the major criticism to be made against the Stern, Cuisenaire and Shaw materials is that they do not go anything like far enough. For instance, the concept of place value is taught, in the latter three methods, to the base ten only. Now it is clear that the place value concept *per se,* is quite independent of particular materials used to illustrate it —and *a fortiori* of their colour. The concept itself is also independent of the value of the particular illustrative numbers, the base of the number system in which they are expressed or the power to which that base may happen to be raised. In the first three methods, the first only is varied—i.e. place value is taught to the base 10 alone and the apparatus itself usually only represents x to the power 1, or occasionally x^2; i.e. in units, tens and, more rarely, hundreds. The Dienes apparatus takes the variability principle to the logical conclusion and varies not only the base—his blocks are in five bases: 3,4,5,6 and 10—but as well the power, to at least the third and it is possible to structure powers well beyond this, the only limit being the availibility of sufficient wood. The apparatus comes in two sets—the Multibase Arithmetic Blocks (MAB) and the Algebraic Experience Materials (AEM).[3]

The Dienes material

The MAB material consists of a unit cube, a 'long' which is b units long (where b is the particular base), a 'flat' consisting of $b \times b$ units and a 'block' made up of b^3 units. This series is repeated for the five bases mentioned above. The children work from a carefully graded card system which covers the four rules, together with problem applications. As with most other methods, it is expected that judicious use of environmental project work for the acquisition of such applied concepts as weighing, measuring, money operations, etc., will be made as a practical extension of the basic concepts. The system can be initiated in the first year of the junior school (much depends on the general and reading ability of the children) and is continued, in conjunction with varied practical work, until the third or fourth year, again depending on the ability of the children. There

is a certain amount of knowledge presupposed from the infant school; viz the concepts of size constancy, counting, notation and the elements, without carrying, of addition and subtraction.

The AEM is usually started with particular children as they are reaching the end of the MAB cards. It should be emphasised that the two sets of materials are not separate 'courses' but can, and should, be used in conjunction with each other. The AEM material consists of various pegboards, triangles, rectangles and other shapes, a balance and various *ad hoc* pieces of material which are brought in to supplement the existing material—this is often necessary with duller children since they need an even wider variety of concrete embodiments of a concept before they can abstract and eventually formulate it. At present the algebra material covers from the middle of the junior to the first two or three years of the secondary school. Examples of topics dealt with are the concepts of 'pure' multiplication and its various aspects (distributive, commutative and associative laws), linear equations, quadratic functions and equations and the four rules with directed numbers. Cards and apparatus dealing with indices and logarithms are in the process of being devised.

A weakness

It is quite impossible in an article of this length to do justice to any of the methods discussed here; still less to answer possible criticisms which can, and have, with more or less justice, been levelled against them. We should, however, make some evaluative comments about them. But first, it is fundamental that two things are accepted: the necessity of children learning concepts rather than techniques, and secondly, the recognition that the psychological principles governing the former process are very different from those governing the latter process. In technique learning, drilling and formality can find justification in reinforcement theory, whereas concept learning, as we saw only too briefly, depends on the process known as abstraction and this occurs through the individual's concrete experience which, if the concept is to be fully 'free' or operational ('decentred' from subjective experience as Piaget puts it), must be as varied as possible. How do the methods mentioned here measure up to this?

Ives[4] states that 'the child's experiences with such (i.e. Stern and Cuisenaire) materials will lead to the formation of exact mathematical concepts'. Now this does not follow at all; *a* concrete representation of a concept is not enough, whether with Stern, Cuisenaire or Dienes material, since the child will simply associate his idea of the concept with one particular manifestation of it. In order to produce genuine understanding, he must have had experience with many such concrete (and even 'abstract') exemplars. This is the greatest weakness of the first three methods discussed—except in the case of very bright children, who are notoriously good abstracters, the majority will be able to manipulate only one example of a concept, 'translating' it directly into more conventional notation. This is a likely explanation why Cuisenaire-taught infant children can do quite astounding feats of computation in fractions—they are using, in effect, an ingenious but simple calculating machine based on association, facilitated, it may be, by the quite arbitrary colour association. The Dienes material has at least the rigour to pursue the implications of psychological abstraction to their logical end.

Experiment and evaluation

Theory aside, however, the vital question concerns the working of these materials in practice. There has as yet been very little experimental work evaluating these and other techniques for teaching arithmetic or mathematics. The National Foundation for Educational Research is at the moment engaged upon two large scale studies; the results of the first should be available within twelve months. If the results of these and other studies are as favourable to structural methods as psychologists and teachers who have used them would seem to think, then the next five years might well witness a revolution in arithmetic and mathematics teaching in our schools.

[1] It is not the very bright child we are worried about—because if he *is* bright he will almost always abstract his own concepts. The really important question is to find the key which will open the mathematical door to the less bright.

[2] A lucid and non-technical exposition of Piaget's theory of number may be found in *New Light on Children's Ideas of Number*, by Nathan Isaacs (Educational Supply Association).

[3] The Dienes materials may be obtained from the National Foundation for Educational Research, 79 Wimpole Street, London, W.1.—ED.

[4] 'Contributions of the Environmental, Cuisenaire and Stern Methods to the Understanding of Number,' *The New Era*, June 1959.

The next number of FORUM (Vol. 4, No. 1) will include an Open Letter to the Committee on Higher Education (the Robbins Committee) by the editors, and articles on Mental Stress in School (by Edward Blishen), Educating the Non-Scholastic (by H. Raymond King), the Nursery School (by J. H. Wheeler), Education in New Zealand (by Ellen Roberts), Adventure Schools (by Jack Walton), together with a review article on recent books for English teaching in the primary school (by Eric Linfield) and other subjects. This number will be published on September 20th.

An Experiment in Junior School Mathematics

JOHN LEEDHAM

Mr. J. F. Leedham became headmaster of the new South Wigston junior school in September, 1958, during the earlier stages of the Leicestershire Experiment, under which there is no 11 plus selection procedure. In this area there was a considerable interest in experiment in the teaching of mathematics and Dr. Dienes, then of Leicester University, co-operated with the schools in introducing special apparatus for this teaching.

This article is a review of the experiences gained with this particular material in the South Wigston junior school.

'Normal 10 year children can learn the use of brackets, the properties of squares, the solution of linear and quadratic equations and the factorising of quadratic functions, if approached from the constructive point of view. There are almost limitless possibilities for enlarging the junior school syllabus by the including of such topics as the theory of groups, usually reserved for university honours courses' (Dienes: *Educational Research,* Vol. 2, No. 1).

The stimulating and provocative picture of normal 10 year olds coping with sixth form work has had its chance of being achieved in two or three schools for some time now. The brief report which follows is an attempt at an objective assessment of experience and results in one such school with pupils representing a normal sample associated with a mean I.Q. of 98 and a roll of 400. The article represents the general views of all the staff of this particular school. It may well differ from other views about the same subject.

The particular structured material referred to by Dienes has, up to the present, been considered to consist of two separate sets of material: Multibase Arithmetic Blocks and Algebraic Experience Material. Local and central effort to combine the two sets of material has not yet interfered with the pattern of use which the school has pursued with the material. The M.A.B. has been used in the first year and the A.E.M. in the third and fourth year. Cuisenaire and specially constructed material has had passing attention, but fifteen months of experience with the Dienes material represents the major experimental work carried out.

Description of the material is outside the scope of this article, and the subject is very fully covered in various publications, including that mentioned above. The use of the material has attracted such widespread attention that this report may well answer some of the questions which cause hesitation in its employment.

The Multibase Arithmetic Blocks appear to have fully justified themselves at first year level, when in the hands of sufficiently tutored teachers. Within five months the three processes of addition, subtraction (decomposition) and division are secure enough with the brighter children for them to apply the concept gained in the manipulation of many and varied bases, in any required situation, such as money or linear measurement. This is done by identifying the 'base'—i.e., 12 is the base for inches, 3 is the base for feet. The children then perform the process. For multiplication we learn the tables after becoming acquainted with the concept by changing bases in the process of division. The children are supported by a 100 square with which to work out their tables.

