

Instruction in Indian Primary Schools

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INSTRUCTION IN INDIAN
PRIMARY SCHOOLS

PREFACE

THE chapters assembled in this book were written for the Special Primary School number of *TEACHING*,¹ but for lack of space could not all be published there. Thanks are due to the Editor for permission to reprint Chapters I, II and VII, and the other chapters are printed here for the first time.

It may be asked how instruction in all the subjects treated can be given in any one primary school, but each subject is at present demanded by one or more of the provincial syllabuses. It is to be hoped that at not too distant a date the various Departments of Public Instruction will combine to decide together the aim of primary education in this country, and to lay down a minimum syllabus that all can follow.

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I

PRINCIPLES OF EDUCATION AND CLASS TEACHING

I HAVE reproduced as the title of this paper the words used by the Editor in his request for an article. Their use is to me significant in that it seems to imply a recognition of the fact that there is something in the condition of Indian primary schools which renders necessary a modification or adaptation of accepted principles of education and class teaching. I am assuming in this article that it is the adaptation of accepted principles in the special circumstances of Indian primary schools that needs classifying, and not the principles themselves.

I cannot claim knowledge of these special conditions in any other part of India than in my own province of Bihar and Orissa, and my remarks are based entirely on the conditions that I know. The principal of those conditions are:

1. The teachers have but a slender hold on a very limited extent of knowledge. The highest grade is the middle-trained, i.e. the man with eight years' elementary education and one year's special training as a teacher; but these number considerably less than half of the 38,000 men-teachers in the province. Half of this total have no training at all.

2. The schools are materially very ill-equipped. A large proportion have no houses of their own, but are assumed to do their work on verandahs or in small rooms of private houses. Many schools have only one teacher for the four lower primary classes, and some upper primary schools have only two teachers for their six classes. Furniture is deficient, there being many schools without even a blackboard. Pupils do not always possess the necessary books, and sometimes even the teacher has no books of his own.

I do not propose to make any adaptation of principles to the circumstances of the single-teacher schools with no house, no blackboard and no books. Such institutions are generally recognized as incapable of doing any useful work, but leaving them out of account, it remains true that we have to face in Bihar and Orissa a situation conditioned by poorly qualified teachers and ill-equipped schools.

There is, however, a still more fundamental difficulty which exists, I imagine, to a greater or less extent everywhere in India. I refer to the devotion to ancient ideas of education and to ancient methods. This devotion received, for political ends, a great impetus some fourteen or fifteen years ago, when ideas supposed to have a western origin came to be more and more suspect and unwelcome. The realization of the fact that, in an India which for good or ill has definitely decided both politically and industrially to enter the modern world, the western superstructure cannot continue to rest on an ancient eastern base, is only now experiencing its birth-pangs. Educationally the two strongholds of this devotion to the past are (a) the emphasis on form and structure rather than on use in the conception of language and its teaching, and (b) reliance on verbal memory. In spite of the training of teachers and sub-inspectors it seems to me that we have hardly begun to make an impression on these strongholds, and they continue to dominate the whole of the work in the most impressionable years of a child's life. Their outward and visible signs in the schools are formalism, routine and repetition.

These two features of early Indian education make it extremely difficult to effect improvement at later stages. We take men who have had elementary education for eight years and give them one year's training; and what is the result? The technical words of the training are learnt. They can be reproduced in the formal manner when required, but they have penetrated no deeper into the mind than the mere verbal memory. I have heard an M.A., B.Ed. master of a high school

discourse to his staff most learnedly on 'Fatigue', but the day-to-day time-table of his school was exactly the same sort of time-table as had been in use for years and years by untrained headmasters. This gap between the spoken or written word and the living idea which expresses itself in action is a well-known feature, and I need not elaborate it. For us its importance lies in the fact that it has its roots deep down in the custom-ridden home life in India; and the first place where an attempt can be made to bridge the gap, and the only place where the attempt can be made with any hope of success, is in the early years when children first come under the influence of 'teachers'.

It may be objected that many of the boys who go on to higher education have never been inside a primary school and cannot therefore have been influenced by the formalism of the teaching there. This is true; but they have had private tutors whose methods generally are only an intensification of the methods of the primary schools, and they have therefore been subjected to the same influences.

In attempts to arrive at the underlying ideas of the old methods I have frequently asked Sanskritists what the root meaning of *parhna* is, but without success. From the facts it appears to be the merely physical act of looking at a printed or written symbol and saying aloud the word suggested by it. In this sense we read history, we read geography, we read hygiene, we even read nature study, and later on we read chemistry and physics. A common feature of our primary schools, namely the simultaneous reading aloud by all pupils at different pages of their books or even from different books, fits in with this conception, as does also the later habit frequently observed of the boy at his homework, swaying his body and industriously reading aloud his lesson. A look into boys' faces while they are engaged in this work is enough to convince one that the brain is quite inactive. The eyesight and the vocal chords are being exercised, and there is besides a

vague hope that some day, maybe on the examination day, the sight or sound of one word will link itself to others and enable them to be reproduced.

The formalism begins with the alphabet and an early sign of its result is that a child who has written and can glibly say five gutturals or dentals is unable to identify a particular sound with a particular symbol. The same is true with the early teaching of arithmetic. The child fills his slate with figures and can say them glibly if allowed to begin from the beginning, but cannot identify a figure half way down the slate with one of the sounds he has been making. Still less conception has he of the number for which that figure is a symbol. Later on the same result can be seen in the child's inability to answer quite a simple question from a story which he can repeat fluently if allowed to begin at the beginning and use the actual words he has memorized. 'Reading' in the lower primary classes has been till recently restricted to one small book a year. This becomes 'literature' and the book is not 'done' till the boy has learnt synonyms—often more difficult than the word to be explained—for all the difficult words, and has practically committed the book to memory. The only form of 'writing' done at this stage is the copying out of passages from the 'literature' book. If this exercise were used for the improvement of handwriting it would be defensible: actually it is the purely formal scribbling of material that has no significance. If further proof of the purely formal nature of early language teaching is needed it can be found in the treatment of composition. Frequently no exercises of an original nature are attempted. A few simple exercises of a purely grammatical sort may be tried, a few types of documents transcribed. If original exercises are attempted, formalism is again introduced. The teacher reproduces an essay on 'The Cow' from some ancient hand-book and all the boys proceed to write it, followed it may be by similar exercises on other animals but all of exactly the

same nature. Letter-writing is similarly formalized. The 'type' letter is one to Father informing him of the state of the boy's health, hoping that he is well too, telling him he has been promoted, and asking for Rs. 2 for books, pen and paper. This is written in the middle of the year without any consideration of the truth or relevance of the statements made, and is written in the same words by all boys. I was recently inspecting a primary school and found an upper primary class boy in possession of two printed handbooks, on composition and letter-writing respectively. The same boy had no exercise book in which to write compositions and letters and had in fact written none. Than this I can imagine no more perfect illustration of the complete divorce of words from ideas which I believe to be the legacy of old methods of instruction and to have still a stranglehold on primary education.

About memory there is little new to be said. It is a power of great value, but it has usurped a place in Indian primary education to which it is not entitled, and from which it must be deposed if anything of value is to be effected. Its undue position is most manifest in the early teaching of arithmetic and in the great volume of tables and formulæ that pass under the name of '*deshi* arithmetic'. The value of this system in later stages, say the upper primary and middle, may be great; we need not enter into that question here. What I am quite sure is harmful is the subjection of six- or seven-year old children to the deadly monotony of committing this large number of tables to memory. In a primary school which I saw the other day a boy of seven was repeating the 22 times table, and I was told that he knew up to the 40 times! The same boy had no real comprehension of quite elementary number work when presented to him by me in an ordinary, everyday, concrete way. Other boys at the same time were repeating aloud other tables. In the resulting babel it was impossible for anything but memory in its very narrowest sense to be active.

It seems to be certain that in these conditions, with teachers who themselves have been 'educated' in a narrow, monotonous way, with ill-equipped schools, and with conservative and ancient ideas of education retaining an almost undiminished influence in elementary education, the accepted principles of education must be adapted in a special sense. The sense to me is the limitation of objectives. The attempt to apply reasonable methods over the whole field of elementary effort has, in my opinion, failed, and the situation calls first for an intense and sustained effort to combat the influences derived from a long past and still generally buttressed by the home atmosphere. We must set the teachers a limited aim and bend all the resources of the school to that aim. The aim which seems to me to fit the circumstances best is 'individuality and self-reliance'.

This can have first a physical aspect which will keep the idea always before the minds of teachers, i.e. the boys must be spread out and be kept apart each on his own seat or mat and unable to see what the next boy is writing on his slate. Instead of having before his eyes a heap of small atoms of humanity, the teacher will be forced to see a number of individuals. The next step will be to provide an atmosphere where each boy's brains can work, i.e. an atmosphere of quiet, and this means the end of unison work. The noisy unison work which at present gives a false impression of activity to the school being banned, the teacher will be compelled to be himself more active and to devise ways and means of keeping the boys more fruitfully busy. To set beginners to learn the alphabet will no longer be the easy method of language teaching, since this depends on unison work. The teacher will teach a few of the most useful symbols first, and soon, after a day or two, the boys will be able to make interesting words out of these symbols. After a few more symbols have been learnt the teacher can make short sentences using only these symbols, which he can

dictate and cause the boys to write and afterwards to read. Thus after a few days in school each boy's brain will be working individually instead of each boy's voice seeking to drown the rest and lull his own brain and the brains of the others into torpor. Similarly, in counting each boy will have his own materials—pebbles, leaves, marbles and sticks—and can be required after even two days at school to perform intelligently simple counting operations and to write the results on his slate.

If the quite feasible purposeful activity of the children in reading, writing and counting, which I have described, be compared with the meaningless (to the children), monotonous and unintelligent things they have to do now, the implication of the suggested change becomes obvious. If in addition a little thought is given to the subject of handwork as a recreational subject, and a list of things which the children can be required to do within the resources of the village be prepared by the teacher, to ensure that the time set apart for the subject is usefully and regularly employed, then a new meaning will begin to be given to education. I can best explain the later implications of the new aim by again referring to composition. Instead of all boys uniformly copying out pages of their books, or slavishly writing a stilted pattern essay or letter, each boy must be required to express his own ideas on suitable subjects. Such subjects can be selected, and the work done even in the lower primary classes. The subjects must be planned and so constantly varied as to make the baleful activity of the cram-book writer useless. The whole tone of the primary school will be changed if this limited aim is kept always in view. Dull routine will give way to freshness and change, for passivity we shall have activity, for constant repetition of meaningless sounds we shall have varied use of intelligent words, and for the stilted and insincere expression of somebody else's formal thoughts we shall have the direct and sincere, even if imperfect, expression of the boy's own simple thoughts.

I have given only a narrow illustration of the changes that can be brought about by this concentration of effort and its direction towards a limited aim, but it will be found to be a useful guide in all parts of school life. The school itself, for example, with self-reliance as its keynote will be able to supply many of its own needs—separate mats, bags or other containers for counting material; charts to help with early reading lessons; small bricks for building and counting in the infant classes can all be produced in the handwork periods of upper classes. Large quantities of extra and varied arithmetic examples can be produced in dictation lessons, while handwriting lessons can usefully produce extra reading material for the little ones. Useful in itself, self-reliance is doubly desirable in view of the gap between financial provision and urgent needs. Had we been able to supply Montessori material to every school it is possible that something might have been done to brighten the children's school lives; but such expenditure is not possible, and too often its absence is made the excuse for doing nothing. The new spirit of self-reliance in the schools will seek to supply at least the essentials from its own resources, and in so doing to perform a piece of real educational work.

Here are some things which I, personally, have seen done under the inspiration of this aim. Benches—which ought to be abolished in all schools—have been cut up into small single low desks. Other low single desks have been improvised from sun-dried bricks with a top of plaited bamboo strips carefully plastered and smoothed with mud. See-saws, swings and even a simple roundabout have been provided with the help of interested villagers for the use and pleasure of the six-year-olds. One teacher ground up his ugly and unserviceable lump of chalk into powder, mixed it into a paste with flour (as a binding medium), and produced sticks of chalk with which much better blackboard work was possible. One school in the country, to which boys came long distances,

felt the need of a room for cooking the midday meal. The boys made sun-dried bricks, built the walls, and with the help of the villagers roofed a hut very suitable for the purpose. At my suggestion many schools built model houses of small sun-dried bricks, but went far beyond my anticipations in the matter of improvements and requirements.

The changes which I have seen brought about in the whole spirit and outlook of primary schools over a wide area by the systematic and reasonable treatment of the beginners, together with the examples I have given of self-helpfulness, convince me that my suggestions do constitute a practicable line to a very real advance. I am convinced, too, that so long as we leave entrenched and undisturbed the old methods and tradition at the bottom, just so long will all attempts at applying educational improvements at later stages effect nothing but the superficial appearance, and the training of teachers produce nothing but ability to repeat certain forms of words, having little or no outcome in action.

The above may seem a very feeble and inadequate treatment of the ambitious subject announced in the title. To me the uprooting of old conceptions and methods of education is a condition precedent to any application of principles of education and of class teaching. I do not for a moment deny that there is good in old methods, that there was something splendid in the attitude of *guru* to pupil. It is not necessary to deny it; but India has changed and is changing, and the foundations which bore the old superstructure will not stand the strain of the new. The old foundation was good for its purpose. It is now necessary to replace it by one equally good for its new purpose.

II

THE TEACHING OF THE MOTHER-TONGUE

A LANGUAGE has two functions—receptive and expressive. The former enables the child to gather knowledge and thought by listening to, or reading, his mother-tongue and the latter to convey ideas accurately in his mother-tongue, so that the person who listens will accurately understand the thought the speaker or the writer has in his mind. Thus the teaching of the mother-tongue has to do with reading, writing and speaking.

The primary course is concerned not merely with the elements of letter- and word-recognition. The most important work of the primary school is to enable the child to read (with reasonable fluency) and to understand what he reads; to write (with certain correct movements of the hand and arm, and also with reasonable speed and legibility); and to speak before an audience with a fair degree of expressiveness. Of these three functions, however, the former two are to be emphasized much more than the last.

The aim

READING¹

Literacy means ability to read. Teaching a child to read involves four things:

- (1) Teaching him the power of mentally converting written matter into words and ideas (age 6).
- (2) Forming in him the power of getting from a book its substance (age 7).²

¹ See also Chapter IV, p. 39.

² Many people can read a newspaper aloud but cannot say afterwards what they have read.

- (3) Forming in him a taste for reading, so that he will go on reading after he leaves school (age 8).¹
- (4) Forming in him the habit of criticizing what he reads (ages 9 and 10).²

The four aims of reading enumerated above correspond roughly to the four stages of primary education from age 6 to 10, but this classification is only roughly true. The teacher should from the first (age 6), even before a child can read, lead him to look upon books as sources of pleasure, and even in Standard II (age 7) when the child learns to extract the substance from what he reads he should be taught to inquire whether it is true. Similarly in Standard I (age 6), when the child is learning merely to make out words, there should be an attempt to get also the substance of the passage. For this reason it is essential that the reading sheet and the primer should from the first consist not of lists of words or meaningless sentences but of stories. With primers badly constructed

¹ Many boys learn to read at school. They also learn to dislike books at school, to regard them as dull things associated with boredom, punishment and detention. So as soon as they leave school they put away books and never read any more: as a result they relapse into illiteracy.