The material does not appear to improve the speed of learning for the slower children. It is possible that the multiplicity of bases may be confusing when the concept is slow to dawn. With the faster groups there is little doubt that, by concentrating on these children, a high standard of work coupled with deep insight could be achieved, given a skilled and able teacher. The disparity in achievement in unstreamed classes such as ours however, is shown to be a matter of pace as the slower children can always be observed in their particular misconception, and assisted.

The picture is equally true of the more diverse algebraic material. The range of 'approaches' to the formation of the concept stimulates the brighter children, but the very diversity of the material tends to slow down the less able children in the earlier stages. It has been necessary to 'set' faster groups from the third and fourth year. It is doubtful if progress with these will extend far beyond linear equations in the children's fourth year, but quadratics may be achieved by a few within the set.

One particular point needs to be stressed. The ability to compute accurately is not to be despised, it has proved to be an aid to the progress of concept formation. There are two or three features within our experience which supports this view.

Our interim experience, for that is all that it is so far, has shown much value in the approach to mathematics by using structured material. It would appear that the following observations hold good:

1. Adequate use of the material beyond its elementary stages calls for an able and tutored teacher.
2. Less able children can be slowed down by the material, but slowness sometimes adds to certainty.

English in the Primary School

G. KITSON

Mr. G. Kitson was educated in Ireland. After serving for two years as an Education Officer in the R.A.F. he trained to teach in the Emergency Training Scheme. He has taught in infant and junior schools and is at present senior lecturer in education, City of Leicester Training College.

Most school programmes and textbooks tend to incorporate what adults think children should know —i.e., in English, the principles of grammar. I want to approach the question of improving English teaching from another angle, to ask—what steps are necessary to develop children's linguistic capacities?

Language develops through a child's contact with others. It is largely imitative and of course the home has a most potent influence. The average child enters school with the language of his family and street. His 5,000-word vocabulary includes dropped 'h's', quaint vernacular phrases, variations of vowels, ungrammatical formulations, all of which are used with fluency, trammelled in well-worn paths.

The tacit assumption of the school is usually that a proper dose of grammar teaching is the best method of eliminating these deficiencies. But is a knowledge of grammar a necessary corollary of correct speech? Many normal people — including young children — speak and write grammatically without any knowledge of the rules of English grammar. They have simply acquired language under conditions conducive to learning it correctly. What are these conditions and how can they be reproduced in school?

To emulate good speech, children must be surrounded by good speech. The first necessary asset for any school is a tradition of exquisitely-spoken English. Teachers are often guilty of speaking in a slovenly way; they could be much more precise in their forms of expression. Second, to learn to talk, a child must be allowed to talk, be in an atmosphere where talking is encouraged and accepted as normal behaviour. This is possible in a classroom if the teacher (a) has the right relationship with the children and (b) provides situations in which discussion can take place as a natural outcome of class activities.

The right child-teacher relationship is all important. Fear tends to inhibit freedom of expression whether it be through art, music, drama, the written or spoken word. Children will not communicate their innermost thoughts and feelings (and surely this is what we are after when we ask them to write or speak imaginatively) if they resent, or have little trust in, the adult. Hughes Mearns has this to say:

> 'Wherever creative work flourishes, I seek the one who has opened up communication with the children on the side of their secret unexpressed selves. He is usually a person who has no objections to anything that children tell him seriously; so he gets nearer and nearer to them as one might become acquainted with birds, and as the communication develops into confessions he secures the astonishing results that are so often called gifts.'[1]

In our male versus female world, had the relationship not been right, this might never have been

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AN EXPERIMENT IN JUNIOR SCHOOL MATHEMATICS

(*Continued from page* 93)

3 Practice in computation in the decimal base has seemed to us an asset, not a hindrance.
4 The material appears to aid insight for the brighter children at a very rapid pace.
5 The child who is neither bright nor slow responds in an exact measure to the effective presentation of the material. It is not the easiest of tasks to present the material to correspond with the range of progress within an unstreamed class.
6 The children seem to find 'ordinary arithmetic' easier because of their experience.

All in all, it could be fairly said that we have found the material to be rewarding. As a personal note I would submit the impression that the aptitude of the teacher is at least as important as the potential of the child to learn by this system.

The extent to which teachers become conversant and confident with the material determines its effective range. For while it is possible for the most able children to employ the material on their own, for the others it is the teacher who checks their misunderstanding, lightens their darkness and re-routes their thinking. He is still the most important piece of apparatus.

communicated to a woman teacher by a boy of 10:

Snowflakes,
Falling to the ground.
Falling on tiptoe
Whisper to me as they go
We are the petals of a summer rose.

The child communicates and confides his inner thoughts and feelings to an adult in whom he has confidence without fear of reproach or criticism. In fact he is receiving sanction for having such thoughts and feelings—thus easing tensions and anxieties.[2]

How can language be an effective intellectual tool if children are given no opportunity to use it? Linguistic ability is not merely the ability to memorise words and phrases with a view to reproducing them more or less mechanically upon receipt of a given cue. It is the ability to make intelligent use of words for the purpose of defining our thoughts and feelings as clearly as possible to ourselves and others, in order to share experiences with them, to bring about their intellectual enlightenment or influence their behaviour.

This being so, no general enlargement of vocabulary can be secured except through an enlargement of the understanding. Equally there can be no development of sensitivity in the use of language except through a general quickening, maturing, illuminating and energising of the mind in all its functions. Yet in some schools the amount of time afforded to children to use language as an imaginative and intellectual tool is comparatively small.

> 'Teachers have a habit of monopolising continued discourse. Many, if not most, would be surprised if informed at the end of the day of the amount of time they have talked as compared with any pupil. Children's conversation is often confined to answering questions in brief phrases or single disconnected sentences. Expatiation and explanation are reserved for the teacher, who often admits any hint at an answer on the part of the child, and then amplifies what he supposed the child must have meant. The habits of sporadic and fragmentary discourse thus promoted have inevitably a disintegrating intellectual influence.'[3]

Opportunities to use language develop naturally if the teacher is prepared to introduce more dynamic methods of learning into the classroom. Centres of interest and projects, in which group work and co-operation is necessary if the tasks are to be successful, include speech as an essential aspect. If active learning methods are impossible then situations can be constructed to allow children to express their ideas verbally, to discuss, explain, describe. It is only through use that they can become fluent in language and only by being able to express their

thoughts and feelings in a permissive atmosphere, where whatever is said is accepted as a serious contribution, that children grow in linguistic confidence and become freed from inhibitions.

To turn to written English, a young child develops considerable oral facility before he attempts much in the way of writing. So at first he writes very much as he speaks: short sentences, often unrelated and joined by conjunctions. The most difficult task in the early stages of teaching children to write is to get fluent talkers to stop and think what they are going to say before they put it down on paper. But is this a primary task with the young child?

Too great an emphasis on planned statement invariably robs children's writing of liveliness and vitality. If a conscious style is forced upon the child too early his writing becomes artificial and he is likely to become bogged down in a maze of rules. Children who begin with something to say, and have the intellectual and imaginative eagerness to say it, are sometimes made so conscious of minor errors in substance and form that constructive thinking gives place to anxiety not to make mistakes. In extreme cases passive quiescence then seems the best method of minimising error. This is to promote self-consciousness and constraint. The children lose zest for writing, instead of becoming interested in how to find an adequate formulation of their thought, interest is drained off. Having to say something is a very different matter from having something to say.

On the other hand, young children best know what they have to say if they are given an opportunity to talk about it before being asked to write. No one can write until he knows what he is going to write about—really knows, not merely as information but as something that has become part of him. This may come not only through actual experience but also through imaginative identification, in discussion of a film, television programme, story, the shared experiences of other children in the class. It comes through involvement, through being there, either in reality or imagination.

In the same sense written work in the primary school should also be geared as far as possible to other subjects so that it is the expression of the creativity of a child whose interest has been stimulated in those subjects.

What about standards of spelling, of grammar, of writing? Of course, good standards of presentation matter but writing is often a tremendous inhibitor of fluency, especially with some of the pens and paper used in schools; so, too, is the requirement to spell correctly. Much anxiety can be eliminated on all sides by the use of rough notebooks. Writing should in no way be a wearisome task, sweated over and tinkered with by the teacher. Much writing, especially for class magazines and topic or project work, can be done at odd times, jotted down hastily, in pencil if necessary, feverishly, with the impulse of creation. Then there need be no thought for best writing or spelling or fair width margins. The ideas can spill out on the page and grow in quantity, sprawling, illegible, yet warm with life. Then, when they have been captured, they can be sorted out, crossed off, worked into shape, recopied with care, punctuated and spelled.