² Many people think that whatever is printed is true. They do not realize that printed matter is only a record of the sayings of men. We criticize what people say; we do not accept everything that is said to us as true, but we ring it like a coin, before accepting it. We should criticize just as carefully what we find printed in books. A very effective device for developing the power of criticism is to write on the blackboard six or seven sentences (or dictate them to the class). Boys should be asked to say which sentences are true and which false.

Examples:

- (1) Water is good to drink; therefore you should drink this tank water.
- (2) Quinine cures malaria; therefore we should take quinine when we have malaria.
- (3) All shopkeepers will be made to give half their goods to the district board on 1 January. This newspaper says so, so it must be true.
- (4) Satis Babu's house will be sold by auction on Thursday next. There is an advertisement of it in the paper.

most children are not taught to read; they go on being taught without effort. This is clear from the use of some picture books in which children want to read the words, and they learn for themselves. This fact shows how very important it is that substance should be emphasized from the first.

The method : The first year (age 6)

- Letter and word-recognition.*
1. Start from the first by forming words.
 2. Teach the letters in any order, as is most convenient for forming words.
 3. Introduce the vowels at a very early stage.
 4. As each new letter is introduced form as many words with it and with letters already known as possible.
 5. As each new word is introduced form as many sentences with it and the words already known as possible.

The following illustrations will make the idea clear:

Letter-recognition: <i>i I. t T</i>			
Word-recognition: <i>it It</i>			
New letter: <i>s S</i>	<i>It is.</i>	<i>sit</i>	<i>I sit.</i>
	<i>Is it?</i>	<i>Sits</i>	
		<i>It sits.</i>	
New letters: <i>a A c C</i>	<i>Cat</i>	<i>A cat</i>	<i>Is it a cat?</i>
		<i>sits.</i>	

And so on.

Plan of lesson.

1. Revise the last lesson
 - (a) by flash reading (see below);
 - (b) by telling children to write certain words on their slates.
2. (a) Write a new letter (to be introduced in this lesson) on the board (*a A*).
Pronounce it.
Make all write it till correct.

- (b) Write a new word composed of the new letter just introduced and one or two already known (c a t).
 (c) Hand out packets of cut letters:¹



The vowel signs in Indian vernaculars should be considered a letter:



- (d) Tell children to lay out a word (c a t). They pick out the letters and lay them on their slates.²

The same procedure is adopted with the introduction of each new letter. Not more than two new letters should be introduced in one day. After every three or four new letters there should be a long period of revision, consisting of endless variations with the letters already known.

Teaching devices. 1. Separate letters, size about 3"×3" or larger, may be laid out on a sloping board in front of the class: the letters of a word will be mixed up, e.g. *l.e.a.t.s.* As soon as a boy recognizes the word he writes it on his slate and puts the slate, face downwards, on the teacher's desk. Wait till about half the children (or more) have given in their

¹ Each boy has to have five letters. It takes time to pick out appropriate letters from a mixed box which contains all the letters of the alphabet, including the vowel signs. This difficulty may be overcome by sorting the required letters either into compartments of a box or into envelopes. After the lesson the letters should be sorted and put into their correct envelopes. The sorting may be done by one or two of the brighter boys of the class. Another alternative is to write out the necessary letters on little bits of paper as required.

² Children should make an effort to copy in writing the word thus laid out.

slates. Then note the first boy (or three boys) who have handed in the right answer.

2. With a small class, hand to each boy plenty of cut letters (those known to them). Let each make a word and mix up the letters. At a signal all pass on their puzzle words for the next boy to decipher.

3. Blank squares of thick paper may be given out and the boys may make their own letters for these letter games.

4. *Flash or sight reading.* This is an important device. When an adult reads a word he does not spell out the individual letters: he recognizes the general shape. A child will never read fluently and intelligently till he gets out of the habit of spelling out the words letter by letter, and gets into the habit of recognizing the word at a single glance, in the same way that he recognizes the faces of his relatives.

In teaching the child words which illustrate a new letter, allow the child to consider the individual letter, but in all revision exercises, and in all words composed of familiar letters, do not allow the boys to spell out the words. 'Spelling out' may be prevented in the following manner. Stand with your back to the class so that your body conceals what you are writing on the blackboard. Write a word and before turning to the class cover it with a book or piece of cardboard. Say, 'Now fix your eyes on the cardboard. Ready.' Flick the cardboard off and on as quickly as possible: you cannot be too quick, for it takes only a fifth of a second or less to read a word, and it takes no longer to read a whole word than to recognize a letter if the child is reading correctly, and not 'spelling out'.

Having covered the word tell those who have read it to write it on their slates and to put their slates down. For the others uncover the word again *just as quickly as before*. And so on till all have succeeded in reading the word.

Every exposure should be just as rapid as the first. On no account lengthen the exposure.

If the boys have difficulty write some five or ten words on the blackboard and let them read at leisure. Rub them out and do flash reading, selecting the word each time from the words already given.

This method is of great importance. Even if it seems purposeless and difficult it should be persevered with.

The method: The second year (age 7)

The main purpose at this age is formation of the power of extracting the substance from printed matter. There ought to be a good deal of reading in the earlier stages, but as the year progresses there should be more and more silent reading.

Position of the class. Boys get tired of sitting continuously; it gives variety if the class, when reading aloud, are made to stand out occasionally. It is a good idea to have a semicircle permanently marked on the floor, and children may be asked to take their position accordingly and instructed not to go in front of that line.

Plan of lesson. 1. Break the sentences into pauses.

This is done in the following manner:

Tell the children to take their pencils. Then the teacher reads thus:

I have got | two new kites | and | Beni has got | two bats | and a ball. || Come | at four o'clock. ||

As the teacher reads, he taps on the board or the table to indicate pauses. At the end of a sentence the pause is longer and is indicated thus ||. The sentence is thus broken up into units of sense which can be spoken as one idea, and grasped by the mind as one 'mouthful' before the next is given. Punctuation marks are not enough to indicate pauses. There are many more pauses than there are punctuation marks.

A few preparatory lessons will be necessary to instruct the children in the following of these marks. They tend at first to make the pauses much too short, to run on and hurry. Reading is seldom too slow; it is very often too fast.

When the boys have become accustomed to this method of reading (after several weeks), they may be told to think of the sense and mark pauses for themselves. From this it is an easy transition to reading without any marking at all.

Reading is greatly improved if the child is made to stand out in front of the class and look at the class all the time. He should merely glance down at the book during the pauses, looking up again before he speaks. Thus several phrases are read silently, then said (looking at the class).

A child should read in precisely the same tone as he speaks in conversation, not in the sing-song way now usual in *pathshalas*.

2. Having marked the pauses a boy reads to the class. About half a page should be read by one boy.¹

If any difficult words occur during the reading the teacher may stop the boy for an instant, give a simple equivalent, then let him go on.

3. Call on a different boy to come out in front of the class and give the substance of the passage read. When he has done so, ask the class whether he made any errors or omissions. Those who have any errors or omissions to point out raise their hands; the teacher calls on them one by one. The boy who gave the summary remains standing in front of the class. He is permitted to speak in his own defence if he purposely omitted some minor detail.