High standards can be insisted upon and attained if the teacher emphasises that good presentation is the necessary and accepted tradition of the classroom and demonstrates why it is necessary to good written work. It might improve all such work if we entirely abolished the exercise book. Not only is this often unattractive but also the child is never really certain whether it belongs to the education authority, the teacher, or himself. Exercise books are often far too big—a reminder too long of failure for those who get off to a bad start. Small books made and decorated by the children are much more personal and satisfying.

As for marking the written expression of children, I once marked heavily and meticulously in red ink. It is now long since I decided that I could use the time much more effectively in getting to know what the children write and that commendation does far more for a child than any amount of red ink.

Throughout this article I have rejected the traditional methods of teaching English and proposed techniques which, on the surface, appear so simple as to be suspect and an encouragement to low standards. It is, however, this very simplicity that has allowed some teachers to get near enough to the minds and imaginations of children to encourage uninhibited communication and so the kind of creative writing which makes standards seem sensible and worth while. Some have recorded their experiences in the works listed which I commend to your reading.[4]

[1] Hughes Mearns, *Creative Youth* (Doubleday Doran, N.Y.).

[2] Marjorie L. Hourd, *Education of the Poetic Spirit* (New Educ. Book Club).

[3] John Dewey, *How we Think* (Heath, N.Y.).

[4] Hourd & Cooper, *Coming into their Own* (Heinemann). Michael Baldwin, *Poetry without Tears* (Routledge). Flora J. Arnstein, *Adventure into Poetry* (Stanford Univ. Press). J. A. Cutforth, *English in the Primary School* (Blackwell). David Holbrook, *English for Maturity* C.U.P.). *Primary Education,* Section on English (H.M.S.O.).

Discussion

Towards a Council for Educational Advance

FORUM is glad to print a number of comments on Dr. White's proposal, in the last issue, for the setting up of a Council for Educational Advance. Each contributor on this topic is writing in his or her personal capacity and can in no sense be taken as committing the organisation of which he or she is a member.

I have read with enthusiasm the article by Dr. L. F. W. White. The simple answer to his title 'Who is for Crowther?' is, of course, 'Everyone' in the sense that all who read its scholarly analysis of the educational and social needs of the fifteens to eighteens are agreed on its general inference that the spirit of the 1944 Education Act is far from realised as yet.

Like so many Reports, it has been welcomed as big news by the press, countless addresses have been delivered on it and conferences arranged to discuss it. The Minister of Education has sought the views of the major Education Associations on it and they have spent much time in deliberation for the purpose of submitting their findings.

We can be satisfied the Ministry accept the case in principle for raising the school-leaving age and for the establishment of county colleges. *BUT* we can also expect the inevitable hesitancy about taking action under the excuse of financial difficulties, teacher shortage and limits on school building programmes.

It is therefore in my view absolutely imperative that educationists in all fields must ensure that Crowther isn't left on the shelf! For this reason I support enthusiastically the establishment of a Council for Educational Advance so that both the Government and the general public will share our sense of urgency and ensure that the challenge of Crowther is translated into speedy action.

COUNCILLOR ETHEL M. WORMALD, J.P., B.A.,
Chairman, Liverpool Education Committee,
President-Elect, Association of Education Committees.

Yes, of course the Crowther proposals should be implemented. It is simply ludicrous that we should still be dithering about in the matter of raising the school-leaving age. Nor should we delay in fixing a date until we have sufficient buildings and teachers, for all experience shows that in England we never get sufficient buildings and teachers until a date has first been fixed.

But a Council for Educational Advance should be all that its title implies, and not merely a Council for Raising the School-leaving Age. If the extension of schooling is not to produce rebelliousness among pupils, resentment among parents, frustration among teachers, and high glee among reactionaries everywhere, much else must be done. Teachers must throw out the dead wood from their curricula and teach matter relevant to the modern world; the older pupils must be treated in the schools as young adults; and we must all recognise that we are now educating the first citizens of the twenty-first century.

CYRIL BIBBY,
Principal, Kingston upon Hull Training College.

In my Presidential Address to the 1960 Conference of the National Association of Schoolmasters, I said:

> 'In this great land of ours every child has the right to an education best fitted to his age, his ability and his aptitude—not an education which finishes at a predetermined age, which confines his ability within predetermined limits, and which channels his aptitude along predetermined paths.'

I went on to outline my own personal ideas of some of the improvements which could be made and I concluded with these words:

> 'Let us make the politicians realise that previous pledges must now be honoured, and that no longer can they count a paltry three per cent of our national income as adequate expenditure on education. It is our responsibility to inform the ignorant, prod the passive and enlighten those in doubt. It is our responsibility to speak out for the inarticulate and to show that it is indeed the will of the British people that our children shall no longer be denied the full educational provision which is their right.'

A Council for Educational Advance such as Dr. White proposes would have my approval and support.

A. L. JONES,
President, National Association of Schoolmasters.

I was pleased to read of Dr. White's proposal for a Council for Educational Advance consisting of organisations desirous of seeing the 1944 Education Act implemented in this decade.

There is a growing recognition that in a period of rapid technical change we need an improvement in general education as well as a higher level of technical education.

The Crowther Committee spotlighted what needs to be done if these needs are to be met: the raising of the school-leaving age to sixteen and compulsory further education to eighteen. I would add a third point—the provision of more places in higher education.

A body such as Dr. White suggests could effectively focus attention on these key needs and win support for action on them. The Council for Educational Advance in the 1940's helped to put the Act on the Statute Book; a similar initiative today would help to see that the Act is implemented.

T. DRIVER,
Vice-President, Association of Teachers in Technical Institutions.

Mixing in the Comprehensive School

It is good news that some comprehensive schools are succeeding in giving children an opportunity to mix with other children not in their own forms as described in G. V. Pape's article, FORUM, Vol. 3, No. 2, pp. 71-74.

Certain assumptions in this article are, however, questionable.

In most London comprehensives, as far as I can discover, first year pupils are graded into forms on the basis of their common entrance marks. It appears that Mr. Pape accepts this grading as being in fact based upon ability and resulting in forms homogeneous in respect of this ability.

Now it must be plainly admitted that today, as a result of the streaming in the junior schools and of the use of temporary teachers in so many of the 'lower' streams, children do come into the secondary schools differing very widely in their command of basic skills, particularly reading and multiplication, as well as in docility and in their interests.

But that these artificial differences should be allowed to determine to a very important extent the child's future is to put in the way of some three-quarters or more of our children a stumbling-block of the enormity described in the New Testament.

Moreover, the misleading and question-begging clichés 'ability-grouping' and 'mixed ability classes' must not pass. It is probably true that those who have the most emotionally and materially secure homes, and have had the most efficient schooling, will get into the 'upper' forms in a streamed secondary, and will give these forms some appearance of homogeneity; but as one passes from ABC to DEF and GHI the differences between the pupils in achievement and disposition increase, until in the 'lowest' streams, one finds everywhere children capable of holding their own in any company together with children suffering seriously from emotional or physical handicaps and the 1 or 2% who are properly described as 'handicapped' in their mental development.

Two assumptions have been put across our teachers and inspectors by the Establishment which need to be blown sky-high.

The first is that a child needs 'a lot of brains' to get a G.C.E., whereas, in fact, given a fair chance, there are very few children indeed who could not pass this and more.

The second is that unless a child is hand-picked on admission to a secondary school, and pushed like hell for the next four years, he hasn't an earthly; whereas, in fact, A. S. Neill, whatever else he may be wrong about, is almost certainly correct in saying that almost any child who really wants to can pass his or her G.C.E. on two years' reasonable effort.

The central problem of secondary education today is to win the co-operation of the pupils in and out of class; and one of the greatest obstacles to success in solving this problem is the chip-on-the-shoulder of those who did not get into the 'A' stream in the junior school, and who find themselves once more relegated to the 'lower' streams and the supply teachers on their arrival in the secondary school. I speak of what I have seen.

KEN FORGE,
Assistant Master, Kingslade School, London.