4. At the end of the lesson the substance of the whole may be thus revised.

Intermittent written work. Boys become weary of a long stretch of oral work. This may be prevented by intermittent written work. The form, is: 'Ready' (followed by a question); 'Write the answer'; 'Show the answer'. The questions asked may be simple equivalents of difficult words, or one-word

¹ Where the lesson is in dialogue the teacher may take one part, or two boys may read.

answers on the substance of a passage. Neither spelling nor grammar should be asked.

Silent reading. In place of Sections 1 and 2 above, the class may be asked to read the next page or half-page to themselves. Section 3 takes place as before. This silent reading should be done at least every third time and with increasing frequency as the session advances.

In silent reading the reading must really be silent: lips must not move and the class must not buzz.¹ The aim of silent reading is the skilled reader, who can get the substance from a book as quickly as possible.

Language teaching based on the reader. This lesson should be kept entirely separate from the reading lesson. Of the reading lessons, two per week should be silent reading. Of the writing lessons, two per week should be language lessons. Of these two, one should be dictation, the other meanings of words and grammar.

Grammar. Very little should be done at this stage. The following are suggestions:

Pick out names of things. Pick out names of people. Also subject and predicate.

Grammar is valuable for understanding the structure of speech. It should not be made an end in itself.

Pronunciation. When the class is set to do copy-writing the bad pronouncers may be called up one by one for practice in their particular weakness.

Poetry. Teach poetry in the same way as the reading aloud of prose, but

- (a) be extra careful over pauses, avoiding a long pause at the end of a line;
- (b) have the piece read repeatedly as practice in perfect reading.

When a boy can read well ask him to read it aloud

¹ Persistent lip movement may be checked by making a boy keep a pencil lengthwise between his lips while doing silent reading.

looking at the book as little as possible. All the others are to do the same, but reading silently.

Do not explain poetry (save the necessary explanation of any difficult words): it is best approached by learning to read it aloud and recite it expressively.

The method: The third year (age 8)

In this class it will not be necessary to mark the pauses with pencil,¹ and the bulk of the reading should be silent. A great deal of matter should be got through.

N.B.—The syllabus prescribes a reading book of only 75 pages or so. This book is used for language teaching (see above) towards the end of the session. Children may pick out nouns and verbs and learn to divide a sentence into subject and predicate, when the prescribed reader has been finished. One reading lesson in three should be a silent reading lesson. At the end of the lesson the teacher calls on a few boys to tell him what they have been reading. Afterwards they should write out the substance.

In the stage of transition from the oral account of reading to the written account, get the boy to tell the substance of his reading first, then let him write it down.

Poetry should be taught as before.

At this stage composition consists in writing out the substance of a page read.

The method: The fourth and fifth years (ages 9–10)

More importance should be attached in these stages to a careful precis of reading. Children should be taught to tabulate points of a lesson thus:

¹ Care should be taken that books are not spoiled by marking. Pupils should be trained to mark the pauses lightly and to rub out the marks as soon as the lesson has been done.

DUTIES OF A DISTRICT BOARD

1. *Education*
 - Primary
 - Middle
2. *Sanitation*
 - Inspection
 - Works
3. *Roads*
 - Construction
 - Upkeep
 - Bridges

Notice how headings are pushed to the right as they decrease in importance.

It is in these stages that more perfection is expected in extracting the substance from a printed passage of some length and difficulty, and in criticizing a passage which has obvious defects, e.g. improbabilities or trashy journalism. For this purpose the teacher should design some absurdity tests. A boy who is taught to read without being taught to discriminate is like an animal which lacks a sense of smell: he eats without power of discriminating between what is wholesome and what is poisonous.

If the work has been satisfactory throughout, the children by this time should have formed the habit of reading for pleasure. The teaching should be designed accordingly. Out-of-school reading and silent reading must be of supreme importance.

WRITING¹

The first year (age 6)

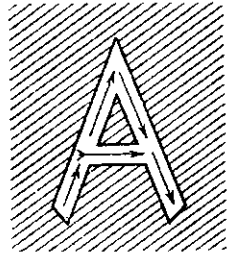
The first essential is the formation of letters in the correct order and by the correct movements, in order that they may not become illegible when written rapidly. So correct movements are more important than the apparent correctness of the shape produced on the paper.

Correct movement is best taught by stencils. These are

¹ See also Chapter IV, p. 44.

letters cut in a card 3" or 2½" square, white on one side and black on the other. The child puts the card on to his slate and runs the slate pencil round the slit until the letter **A** is formed. It is not necessary to have stencils of every letter in the alphabet. They are intended to give to the child the idea of writing and the idea of the simple continuous movement of the hand which is required. After 12 or 15 letters have been learned by stencil the rest may be taught by eye. Tin stencils are better than cardboard stencils because the latter do not last long.

In the case of certain letters, e.g. A, it may be necessary to have paper stencils pasted on to a dark background of some metal, say tin or pasteboard, preferably the former, to enable children to practise the correct movement, thus—



In this case and in similar cases it is not necessary to use a slate for the formation of letters. In certain print letters strokes are not all strictly continuous. Some strokes are made separately. But in all cases correct movement must be insisted on.

Other methods. 1. Scratch a letter on a slate with a pin. Let the child draw over it.

2. Cut a letter on the hard earth floor, and let the child trace round it with a small stick.

3. Make a brick of clay, press a groove on it and use it as in (2).

4. On a piece of board, paint lightly letters which the child can go over with a bit of chalk.

Once children really want to learn to write the teacher matters little, so long as by clumsy lecturing or class methods of teaching he does not sicken them of the subject.

Subsequent years (ages 7–10)

In starting the writing class see that all the boys have proper pens or slate pencils. Bamboo pens should be discouraged; even quills are better.

N.B.—Pens and decent paper should be used in higher classes and clean slates in the lower. The dirty habit of cleaning the slates with saliva should be sternly suppressed.

1. Set a page of the wall chart, copybook, or reader to be copied.

2. Set the class to work and correct any boys who are not sitting properly. Never insist on a stiff position, but get the boy to sit reasonably upright and facing his work.

Note the following points:

1. Handwriting should never be more than $\frac{3}{4}$ " in height: in Standard II (age 7) half an inch is sufficient, but if a boy writes well using smaller letters, do not interfere with him.

2. It is better not to allow the boys to rule lines on the slate with slate pencils. Permanent lines may be made with a pin or knife. These lines are faint and do not absolve the boy from filling in the top line of the letter in certain languages, while in others they help boys to keep the writing lines straight. When boys are writing on paper the guide lines may be ruled in pencil and the writing may be done in ink.

3. Letters must be formed in a single movement.¹ It is desirable therefore to tell children never to take the pen off the paper save when there is a break in the outline. This prevents the drawing or shading of writing.

4. In the second year quality is most important. Never mind if the boys write rather slowly so long as they write well. But excessive slowness is usually a sign of drawing.

5. Award marks for handwriting.²

6. Always guard against the tendency of forming two styles of handwriting—one good for the writing lesson, and the

¹ This applies strictly to script writing.

² Collect ten specimens of handwriting, mark them in order of merit from 1 to 10, and stick them on the wall. Handwriting may be marked according to this scale. Boys may keep a record of their progress as indicated by the marks thus awarded. The marks should be awarded at the end of the writing lesson. The lowest specimen (1) is what is just recognizable but quite illegible.

other bad, for ordinary use. A boy must carry his practice into other lessons. So good writing must be insisted on in all lessons. And always discourage a slow, drawing style of writing in the copy period which is useless for ordinary needs. The cure is to pay some attention to speed in the copy period, though not at the cost of quality. Standards III (age 8) and IV (age 9) should be required to write so many words in a given time, e.g. Standard III five words per minute and Standard IV seven: this is the minimum.

The teacher should look out for any cases where boys are forming a letter wrongly or writing very badly.