Dangers of Beloe

To many of us it must have been a severe shock to find the *avant garde* in education, to which we would believe the editorial board of FORUM to belong, has come out with a symposium of the Beloe Report with every contributor apparently accepting the basic principle underlying the recommendations of the Report, that is to say, that at least 60% of all pupils at the age of sixteen should take an examination.

I am delighted that two of the weaknesses in the Report have been brought out by your symposium. First of all, that under reasonable conditions, in the 1960's, 20% is far too low a figure for the number of pupils capable of benefiting by the 'O' level G.C.E. to the extent of passing in four or more subjects. Given reasonable living conditions and encouragement from employers, this may well be 30% at present and there is no reason at all why this percentage should not increase as the decade goes on. Secondly, many of us were disturbed at the abrupt way in which the Report dismissed the value of local examinations and it is gratifying that one of your contributors makes a spirited defence of locally organised examinations. It is, in fact, local conditions, the nature of local employment, the nature of local housing which may determine the percentage of pupils who can benefit from G.C.E. work. If we accept the Beloe Report as making recommendations for the next 40% below those passing in four or more subjects at 'O' level, then very shortly the Beloe Certificate plus the G.C.E. 'O' level certificate would cover the needs of 70% or more of the pupils.

What is going to be the effect of this situation? First of all, we must recognise one thing. At the present time, in spite of the pressure of parents and pupils, a very large number of secondary schools are able to run admirable programmes without hampering themselves with an additional examination of the majority of their pupils. If there were a national and, therefore, a reputable examination officially recommended by the Ministry and by the Local Education Authorities, the schools would have to give way and bow to a pressure that would be irresistible.

What will this mean? By the end of the decade, 20 to 25% of pupils will be leaving secondary schools without anything. They will be the permanently marked backward pupils, unfit for skilled jobs, the errand boys, the cleaners, the depressed section of society. In a society where, under the conditions of the new industrial revolution, more and more workers are coming to regard themselves as middle class, we will have a new working class, a minority group, defended by no one because it is a minority group. There is already a tendency for this to happen. We know that industry already uses the G.C.E. 'O' level on an enormous scale in order to select its middle and higher apprentices. Now, all the craft apprenticeships will be awarded on the results of the Beloe and the non-Beloe boys and girls will be those

who take jobs without any further education attached to them.

Is there any evidence at all that any examination can be devised in which advantage does not go to those able to wield pencil and paper most aptly? Is this kind of examination genuinely the one which will sort out the proper recruits for craft and trade apprenticeships? The implication of testing 60% only of secondary pupils is serious enough, but the implication of 75 or 80% is disastrous. This is not a policy of despair. There are other answers. One of them, I would agree with your correspondent from Widnes, is the genuine extension of local examinations based on local conditions and local standards. Another would be a proper school-leaving certificate—one issued at fifteen (until the school-leaving age is raised) and the other at sixteen, which would contain a genuine summary of ability and standards reached in all activities, including those outside the classroom.

It is, of course, necessary to put a stop to the intrusion of unsuitable examinations into the secondary field. Surely, the Ministry could take powers upon itself to do this without setting up the complex machinery envisaged by the Beloe Report. One of the greatest handicaps to real progress in education in the grammar school is the harness of 'O' level. It is high time the universities, the professions and industry forgot the 'O' level certificate altogether as a qualifying examination. Fifteen years ago, everyone recognised the harm that the school certificate was doing. At any rate, the G.C.E. has given a certain elasticity to our studies. Are we really prepared to go back on all sound thinking on this matter, to admit that we are just not good enough as teachers and that we are utterly defeated in our attempt to provide a stimulus for our pupils other than the reward of success in competitive examinations?

F. C. A. CAMMAERTS,
Principal, City of Leicester Training College.

The Education of the Unwilling

It is not unusual these days to hear of results indicating that the Modern School is providing courses of work which cater well for the 'border-line' pupil and for the scholar whose character is such that earnest application to a course of study may bring a certain degree of success.

There is, however, a section of many schools which is following a 'watered down' academic course, work obviously indicating its condescension to the patently low intelligence level of the section concerned, or work which is merely dull. From the third year on, the children not chosen for the 'examination streams'—and here I include all types of examinations from G.C.E. to some local leavers' examinations—there is, I feel, a steady decline in interest because there is no dramatic change of educational approach, no imaginative appeal to the children who are possibly tolerating school until their release from its bondage.

The potential delinquent, the lethargic teenager, the apathetic looker-on are all present in an educational system which is certainly not catering for them. I should be interested to hear of the approach made to this

How I Teach an Unstreamed Class

P. D. HOUGHTON

Mr. P. D. Houghton taught for four years in Lancashire before moving to Leicester in 1957. In 1959 he took a one-year junior school course at the London University Institute of Education; he is now teaching at Mowmacre junior school, Leicester.

In an article intended to show how one teacher tackles an unstreamed class, a discussion of the theoretical basis of non-streaming would, I think, be unjustified. Perhaps it is enough to say that I am in sympathy with the theories put forward and I think many of them work out in practice.

I have taught in both streamed and unstreamed schools and believe the latter type of organisation to be the best for the children and more stimulating for the teacher. The stimulation arises principally from the wide range of abilities with which one has to work. The teacher must be able to sympathise with and assist the slow learner while taking pleasure in the intellectual abilities of the brighter children.

Individuals and groups

Is this wide range of abilities to be dealt with on an individual basis, by a system of grouping, or is it possible to teach the whole class together? In my own class I attempt to combine all three methods. I try to keep each individual child's characteristics in mind when planning my work but take full advantage of all opportunities for grouping. Perhaps if I describe briefly how my present class works I can illustrate my attempts to integrate individual, group and class. I have 14 boys and 17 girls of the second year in a junior school on a new estate. This is a group of very reasonable size but I have employed a similar approach with classes of 40.

I believe that children work best when they are with their friends. They are therefore arranged in groups of two, three and four with companions of their own choice. Because children's friendships are by no means static at this age I am always prepared to re-arrange the groups according to changes in allegiance.

New criteria

To my mind this fostering of an atmosphere of co-operation as opposed to the competitive spirit of streaming is one of the most important features of non-streaming. I believe that it is this change of attitude which will make non-streaming a success rather than the mere organisational change from streaming. The criteria are different. In assessing children's progress we must not judge solely by achievement in basic work, although, in fact, I believe non-streaming promotes a higher overall attainment. We should try to give adequate praise to the exercise of social graces and skills in arts and crafts, physical education and games—in fact, setting out to develop 'the whole child'.

To promote further a feeling of co-operation I encourage the children to help each other in their work and I try to give each child a regular, worth while, routine job which contributes to the smooth running of the class-room. In order to play down the element of competition I rarely make comparisons between the attainments of individuals, I try to ensure that each child strives to improve his present work in comparison with past achievements. I have no system of team or individual points. I am aware of the arguments which suggest that as we live in a competitive society so our schools should reflect that competition. This does not, however, shake my belief that a good deal less competition in the class-room would be of great benefit to teachers and pupils.

Reading in groups

As one of the chief tasks of the primary school is to introduce the children to the skills of language I will first describe how I organise reading and writing. The children come to me from the first year in three reading groups. I have retained the number of groups but their personnel is slowly changing.

DISCUSSION *(continued)*

problem in schools where social and moral consciences may be grappling with this question.

The main problem would appear to be that we are faced with our last opportunity in a child's school life of initiating a discussion of adult concepts and values and at a stage when an introduction of the topic in the wrong manner may do untold harm. We are constantly reminded that one of the manifestations of our time is the interest in 'The Cad'—it is a sorry thought that our modern educational world has made its contribution to the formation of such characters as Arthur in *Saturday Night and Sunday Morning*. It is not the sole contributor, nor the major one, but it has played its not altogether glorious part perhaps by its refusal to accept the challenge of its most difficult task—the education of the unwilling.

There are ways of tackling this problem but unfortunately many of these require financial backing—in the provision of equipment allowances and the like. This is always the cry, unfortunately, but I feel it is time that we spent the money earlier in the child's career and not later when the help of Probation Officers, National Assistance and other services may have to be invoked to alleviate a condition which might have been prevented by earlier enlightened action.

I. McNEILL,
Headmistress, Swakeleys County Secondary School, Middlesex.

The first group is composed of children who are still finding the mechanics of reading a little tricky. As they become more able I move them up into the middle group which is comprised of those children who are in need of plenty of practice now the mechanics are more or less mastered. The third group contains the fluent readers who are able to enjoy a good story without my assistance. I try to hear the first and the second groups every day. The third I hear once or twice a week. I often hear reading while other English work is in progress, but I also have definite reading lessons when all the children are either reading silently, preparing the next piece to be read aloud or occasionally working a comprehension exercise. I do very few such exercises as I believe the most valuable reading for meaning is done when the children seek out information from reference books. The class library is, of course, open to all the children in the room regardless of their mechanical reading skill.

I believe the reading of stories and poems by the teacher to be of great value and usually manage to fit in a few minutes of this each day. Selecting reading for a wide range of ability is not easy. However there are authors whose work appeals at many levels and first class writing can be made of interest to all the children. Poetry is particularly well able to attract in different ways. I try to avoid the kind of poetry which 'writes down' to children.

Written English is usually based on the children's own experience or on their interests in the fields of history, geography and nature study. I am building up a number of class books with a variety of titles into which the children may put their writing. To add further stimulus we correspond with a class in a Kent junior school. This, I feel, emphasises the communicative and therefore the social aspect of writing—it is for other people to read, and not merely an exercise to be put away into a desk with a profusion of un-noticed corrections.

Writing in groups

I have a rough system of grouping for written work. Group One children find difficulty in thinking out simple sentences, so I arrange for them to say a sentence to me and then to write it. Group Two children tend to drop the conventions of punctuation when they are absorbed. Here I vary the approach. Sometimes I let them go ahead without interference; on other occasions I ask to see their work after every two or three sentences. Group Three can be relied on to be reasonably accurate even under pressure.

Spelling I deal with in two ways. First, I see that all the children learn some words every week with a quick test on Fridays. Second, every child has a notebook in which they try out words they are unsure of when writing; these are shown to me and, if correct, I say so, if not I write the correct version under the right alphabetical heading.

For arithmetic I use a good deal of apparatus and explain the use to which a piece of apparatus may be put to the class as a whole. New processes are normally introduced on a group basis but occasionally the elements of a process may be given to all the children. Individuals who need extra help are often put with a child who has mastered the particular difficulty. Those who like to forge ahead with more difficult work are given a chance to do so. All my children have the opportunity to make up sums of their own to illustrate the work under discussion. I believe this to be a useful method of ensuring that the children discover some of the relationships between numbers for themselves.

Other subjects

Finally, the general subjects, history, geography and nature study, are so closely interrelated that they cannot readily be distinguished and parcelled off. I try to base a good part of the work on experience of the real thing but obviously children's interests range beyond what is accessible to them at first hand. This is where reference books and visual materials play their part. Obviously reference work depends very much on the reading ability of the children. However, even the poorest reader can gain something from a picture and a caption.

There are obvious opportunities in general work of this kind for groups and individuals to pursue a variety of topics, often contributing to some broad class interest. In painting, craft, music, movement, physical education and games, all the children reveal different aspects of their personalities. There is little one can say about the organisation of this work—it seems to me to be largely a matter of the provision of the right sort of relaxed atmosphere and the necessary materials.

A flexible time-table

One last important point about the organisation of day to day work is the need for a flexible timetable. A rigid division of the day into half hours cuts across the easy flow of one field of work into another; further, it does not allow the child's interest to exhaust itself.

To sum up, I believe non-streaming requires the teacher to look at his children as individuals and yet also as members of a community; to find out where their interests and abilities coincide and to group them accordingly; to be flexible in grouping and to replace fierce competition with a strong element of co-operation. It is, in fact, the social element which is the dominant feature of this kind of organisation.

Specialisation and the Two Cultures

A particular feature of English education is the narrowly specialised character of much sixth form work. The articles by Mr. Carrington and Mr. Iliffe present two possible solutions—the first in the form of suggestions for a new approach to sixth form teaching, and the second in the form of an assessment of the success of the Foundation Year at Keele.

Current discussion on this question is being carried on largely in terms of proposals put forward in the Crowther Report and the alternative suggested by Mr. A. D. C. Peterson, in his report to the Gulbenkian Foundation. But is either of these solutions satisfactory? In the first article Mr. R. C. Carrington, Headmaster of St. Olave's Grammar School, suggests a much broader approach to this question based, to some extent, on continental practice.

Sixth-Form Malaise: Need for Reappraisal

R. C. CARRINGTON

The present malaise in sixth forms springs from two main causes, one immediate and one more fundamental, and there is a risk that in trying to analyse the former one may ignore the latter (as does the Crowther Report) or inadequately evaluate it (as does the Oxford Department of Education[1]).

The immediate cause consists of several entwined threads: first, the country's increasing need of highly-trained university graduates. While the Welfare State has made it possible for a larger number of young people to go to the universities, the increase in university places is unfortunately not keeping pace with the number of those wishing, and in many instances qualified, to go there. Hence the present severe competition for places.

Second, the increasing difficulty of certain university courses. The ground to be covered has lengthened without any increase in the time spent at the university. The time is long overdue when we could with profit add a year to the university course, but instead of taking this step the simple expedient has —almost unconsciously—been adopted of pushing the first year's university work on to the schools.

Third, the remarkable feat which we are at present performing of bringing our better pupils from 'O' level to graduation in six, sometimes even in five years, a fantastic procedure which well merits its description as 'graduates on the cheap'. This result is only achieved by the most excessive concentration on a narrow range of material and in consequence examples are numerous of scientists who lack 'literacy' and Arts men who lack 'numeracy', of schoolmasters doing the work of dons and of dons correcting English as immature as a middle-school boy's. Truly the times are out of joint.

[1] *Arts and Science Sides in the Sixth Form.* A Report to the Gulbenkian Foundation, 1960.

The effect on the schools

Before considering the more fundamental causes of this disjointedness, let us see in detail how it affects the work of the schools. In pre-war days a sixth former could—and many did—get into a university without having passed 'Inter'. He would take the latter after one year and then go on to his Finals. Now the 'Inter' or its equivalent is the minimum standard without which no one can hope for admission, and most faculties demand a standard well beyond it.

This means in fact that the sixth form course has been robbed of a year so that the school might take over the first year of the university work. To do this with any hope of success—success being judged by the number of pupils who get places or scholarships at the university — the evil has to be pushed still lower and specialisation, the vaunted hallmark of the sixth form, has to begin in the middle school.

A half-hearted attempt was made to stop the schools specialising too early by the introduction of the age limit at 'O' level when the examination for the G.C.E. first began, the idea being that an age limit at 'O' level combined with wide requirements at that level for university entrance would compel the schools to continue a wide range of subjects longer. The idea as one looks back seems a little naïve, and the Ministry of Education retracted to some degree before pressure from the schools, so that the regulation now counts for little. *Early* specialisation is accompanied by *excessive* specialisation, too much time in the academic week being devoted to the subjects which lead to the university, too little developing breadth of outlook and maturing of sensitivity. There are schools of great distinction with splendid records of open scholarships,

where no aesthetic subject apart from literature finds any place in the curriculum after the age of 12, and where the bulk of the time in the sixth form is devoted to a ruthless pursuit of the knowledge that will appeal to university examiners. The initiation of the 'Scholarship Stakes' in the educational press will encourage others to do the same.

Early specialisation

Finally, with excessive specialisation goes sometimes a *wrong choice* of specialisation. Able pupils are required to choose their sixth form course (and therefore in most instances their life's work) so early that almost inevitably immature choices are made, based on temporary enthusiasms or fortuitous influences such as the popularity of a subject master. Doubtless the majority of choices turn out successfully, but unsuccessful ones once made can seldom be reversed and it would be wiser in every way to delay the necessity for a choice until it could be made with more assurance.

If one views a school day from the point of view of the middle-school pupil, what we see is very disturbing. The day is split up into six, seven or eight periods each devoted to different 'subjects' and each taught by a different teacher who is a specialist in the subject. The switch of attention that is required on the part of the pupil as one lesson succeeds to another becomes more and more tiring as the day goes on. Some give up the struggle without any real intention of doing so. They are saved from immediate discovery by the size of the class or by the teacher taking the easy way out and lecturing instead of teaching, but examinations bring inevitable retribution and sense of failure. Others—possibly the majority—tolerate some subjects for the sake of others they like better, which are usually taught by the masters they like best.