Dictation. This is a very useful form of writing lesson. Always set a dictation lesson from what has been read. Have every difficult word likely to be mis-spelled written out five times by the boys. Let them then clean their slates. Dictate the passage slowly. Do not repeat, as repetition causes confusion and prevents boys from forming the habit of listening the first time.

Having dictated the piece, read it over once again continuously, giving exact value to the pauses. Boys will now fill in the punctuation marks.

Correction of dictation. Write difficult words on the board. Let boys compare. Set the boys to read or learn poetry and meanwhile correct the slates yourself. As soon as the slates are corrected give them back and let the boys write out five times, in the correct form, all their spelling errors.

COMPOSITION

In higher classes a page may be read and a detailed abstract of it may be made from memory.¹

¹ For writing in upper classes a definite time factor should be introduced. Five words per minute (third year) at the beginning, rising to six or more half way through the session ought to be the normal condition. The better boys should finish the session by doing seven. If handwriting is marked, count each word less than the required number as a mistake. Hold competitions for who can write most (good writing) in five minutes.

The fourth and fifth years (ages 9-10)

In these stages composition of paragraphs should be encouraged.

Method. Pin a picture on the blackboard if printed; but better, if you can, draw an outline filling in the details as the lesson proceeds. Thus make the outline as you go on and make a list of specially effective descriptive words to be used in the paragraph.

The oral practice is followed by a written test in a narrative form at the end of the lesson, the outline on the blackboard serving as a guide.

This kind of paragraph writing may also be based on a book. Boys read silently point by point as the teacher writes the outline on the blackboard and makes a list of the important words under the points. The outline is thus completed. Boys then put away their books and write out the paragraph using the outline only as a guide. Finally, the writing is compared with the original.

In the last stage of the primary course writing should include the writing of various business documents, simple agreements, receipts for money, easy business letters. At this stage, too, children should be trained to fill in Money Order forms for different amounts.

In letter-writing, divide the class into two parts and make each boy correspond with another in the opposite half of the class. Emphasize the importance of putting a full address at the top of the sheet, and also the date.

SPEECH

The 'Littleman Lecture'¹ should form the basis of speech work in the advanced stage of primary education.

In the fourth and fifth year all work should be done in ink. The speed of writing should be about 7-10 words per minute, more if possible without loss of quality.

¹ See H. Caldwell Cook, *The Play Way* (Heinemann).

The boys prepare at home written drafts of their lectures which are corrected by the teacher. They may learn their drafts by heart and deliver the speech on an appointed day, within a time limit of five minutes. When making his speech, the boy should stand on a stool. The teacher taps at any mistake that he may notice, and after each lecture the boys can ask questions. Marks should be awarded for speeches.

III

THE TEACHING OF MATHEMATICS

Introduction

OF all the subjects of the curriculum of the primary school, mathematics is the most difficult to teach with success, and the adoption of good methods is of greater importance than in the teaching of any other subject.

The first thing that the teacher should realize is that in the earliest stages of the teaching of mathematics, the subject should be treated exactly as an experimental science, and hence the teacher should adopt those methods that are considered appropriate for science teaching. The teaching should be concrete and realistic, should appeal to observation and rely on experiment. *Suitable appliances should be prepared and used in teaching.* The statement of the multiplication table, $4 \times 3 = 12$ is merely the expression of a concrete fact, that three groups of four things each, make twelve things; and hence the only correct way of learning $4 \times 3 = 12$ is by children themselves making three groups of four seeds or sticks and finding out that three fours is twelve. Visual aids to teaching designed to make teaching impressive and clear should be provided in plenty.

Secondly, while the fundamental ideas are derivatives from experience, *Mathematics itself is an abstract science—the science of Number.* Problems and exercises that are given should be such as will help the pupil to construct in his mind a system of sequences and relations among numbers and to acquire in the most easy and natural way correctness and facility in working with numbers.

The practical utility of mathematics must be evident to the

child from the beginning and throughout. The teacher should propose *problems that have a meaning and a purpose to the child*.

The assumption that children have a natural distaste for mathematical work is an error. As a fact, children have an initial interest in the subject. The trouble, however, is that very soon some of them find the work to be too difficult, and this is due mostly to defects in teaching. To maintain the pupils' interest, the teacher's presentation of the subject should be lucid, he should set before pupils tasks that are easy for them to do, he should help them generously whenever they are perplexed, and correct them gently whenever they go wrong.

Individual differences between child and child in aptitude and quickness are found to be greater in this subject than in any other. The speed that is easy for one child is found to be far too much for another. Each child's mind should therefore be independently followed. The teacher should not require an arbitrary standard of attainments from all the pupils, should not impose an arbitrary speed, and should not blame a pupil for not acquiring a speed of which he is not at the moment capable.

THE FIRST YEAR COURSE—FIRST STAGE¹

Note.—It does not matter if the whole of the following first course is not gone through in one year. The age of the children, their native abilities and their home environment should determine how far they go in the first year, and the capacity of the teacher and the methods he uses have also much to do with the degree of progress made by pupils. There is no harm if some of the portions are left for the first half of the second year.

The earliest number ideas are simple percepts

The knowledge of the first few numbers is acquired by the

¹ See also Chapter IV, p. 45.

child in the natural course of its experience and without any formal teaching. The child comes to discriminate easily and by sight between a group of two balls and a group of three balls, and learns to assign the proper number name to each group. But this telling the number at a glance is possible only in the case of very small groups. Hence this method of associating visual perceptions with numbers cannot be applied beyond the first few numbers.

How number is determined

Number is properly determined by the method of counting. The following is given as an illustration of an early exercise for children in number:

Teacher: How many fingers have you	}	Through visual im-	
on each hand?			pression.
Pupil: Five fingers.	}	Investigation by the	
Teacher: Count.			process of count-
Pupil: One, two, three, four, five.			ing.

Counting consists in the application of a certain one-to-one correspondence. When a collection to be counted is before us, we pass in succession over the items, by ticking them off one after another with the finger or with the eye, and at the same time we pass in succession over a series of number names. What is necessary for correct counting is that the act and the word should be simultaneous and should exactly correspond. The teacher should adopt suitable devices for regulating the child's counting.

Addition and subtraction of a unit. Counting backwards

Counting may be looked upon as a process of successive addition of units. The child will see from a few instances, that when one object is added to a group, the number next above in the scale is the result. Similarly he can be led to see that when one object is taken away from a group, the number next below in the scale is the result. In order to be

Division by small numbers. The sign of division

Problems in division based on the multiplication tables should also be set. Pupils need not at this stage be introduced to the use of division for measuring. They have only to know division as sharing: e.g. distribute 10 peppermints among 3 pupils. Pupils should learn to find the result from the application of the multiplication table and should also verify it by actual distribution of 10 seeds among 3 pupils.

THE FIRST YEAR COURSE—SECOND STAGE**Numeration and notation up to 100**

With the help of suitable appliances, e.g. bundles of 10 sticks and a few loose sticks, pupils should be taught the names and the compositions of numbers in the interval 20 to 100. They will find no difficulty in the notation as they will see they are merely recording in the appropriate places the number of tens and the number of units in the collection before them.

Addition in two digits

Having learnt the principle that the tens are to be added together and the units are to be added together, pupils should see that in oral work they may do the tens first and the units afterwards or do the units first and the tens afterwards, but in written work, the procedure adopted is to add the units first, set down the units in the result, and carry over the tens to be added along with the tens in the given numbers. *Pupils should be able to do sums like $36 + 28$ both orally and in writing.* Plenty of oral drill should be given, such as 'What is $8 + 6$? $18 + 6$? $28 + 6$?' and so on till pupils come to $88 + 6$. Pupils should be made to see that $3 + 9 = 9 + 3$, and that, when numbers are to be added, the order in which they are taken up is immaterial.

Subtraction in two digits

The simplest sums in subtraction are those in which the result is obtained by merely subtracting the tens from the tens and the units from the units. This rule does not suffice when the number of units to be taken away is larger than the number of units on hand. To enable the pupil to tackle such problems, he has to be given a preliminary course in Splitting or Decomposition: e.g. $54 = 40 + 14$, $62 = 50 + 12$, by splitting a given number of tens into the next lower number of tens and ten units, and then mixing the ten units thus separated with the units already on hand. The method of equal additions is less natural and more involved and its use is not recommended. The method of subtraction by complementary addition is a very good method, but should not be taught at this stage. Just as in the case of addition in two digits, so in the case of subtraction in two digits, pupils should be exercised in working the sums orally as well as in writing. Drilling in exercises like $14 - 8 = 6$, $24 - 8 = 16$, $34 - 8 = 26$ and so on till pupils come to $94 - 8 = 86$, will be of value. Simple oral exercises in complementary addition should also be set, e.g. What should be added to 8 to make 14? What should be added to 43 to make 55? There are various problems in life for the solution of which it is necessary to answer questions like the above.

Multiplication by a number of one digit

Let the pupil be given problems in multiplication and required to work them out first with concrete material. To multiply 26 by 3 he may lay out three rows each containing 2 tens and 6 units and deal with the units first—namely, 3 sixes = 18. He may set down 8 in the units column and carry over the ten by bundling up the ten units into a ten bundle. Then he may deal with the tens, namely, $3 \times 2 = 6$ i.e. 6 tens. Adding the one ten newly bundled, he gets $6 + 1 = 7$ tens. He sets down 7 in the tens column. Just as

in the cases of addition and subtraction, the pupil may be instructed to start with the tens in oral work and take note of the units later.

Division by a number of one digit. Short division

Let the pupils be given problems in sharing or distribution, and let them work out the problems first with the help of concrete appliances and then record the results in writing.

$$\begin{array}{r|l} 3 & \begin{array}{cc} \text{Tens} & \text{units} \\ 7 & 2 \\ \hline 2 & 4 \end{array} \end{array}$$

Money

Children get interested very early in coins and get to know that money can be exchanged for fruits, cakes, toys and other things that they like. *The class should have a supply of coins.* If the teacher finds it inconvenient to keep an adequate supply of actual coins, he can have a supply of token coins which can be made to serve the purpose. One pupil may have all quarter-anna coins with him and another a number of pie coins, and the two pupils may exchange a few coins at the rate of one quarter-anna coin for three pie coins. Pupils may be exercised in making up a required amount of money in various ways: e.g. a pupil buying a pencil for 8 pies and giving the shopkeeper an anna and getting four pies with the pencil from the shopkeeper. These 'Work in Play' problems with money will be very interesting to pupils.

Lengths

Next in importance to money, come Lengths. The teacher should supply the pupils with foot scales, and pupils should be made familiar with the foot and the inch. They should measure their foot, their cubit, their span, their arms, their height and the various objects in the classroom, and record these measurements. They should be required to estimate lengths and then to check their estimates. They might play at buying and selling cloth.

Simple geometrical forms

Pupils may be introduced to certain simple geometrical forms, the straight line, the circle, the square, the rectangle and the triangle. Among the solid forms, they may be introduced to the sphere, the cylinder, the cube, and the cuboid.

THE SECOND YEAR COURSE

General observations on the course. The second year's work will consist of revision of work done in the first year and of advance in a few directions. This remark will apply to the work in every class of the primary school. *Drilling in the work of the previous years will form a substantial part of the work of each year*, with a view to increasing the command and facility of the pupils over the methods to which they were introduced in previous years.

Notation and numeration. Decomposition of numbers

Notation and numeration of numbers of three, four and five digits should be taught. The theory of Local Value should be fully explained, and pupils should be at home in the decomposition of numbers in any manner that may be required: e.g. $325 = 3$ hundreds 2 tens and 5 units, or 32 tens and 5 units, or 2 hundreds, 12 tens and 5 units. Again $600 = 5$ hundreds, 9 tens and 10 units.

Addition and Subtraction

Pupils should be drilled in addition of numbers of two or three digits. They should be encouraged to do as much work as possible in the mind. *Sums like $37 + 68$, $346 + 287$, should be done entirely in the mind.* The pupils must be able to proceed in the order of units first, tens afterwards and hundreds finally as well as in the order of hundreds first, tens afterwards and units last. Similar work should be done in subtraction. Numerous interesting problems should be set requiring the addition and subtraction of numbers of two or three digits.

Multiplication by a number of digits. Tables 2 to 10 and Table 12

Pupils should be taught multiplication by a number of two digits. They must learn the reason for each step they are taking. When they multiply 247 by 36, they must be able to see that in multiplying 2 by 3, they are really multiplying 200 by 30, that the result is 6,000 and that 6 is to be put down in the 4th or the thousands' place. Pupils must be drilled in the multiplication tables and be exercised in the application of these tables to problems.

Division by small numbers in two digits. Long division

Pupils should be introduced to division by a number of two digits. The divisor may be a number in the range 11 to 20 in the beginning and in the range 21 to 30 later on. Pupils should learn (1) that the product obtained at each stage should be less than the dividend, (2) that the remainder should be less than the divisor. *They should be taught how Trial Quotients are found and how they are to be tested.*

A first course in fractions. Halves and quarters

By folding a paper into two equal parts, pupils can get a clear idea of a half and learn that two halves make one. They should apply their knowledge to a length, a circle, a sphere, a measure, an anna, a rupee, a class of children and a group of seeds, and learn that half results from the division of any unit or any collection into two exactly equal parts. They should see how the multiplication table of halves is easily made by successive additions of half, and how the result can be obtained, e.g. *7 times half by dividing 7 by 2*. The fractions of one-quarter and three-quarters should be dealt with in the same way. They may be taught the notation $\frac{1}{2}$, $\frac{1}{4}$ and $\frac{3}{4}$ and the significance of the numerator and the denominator in the notation.

Money

Pupils should be made familiar with sums of money below

one rupee. They should be able to make up any required amount below one rupee with the coins provided. They should learn the 12 table, and to reduce annas and pies into pies, and to convert pies into annas and pies.

Lengths

The foot-scale and the inch divisions on it should be carefully observed. Pupils should draw lengths of 1 inch, 2 inches and so on up to 11 inches and 1 foot. They should measure the dimensions of objects and record the results in feet and inches. They should learn to draw squares and rectangles of given dimensions.

Measures of capacity and weight

Pupils should be taught to use the measure, the half-measure and the quarter-measure in measuring a quantity of sand or seeds. They should be taught to use a balance and to weigh things and express the result in *visses*, *seers*, *palams* or in any other system of weights in local use. When measuring length, capacity or weight, the teacher should make the pupils feel the activity to be a kind of play. Let pupils employ themselves freely in such activity day after day.

Geometrical forms

The observational study of simple geometrical forms, plane as well as solid, should be made. The circle, the square, the rectangle, the triangle, the sphere, the cube, the cuboid and the cylinder may be studied in this manner.

THE THIRD YEAR COURSE

In addition to revising and drilling the work done in the previous years, the new work of the third year course will consist mainly of *the four compound rules applied to Indian money*, including reduction and conversion of denominations, division by a number of 3 or 4 digits, the general theory

of vulgar fractions, and very simple and practically useful problems in length, capacity, weight and time.