'Subject-mindedness'

It is by this means that specialisation perpetuates itself. There was a time when good grammar schools contained a core of all-round teachers capable of teaching their classes in a varied range of subjects; nowadays a teacher who can teach more than a very narrow range of subjects is a rare bird. He has been trained as a specialist, he thinks as a specialist and he teaches his specialist subject all the time. The Norwood Report lamented the passing of the old 'form master', but nowadays he has gone past recall. The specialist approaches his teaching, not from the point of view of the pupil but from the point of view of the subject, and the pupil is good or bad according to his ability to absorb the subject.

As he goes through the middle school, the pupil too acquires something of this 'subject-mindedness'. He does not see knowledge as a whole, but as separate departments flung at him by teachers whom he likes more or less. Inevitably he chooses one department to make his own. The Crowther Report coins the term 'subject-mindedness' to describe the motivating force behind the choice and hails it as a justification for specialisation in the sixth form. But, far from being a justification for specialisation, 'subject-mindedness' is a product of it, a product of a concentration of forces working through the teacher's own education, his mode of teaching, and the time-table of the school, all presenting knowledge not as a coherent whole but as a heterogeneous collection of unrelated 'subjects'. The Crowther Report's defence of 'study in depth' is based on a psychological misunderstanding and there is a real danger that, with all the weight of its authority, the Report might prove to have fastened on schools for another generation the excess of specialisation which it is concerned to prevent.

Crowther's valuable suggestions for the wise use of minority time cannot undo the harm done by the narrowness of its approach to the wider problem. Basically the Report is a programme of action designed to rouse the flagging interest in the intentions of the Education Act of 1944. Its authors failed to see that the time was ripe for a deeper analysis of the grammar school tradition and a more far-reaching attempt to give it relevance to the twentieth century.

Crowther and Peterson

And now to the second of our two causes—the more fundamental cause—of the present malaise in sixth forms. The present disjointedness in the grammar school tradition is the result of a historical process that has gone on for several centuries: to understand it would require a long search, not only into the history of the grammar school curriculum but also into the manner in which it has developed in other Western European countries. This aspect of the matter is ignored by Crowther and it is regrettable that the committee did not have at its disposal as far-reaching a report on grammar school education in Western Europe as it had (in Appendix III) on technical education and vocational training. One merit of the report by the Oxford Department of Education (which for conveience we may refer to by the name of Mr. A. D. C. Peterson, Director of the Department) is that it recognises these wider ramifications.

It would take too long to go into details, but broadly the continental system is marked by an advance from 15 to 18 on a front broad enough to merit the name of 'general education', avoiding

specialisation in either Arts or Science though permitting towards the end a certain bias in one direction or another. This system has the double merit of not closing to senior pupils avenues of study from which they might derive enriching experiences essential for the full development of personality, and of leaving open their choice of specialist study until they pass on to the university.

Continental systems

To say this does not imply approval of all the details of any of the continental systems. A glance at the syllabuses of the Baccalauréat or the Abitur reveals an amount of factual knowledge to be absorbed that is bewildering in its magnitude and must be deadening in its effect on the reasoning faculties, but the principle of a broad approach is all important. Furthermore, the wide range of subjects studied shows a certain amount of integration, more than would be shown, for example, were we to put together five or six subjects at 'A' level in the G.C.E. Peterson draws very clearly the contrast between the 'integrated' system of the continent and the 'alternative' system of this country, and as a cure for over-specialisation in the English system proposes a compulsory combination of arts and science subjects up to 'A' level, which, on a superficial view, has a continental flavour. In order to give greater coherence to his combination of heterogeneous elements, he adds a course on the 'methodology' of these component 'A' levels, through which the pupil would come to understand 'the differences in the different modes of 'mental activity'.

The cynic might think that the real aim of this course in 'methodology' is to make two blacks look like a white. For the plain truth is that we shall get nowhere if we accept the present 'A' level syllabuses as they stand, since they too are the products of excessive specialisation. They carry 'study in depth' so far that it flounders in its own deep waters, and they need to be revised on broader lines. It is in this connection that a study of the history of the grammar school curriculum becomes relevant. In the sixteenth century, when under the impulse of the Renaissance the majority of the ancient grammar schools were founded, and even in the first half of the seventeenth century, while they were still a living force in English education, the domination of the classics gave to their curriculum a certain coherence. Latin, the language which carried Erasmus over the Alps, along the Rhine and across the Channel, was a lingua franca used wherever scholars met. It was the language of learning and science; it was vocational in that it opened the door to promotion in church and state; it was cultural, in that it was the key to the riches of Roman literature and thought. It was not a universal language in the sense of one spoken by everybody, but it existed alongside the vernacular languages and gave Europe a certain unity.

The growth of the modern nation state and the development of vernacular literatures destroyed the position of Latin as an international language but did not upset its domination of the grammar schools. From the time of the Renaissance till the middle of the nineteenth century, the grammar schools hardly changed their curriculum at all and for 200 years after 1660 were almost completely stagnant. The 'experimental philosophy' of the seventeenth and eighteenth centuries, which was the forerunner of the modern science and technology, passed over their heads.

It was not until 1869 that they were forcibly roused from their torpor by parliamentary action and began slowly to adapt themselves to the requirements of a new age. By the time they did so, science and other modern subjects had already been developed in schools of different types.

How the grammar schools under pressure gradually incorporated these other disciplines as alternatives to the classics is described by Peterson. Surely what is now necessary is, not to try to tie together mutually irreconcilable subject syllabuses, with the doubtful bond of a study of methodology, but to recast both the curriculum as a whole and its component elements in such a way that it can have something of the coherence of the sixteenth century, albeit in a form enriched and diversified by the progress of subsequent centuries. One can only give a brief outline of such a curriculum, but to fufil its purpose it must embody three principles : (i) it must be consciously adapted to an age in which national frontiers are breaking down and, at the level of individual people, meetings and social intercourse increasing; (ii) it must furnish a key to the door, not only of our own literature and art but also of the literature and art of some at least of our Western neighbours; (iii) it must be relevant to the world in which our pupils have to earn a living, to an age of swift scientific discovery and technological change.

Language and languages

To revive Latin as an international language is out of the question, but we need much greater attention to be given to modern languages, and in this respect the English must give up their self-conscious insularity. Clearly it is not possible for most pupils to take more than one foreign language to Advanced level, but all should take at least one and it is worth considering whether they could not

all at some stage be given a course in Esperanto, in the hope that the use of an international language—for the limited purposes of commerce, travel and diplomacy, and not in any way to weaken the study of national languages and literature—might spread to all Western countries. A modern international language taken to 'A' level should include not only selections from the literature of the country concerned but also an outline of its geography and history and institutions. (It seems odd that French literature should be taught by the French department, French history by the History department and French geography by the Geography department.) In this way a pupil would have an introduction to at least one great literature other than his own. English literature, broadened as we have already indicated for a foreign language, should be compulsory to 'A' level, and the work should include not simply the study of literary works, but the development of standards of appreciation and criticism.

Frontiers and barriers

The depth of the science syllabus should be drastically reduced in favour of a wider purview, and an advanced level 'General Science', covering Physics, Chemistry and Biology, with plentiful fertilisation of scientific principles by reference to practical experiments and to the history of science, is what is required. The history of science should be linked closely with the historical work in other subjects, e.g. mathematics and literature. The mathematics syllabus should be cut down and every effort made to link it with the physical sciences and to draw out its practical applications. An aesthetic study, whether in music, art, architecture or handicraft, should be compulsory, not necessarily, at any rate for the ungifted, in order to encourage actual performance but to develop appreciation and historical understanding and to discourage the I-don't - know - anything - about - art - but - I - know-what-I-like attitude, which is an almost inevitable product of the present English system of education. The barriers between history and geography should be broken down and a limitation to periods and countries—'English', 'European', etc.—be removed. We should think in regions, transcending national barriers, and in historical processes that ignore national prestige, emphasis being laid on great personalities who have helped to shape the world around us.

Here then are six 'subjects' which, for convenience of labelling, we may call English, Foreign Language, Aesthetic, History-with-Geography, Science, Mathematics, though they are radically different from what now passes under those names. To object that four 'A' level subjects has already proved too many and yet here we are asking for six, is entirely irrelevant, since in the first place this proposed body of knowledge could only with difficulty be sorted out into separate subjects, and secondly it would be so different in kind from our present subjects that comparison is impossible.

Such a curriculum would offer a coherent introduction to international understanding, to the study of great literature and art, both of our own and other countries, and to a scientific appreciation of the world in which we live. Those who proceed to the universities would have a free choice of specialist study, would be better equipped than the modern school-leaver to undertake specialist work, and would, I am convinced, be able to make up for time lost to specialisation in the sixth form by greater understanding and more rapid progress at the university.

University Experiment

ALAN ILIFFE

The Foundation Year at Keele (University College of North Staffordshire) is taken by all students regardless of the Honours course they intend to follow. It consists of a series of lectures designed to introduce the student to the inheritance, achievements and problems of modern Western European man. In addition, each student attends tutorial classes throughout the year in two subjects in unfamiliar fields, as well as briefer courses in familiar subjects, and attends a weekly discussion group with students following different programmes of work. Satisfactory performance in all parts of the Foundation Year course is an essential qualification for admission to Honours courses.

Alan Iliffe, who evaluates this course, taught psychology at Reading University from 1949 to 1952, when he was appointed to Keele to establish the department of psychology.

The success of any educational programme is notoriously difficult to assess. Its effects can rarely be observed in isolation; and in the present instance, where the explicit aim of the programme is breadth of outlook and understanding, there is no reliable way of knowing how 'broad' or 'narrow' students may be at the outset, nor of estimating how they would have developed in any other course of study. What follows must therefore be based largely on impressions, which would not necessarily be endorsed by all the writer's colleagues.

A precaution against prejudice

The Foundation Year at Keele is an attempt to apply a sudden and massive corrective to the effects of school specialisation. The narrowness which results from much sixth-form work is seen not only in a concentration of interest and understanding in one limited field of facts and ideas; it frequently emerges in the form of highly distorted beliefs about the nature of other disciplines, and about those who are engaged in them. The attitude of the arts man or the scientist towards what each tends to regard as his 'opposite number' may contain elements of contempt or suspicion; it almost invariably includes the conviction that there is a constitutional difference between the two types, and that to excel in either field is to be stamped as totally unfitted for the other.

On these false ideas the Foundation Year has an undoubted impact, perhaps less through the content of the course than through the sheer fact of involving the student in a common programme of work with people whose training and outlook differs widely from his own. Arguing with one's 'opposite number', consulting him about problems in his special field, and explaining points in one's own perhaps do more to break down prejudices and to make acceptable different modes of thinking and working than any liberalising course of lectures. This process is, of course, greatly enhanced by the requirement of residence for all undergraduates at Keele. For the same reason student societies are very vigorous; they are heavily attended by first-year students, whose interests are not limited by any departmental curriculum. In general, the absence of the segregation which easily arises from working in and belonging to one department is a feature of prime importance in the Foundation Year.

A further clear value of a year interposed between sixth-form work and Honours courses is the opportunity it provides to shake off some of the limitations imposed at school, either by the necessary restrictions of the time-table, or by some teacher's version of where one's true bent lies. The Foundation Year provides for every student an introduction to a range of unfamiliar or once familiar subjects and the means of developing the necessary confidence to tackle them. One result of this is that at the end of each successive Foundation Year course up to half the students decide to embark on an Honours course which represents in one or both of the principal subjects a change from their original intentions. While the social sciences tend to figure most frequently in these new choices, some changes are from a natural sciences to an arts programme; the minority of cases are moves into a science department made possible by specially designed conversion courses taken during the first year.

In these two senses the Foundation Year can be said with some confidence to have been successful. The familiar and cogent question whether the course disguises rather than dispels narrowness by adding a veneer of dilettantism can so far be answered with less assurance. A course of lectures which ranges in one year from the dating of rocks to the concept of moral right, and includes material from 18 different specialist departments must run the risk of encouraging and finally overvaluing the enthusiastic dabbler. The first safeguard against this danger must be in the painstaking shaping of these contributions. They must be planned and knit together to serve not as slices of professionalism or pocket versions of Honours courses, but as essential elements in the grand design, which is to provide the context of human knowledge in which each student's special studies will eventually be set. A further safeguard, with much more limited effect, has been in operation for several years. This takes the form of weekly discussion groups in which 6 or 7 undergraduates and 2 or 3 tutors meet to review the week's lectures in the Foundation Year course. These discussions are very loosely briefed and can have a valuable part to play in clearing up misconceptions and linking together ideas from different fields. The major problem remains, however, and although those involved in designing and teaching the Foundation Year course have made notable progress towards its solution, none would claim that it has yet been reached.

Foundation year and finals

A less apparent danger is that the student will see this first year not as a foundation for his later specialised work but merely as a preliminary hurdle. The aim may be to weigh it up, vault it and forget it. School habits which contribute largely to this attitude are hard to eradicate. They can be encouraged by tasks and examinations which are set without the overall aim of the course firmly in mind. Perhaps the surest way to dissuade the student from this process of encapsulation is to rethink and make explicit the relation between the Foundation Year and the subsequent Honours courses and to ensure that this relation is reflected in the teaching methods of the specialist departments.

It may have emerged from what has been said that this course presents unusual difficulties to teachers and to students. It is fair to say that the most able students find it exhilarating and continue to demonstrate the profit they have derived from it throughout their undergraduate years. To a small

minority it is a source of anxiety, because of its dimensions and the variety of demands it makes. It puts a greater strain on the confidence of a student than the typical first-year course provided by a University department because of the greater difficulty for him of assessing his own progress.

Most students fall into neither of these groups and fairly represent the average run of undergraduates. To say that the Foundation Year course produces in them a lasting change in outlook and capabilities is to a large extent an act of faith : one to which my colleagues would readily subscribe, and which is evident in the vigorous and continuous attempts to bring the Foundation Year nearer to its ambitious aim.

BOOK REVIEWS (*Continued from page* 115)

Sport and Physical Education, which has UNESCO blessing.[1] The suggestion that 'multi-sport' centres should be tried was not put forward with the strength such an idea deserves. These large centres can be valuable community amenities especially when constructed with vision and imagination. They should, ideally, arise hand in hand with facilities for other cultural pursuits and be the foundation stones of a successful community welfare programme.

The Report does not shock or provoke. It is a rather mild document. It fails to make the impact which is needed to bring about major changes. But it is a beginning. It can be a starting point for a debate—three years delayed. The debate must not fail to include such outstanding facts as the current lack of a national stadium, the failure of 'soccer' clubs to patronise sections for athletics, swimming, gymnastics, and many other sports, and the whole confused question of 'amateur' and 'professional'.

Nevertheless, the Report, at only 3s. 6d., is a useful reference work in a growing field of study—the sociology of sport. It is an *essential* purchase for all those who are interested in the social and educational implications of sport. DON ANTHONY

[1]The International Council of Sport and Physical Education was officially set up in Rome on September 13th, 1960. It aims to bring together all existing associations and individuals, research institutes and university departments, interested in sport and physical education. It is a 'co-ordinating' body. As such it is blessed by UNESCO and expects to be granted consultative status soon. UNESCO is growing conscious of the value of modern international sport as a non-lingual means of communication. ICSPE is served by Bureaus for research, documentation, and public relations. Its first President is Philip Noel Baker, M.P., and M. Jean Borotra is one of the Vice-Presidents. Mr. D. Munrow, Director of Physical Education in the University of Birmingham, and a member of the Wolfenden Committee on sport, is an executive member. The ICSPE aims to be a 'meeting ground' for physiologists, psychologists, sociologists, artists, journalists, officials, and active sportsmen, and any interested others, who are concerned with the wider issues of modern sport.

Book Reviews

Flexibility in the Junior School

Skills in the Junior School by Beryl Ash and Barbara Rapaport.
Methuen (1960), 158 pp., 12s. 6d.

More and more we are becoming aware of the many different ways in which children learn, largely by following the advice of that great educational pioneer, Comenius, and observing children carefully whilst they learn. The authors of this excellent book base most of their ideas and conclusions on this method, which is surely the most scientific and satisfactory way of child study.