The knowledge of notation and numeration will be extended to lakhs, though the pupils will be required in their ordinary work to deal only with figures of five digits at the most. Multiplication tables up to 16 and the fractional tables of eighths and sixteenths should be learnt. *Pupils should be trained in mental arithmetic according to both indigenous and modern methods.* They will learn the application of the method of division for measuring and not merely for sharing: e.g. 'If three books cost Rs. 2-4, what is the price of one book?' This is a problem in sharing or distribution. 'If one book costs 12 annas, how many books can be bought for Rs. 2-4?', i.e. how many 12 annas are there in Rs. 2-4? This is a problem in measuring. Pupils should learn to draw plans and to interpret plans and maps intelligently. Simple bazaar transactions and the rates of domestic consumption of various articles will provide suitable, easy and interesting problems involving measure and cost, and such problems will be the means of awakening the pupils' interest in the things that he finds used every day in the household. A walk along a road will introduce pupils to miles and furlongs, and calculations of speed based on a railway time-table or other data will interest children, provided the data are suitably simplified. Pupils will apply their knowledge of the yard for measuring cloth and buying cloth and they will see the 50 yards length and the 100 yards length marked in the school grounds for the running of flat races. An elementary course in general fractions will be given. The course may be confined to teaching the fractional notation, finding the value of any fraction of a given quantity—e.g. $\frac{1}{6}$ th of a rupee, $\frac{2}{5}$ ths of 200 fruits—and illustrating the meaning of fractions on squared or ruled paper.

THE FOURTH YEAR COURSE

In the fourth year, *pupils should master the various*

denomination tables and be exercised in the four compound rules in relation to these tables. They should learn the linear measurement table in full, from the inch to the mile. They should learn also tenths of an inch, and how to use *the First Decimal Place*. They should also be taught to measure with a Gunter's chain and learn to express lengths not only in yards, feet and inches, but also in chains and links. Simple rectangular areas may be taught, and pupils may be given a knowledge of the units, the *square inch* and the *square foot*. The square chain (which is a tenth of an acre) and the cent (which is one-hundredth of an acre) may be shown in the school grounds. *The aim of these exercises is not to make pupils calculate areas, but to give them a visual idea of the units of area.* The table of Indian weights should be studied and applied to problems. The table of English weights should also be studied, as these weights are also used in this country. *The clock face* should be studied and pupils should have a thorough knowledge of seconds, minutes and hours, of the meaning of a.m. and p.m. and the method of counting from 0 hours to 24 hours in use on our railways. The Indian measures of capacity as also the English units, the gallon and the fluid ounce, should be taught. More work than in the previous standard should be given in the indigenous and the English systems of weights. *The teacher should have a list of current prices* from which he should propose problems on buying. Pupils should be at home with bazaar transactions and should learn *to make out a bill*. They should obtain a few ideas on the quantities of the various articles consumed in the household and their cost. In pure number work, they should be taught the method of *complementary addition* for subtraction and the *Italian method* in division. They should be exercised in addition, subtraction and multiplication of fractions having small denominators. They should master the indigenous fractional tables and be able to solve problems both by the indigenous method and by the modern method. In geometry they

should be taught straight lines and their measurement, angles and their measurement, and the construction of very simple triangles, rectangles and circles.

The fourth year class is often the highest class of a primary school in this country, and the above course is calculated to complete the elementary mathematical knowledge already learnt and to fit pupils for life's ordinary requirements.

THE FIFTH YEAR COURSE

The fifth year course of the primary school is a very important course and it would be well if every pupil were compulsorily required to take it. In the fifth year, pupils should acquire a more thorough knowledge of vulgar fractions and learn the application of the four rules to fractions. They should advance in their knowledge of decimal fractions, and understand and use the first and the second decimal places. *They should apply their knowledge of vulgar and decimal fractions to a wide variety of useful problems.* They should learn for example to calculate the wages and salaries for fractions of a month, to work out percentages and simple interest, to make up credit and debit accounts, and to calculate gain and loss in transactions. They should acquire simple ideas about banking and loaning and about the yield per cent from various kinds of investments. They should learn to calculate roughly *areas of fields* in acres and cents, and the *kist* to be paid to the Government or zamindar. They should learn to draw plans and maps to scale. They should be able to prepare building estimates. They should learn to draw *graphs* to show, for example, variations in prices of articles from month to month and year to year. There is an old adage that 'school arithmetic will avail very little for the real business of life'. It is up to the teacher of mathematics to disprove this statement and to make the school mathematical training subserve the ends of business and the practical needs of everyday life.

IV

PLAY WAY METHODS

Or

EASILY MADE SELF-CORRECTIVE APPARATUS FOR THE INFANT CLASS

THE specimens of self-corrective apparatus illustrated here have all been experimented with and proved useful. They are what their name implies—Self-Corrective, and once their use has been demonstrated by the teacher the children should require little further help beyond occasional supervision. Their advantages are that the children learn unconsciously and are interested, while the teacher is released for another class or group.

A word of warning is necessary. The excessive multiplication of apparatus is confusing and should be avoided. *Tamasha* apparatus which requires the teacher to use it defeats the object, which is to make the children do the work. The apparatus is divided into the usual divisions: Early steps in (a) Reading, (b) Writing, (c) Number.

A. EARLY STEPS IN READING

The first necessity here is the recognition of letters. There are two schools of thought as to the teaching of early steps in reading: one starts with whole words—the idea being that the child can much more easily visualize a whole word, especially if accompanied by the picture of an object, than a single letter—a mere symbol. There is undoubtedly much to say for this view, but in practice it has been found that it is better to begin with letters, both as being less likely to antagonize teachers and parents, who are most conservative people, and

because it is less of a break with tradition. Accordingly we begin with an apparatus to teach letters, but in order to make it attractive we make a game of it. Our first apparatus therefore is the Matching Board.

First Step

The matching board is a bit of cardboard not bigger than a *takhti* on which the letters of the alphabet are written with a space below each letter for the corresponding matching letter, which is drawn on a small square, also of cardboard,

अ	आ	इ	ई	उ	ऊ	ए	ऐ	ओ	औ
अं	अः	क	ख	ग	घ	ङ	च	छ	ज
म्	न	ट	ठ	ड	ढ	ण	त	थ	द
ध	न	प	फ	ब	भ	म	य	र	ल
व	श	ष	स	ह	झ	ञ	ज्ञ		

FIG. 1 (a) MATCHING BOARD



FIG. 1 (b) CARDS WITH LETTERS TO FIT BLANKS

خ	ح	چ	ج	ث	ط	ت	پ	ب	ا
ص	ش	س	ژ	ز	ر	ر	ذ	ذ	د
ل	گ	ک	ق	ف	غ	ع	ظ	ظ	ض
	ے	ی	ء	لا	مھ	ہ	و	ن	م

FIG. 2 (a) MATCHING BOARD



FIG. 2 (b) CARDS WITH LETTERS TO FIT BLANKS

to fit the blank. There should be in each school about a dozen of these matching boards and twelve sets of cards with the letters of the alphabet to match. Illustrations of matching boards are given in Figs. 1 and 2.

It has been found that with these boards children learn to recognize the different letters very quickly indeed. It must be remembered that the apparatus appeals to the child's instinctive desire to match or compare: matching boards where the letter cards are placed on top of the letters on the board, thus obliterating them, are useless.