'Modern methods', 'activity', 'child-centred education' are still terms which are not properly understood, particularly by those teachers who pin their faith in rigorous streaming and watered-down grammar school work as the basis for the curriculum of the junior school. Miss Ash and Miss Rapaport, who are both lecturers at the Froebel Educational Institute, believe fundamentally in the value of 'active' education, but in this book they have attempted to produce an analysis of the learning of the basic skills in language and mathematics by showing that practice, repetition, and rote learning also have their place. There are times when the class lesson is more important than individual work; at other times group activities would be the best method of class organisation. In fact they show that the junior school curriculum needs flexibility and purposeful planning, with ample opportunities for experiment both for child and teacher.

The learning of social skills form the most important aspect of junior school work, and the authors insist at the beginning of their study that 'learning in all other spheres is dependent on the social skills. So we have placed them first. We consider, moreover, that social maturity is the first requisite for all full living. To grow satisfactorily, all people must acquire a delicate balance between their own personal needs and those of the community, for the demands of the one, at any stage, are inextricably contained in the demands of the other'. So they devote the longest of their eight chapters to the social skills; taking turns, accepting and giving criticism objectively, fitting in with a group, and social awareness of other people, for example.

Amongst the many interesting observations on children in learning situations are some stimulating accounts of the use of Assignment cards and of finding out from Information books. Some ingenious methods of keeping teachers' records of children's work are introduced; these convey much more information than a rather sterile summation of examination results.

The book ends on the same optimistic and creative outlook with which it began, quoting Thomas Carlyle, 'the great law of culture is: Let each become all that

he was created capable of being; expand if possible, to his full growth'. Any teacher would benefit from studying this book; some it will help immensely.

ERIC G. LINFIELD.

Testing or Education

Intelligence and Attainment Tests, by Philip E. Vernon. University of London Press (1960), 200 pp., 18s.

Professor Vernon has made yet another of his heroic attempts to patch up the good ship 'Mental Testing' and keep it afloat. It is still a trim enough vessel, brasses shining, guns pointing, all the familiar faces on deck or peeping from the portholes, and Professor Vernon is convinced it must remain in commission for ever. Nevertheless, a strong impression remains that, seaworthy as it still seems, it is rapidly becoming obsolescent and will end in the breaker's yard.

Professor Vernon's efforts are heroic because he honestly tries to face up to the facts. Thus he admits that all mental testing depends on the simple belief that the abilities measured are distributed among the population in a normal curve, that this is insusceptible of proof, that therefore psychometrists simply 'accept this dogma' (p. 111). Dogma is not a term compatible with science and this alone is enough to put the reader on his guard despite many references to experimental evidence. For this evidence mainly derives from the application of tests constructed in the light of preconceived ideas.

Another assumption underlies the whole business, namely that 'intelligence' is the end result of the interaction of 'heredity' and 'environment'. This makes interpretation of test results extremely simple. Either one insists the former plays the main part in forming children's minds, or one says it is the latter.

Professor Vernon is at pains to underline how many concessions he makes to 'environment'. But for what does this vast, amorphous term stand? Presumably for everything which influences the child from the simple stimulus to the most complex of human activities and relations. There is thus no special place in the schema of mental testing for the teacher's relation to the child, the quality of teaching which influences the quality of the child's learning; in short, for *education* in any integral sense of the word. If this were the motive force in mental development, as teachers have every reason to suppose, testing by its very nature could not find this out.

The widespread use of testing has exposed the inherent weaknesses of the whole practice and the theory arising from it. So many modifications have become necessary in the latter that not a single statement can now be made without innumerable qualifications. 'We can no longer claim,' writes Professor Vernon, that tests 'show innate intelligence or capacity for learning.' Obviously, then, streaming on the basis of test results is illegitimate and should not be pursued to the present extremes, in junior schools perhaps not at all—this is now Professor Vernon's advice.

Many teachers reached this conclusion—in opposition

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to the earlier advice of psychometrists—and without the help of any batteries of tests, computing machines or the rest of the paraphernalia which has for so long cluttered up the educational field and prevented a straightforward approach to the child, as a child. As their work progresses, and with it the development of scientific psychological research, there will plainly be no further call for short-cut, statistical investigations with that very crude instrument the mental test. These inevitably lead to makeshift theories which cannot pretend adequately to cover the facts, which therefore become subject to so many modifications that they in no sense constitute a guide to educational activity—indeed may well, if adopted, lead it astray.

JOAN SIMON.

Tripartite View

The Living Tradition: the social and educational assumptions of the grammar school, by Frances Stevens. Hutchinson (1960), 304 pp., 35s.

The Secondary Technical School, by Reese Edwards. University of London Press (1960), 206 pp., 15s.

Secondary Modern Discipline, with special reference to the 'difficult' adolescent in socially depressed industrial areas, by Richard Farley. A. & C. Black (1960), 136 pp., 15s.

Miss Stevens' *credo* is that 'in the present stage of our social development "minority" schools must be preserved in the State-maintained system in order to allow for some focusing of interest and the continuance of the right kind of tension'.

This sentence is typical of the book. The large, vague claims, the abstract, imprecise language, the too lengthy report of commonplace views—all these are unfortunate, for Miss Stevens would have done a considerable service had she been able to state her mildly liberal, basically orthodox position more clearly and briefly. But could such an attitude stand up to cold, sharp, rational examination?

In a rare, reckless moment, Mr. Reese Edwards observes that 'the whole educational system is permeated by . . . an unworthy kind of snobbery, which, strangely enough, is not eliminated by education but created by it'. I wish he had allowed himself to look longer at the larger canvas of secondary education, for he is capable of taking the wider view, and it might have saved him from identifying himself too closely with his subject. Nevertheless, this is a valuable, workmanlike study of a neglected area of education.

Of far greater appeal to most teachers than either of these books will be Richard Farley's no-nonsense handling of the problem of discipline in the more difficult kind of modern school. Mr. Farley is a realist, and doesn't shrink from tough treatment when he thinks it necessary: he refuses to be cramped by a theory. But for me the inspiring thing is that he emerges from the fire with ideals, and with profound understanding of, and sympathy for, the aggressive and tormenting, the deprived and pitiful youngsters who are given into his care.

This is a stirring book, not the less so because it is thoroughly practical: situations discussed, for example, include rudeness, assault on a teacher, swearing, smoking, obscene drawings, passing of wind, and 'playing up'. It will be read with profit and delight by the old hands, as well as by teachers on the threshold. It is not, however (as the dust jacket blurb claims), the first book on the subject. Edward Blishen's *Roaring Boys,* for example, was the testament of a sensitive, idealistic and successful teacher who worked in just such circumstances as those which Mr. Farley surveys.

ROBIN PEDLEY.

Wolfenden on Sport

Sport and the Community. Report on sport by a committee headed by Sir John Wolfenden, H.M.S.O. (1960), 135 pp., 3s. 6d.

This report is the result of 57 meetings of the Wolfenden Committee spread over three years. This, in itself, illustrates one of the paramount weaknesses in our organisation of sport. Sport is largely organised by committees of amateurs, working part time on problems which cry out for full-blooded, professional, experts, planning full time.

Like many similar reports, this one poses more problems than it answers. It does give, however, some 'official' framework to the demands for reform which have been increasing during the past decade. There is much that it does not mention; the poor status of sport and physical education are subjects of study in Universities being a major omission in my opinion. Were there a 'High School for Physical Education and Sport' at University level, much of the information for which this report calls (regarding present facilities, etc.) would be at hand. At the moment the gathering of information, the documentation, and the research in this field is not coordinated.

Three major proposals of the report call for special mention. The call for state help—a sum of £10,000,000 is suggested—on an annual basis, is the most significant. A Sports Advisory Council is also an urgent necessity; it might be that this could become the national counterpart of the newly-formed International Council of

(Continued on page 110)

OUR REVIEWERS

Eric Linfield *is headmaster of Redlands County junior school, Fareham, Hampshire.*

Joan Simon *recently translated and edited Professor A. R. Luria's 'Speech and the Development of Mental Processes in the Child'.*

Robin Pedley *is senior lecturer in education, University of Leicester.*

Don Anthony *is senior lecturer in Physical and Health Education at Avery Hill Training College and lecturer at the Institute of Education, London University.*

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