These matching games may be extended. Variants are envelopes with a letter marked on the outside (Fig. 3) or match boxes (Fig. 4) similarly marked, or again small earthenware saucers (Fig. 5) as below:

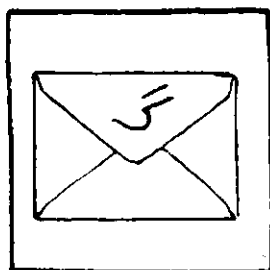


FIG. 3

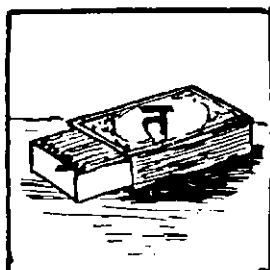


FIG. 4

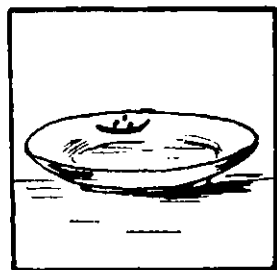


FIG. 5

but the matching board is essential.

Second Step

Once the children have learnt to identify the letters no time should be lost in introducing them to words, but the weary routine of spelling should be supplanted by the visual way. This has been called the *Look and Say Method*, and it is a logical method. (Some teachers prefer to teach the children at this stage the sound of the letters, and if they find it easier there is of course no objection.) The apparatus required is simple. Rubber stamp outfits may be obtained from Messrs Evans Brothers, Ltd., Russell Square, London,

at 1s. 6d. each, or transfers may be obtained in the market. With these pictures several sets of cards may be made. Each card will have on the one side a picture of the object itself and on the other its name as shown below (Fig. 6):

A large number of words will be photographed on the child's visual memory, as it were, by this method, and the connecting words will come more naturally, when the primer stage

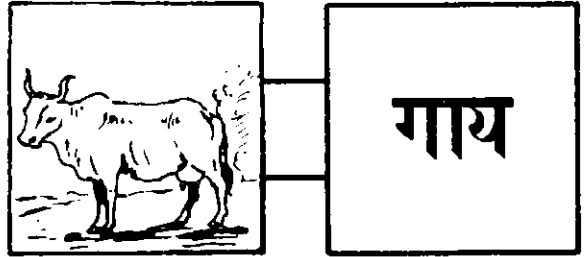


FIG. 6

is reached. The child should be left alone with a set of these 'Look and Say' cards after the teacher has gone over them with him.

Third Step

The next stage will be to give him similar cards, but instead of the name being written on the back it should be written separately and matched as in the examples given below (Fig. 7):

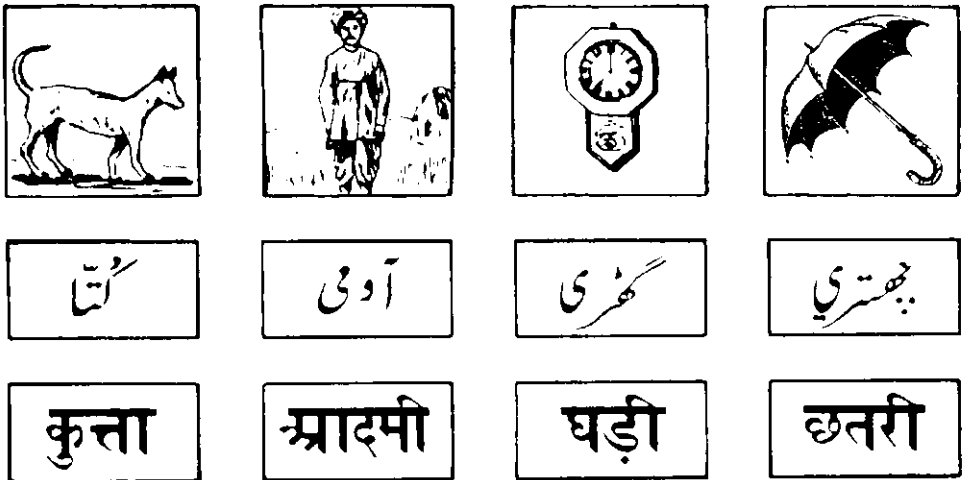


FIG. 7

There are many other similar variants.

Fourth Step

When plenty of practice has been given in this way the children will be ready to tackle the primer, though the card system can with advantage be extended to depict whole sentences, e.g. a picture of a cow running, of a dog barking, etc., to be matched by strips giving the sentence in words. Where the rubber stamping outfit is insufficient, illustrations cut out from papers, etc., can be used with advantage. It must always be remembered that these are preliminary steps, and the apparatus is to be discarded when the children have outgrown them and are ready for the primer. The words and sentences should of course be taken from the primer.

B. EARLY STEPS IN WRITING

Training in this should go on side by side with reading.

First Step

First the child must learn to manipulate his fingers and get used to the shape of letters. Sandpaper letters cut out and mounted on cardboard are useful for tracing and getting used to the shape. These are easily made.

Bricks with incised letters are not so good, as the form of the letters is generally defective. The habit of making letters out of clay or wood seen in some of our schools is of course useless for teaching how the shape of letters is made in writing. The object of tracing is to get the hand and index figure into the proper position for writing, until by repetition the movements become quite mechanical.

Second Step

After sufficient practice has been obtained in this way the next step is the Sand Tray. This can be either a shallow box for each child, or a shelf against the wall, or

even some sand spread on a *takhti*. In this the child will be set to trace various letters with his index finger. The letters, at first only one at a time, can be hung up over the sand tray for easy copying. This will teach the proper manipulation of the finger and wrist, but it must be extended before the child can be really started. He must learn to hold a writing instrument.

Third Step

Let him, therefore, be given a pointed stick, the same size as a pen, and with this he can make his letters in the sand. Thus the development is strictly logical, and he will have learnt to handle a pen before he actually writes on his *takhti*.

Fourth Step

Where possible the next stage should be a slate and pencil, which present an easy surface for writing. Care must be taken to see that the pencil is not a broken stump, but long enough to rest against the arch between index finger and thumb. Then finally the child may be promoted to pen and *takhti*.

C. EARLY STEPS IN NUMBER

At the present age at which children come to school, they can all understand the difference between 'more' and 'less', and can count at least to ten. What we have to teach them is the recognition of numbers, that is of the symbols.

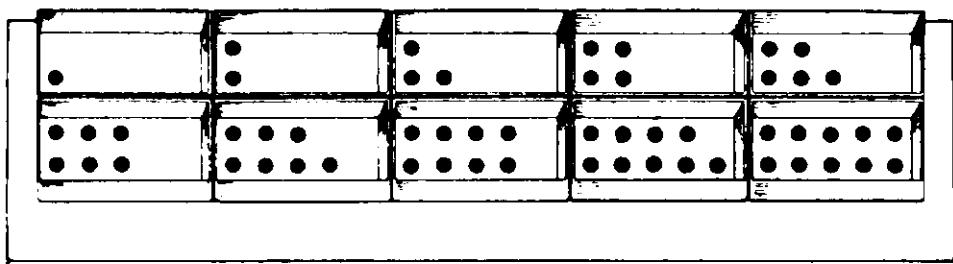


FIG. 8

First Step

A useful self-corrective apparatus is the Number Tray, which consists of match boxes mounted on a piece of cardboard, each match box having small holes ranging from 1 to 10, and a space for seeds. (See Fig. 8.) The children will fit the seeds in the holes and will thus learn the principles of the composition of numbers.

Domino cards are an alternative (Fig. 9):

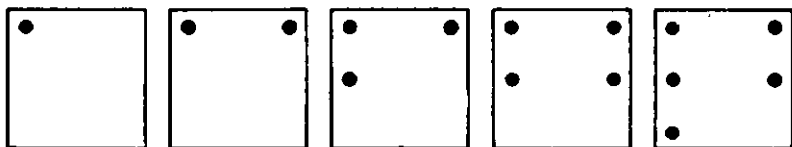


FIG. 9

Note the regular development, and do not irritate the very logical child brain by the illogical placing of the dots found in so many illustrations of these domino cards, as for instance in Fig. 10:

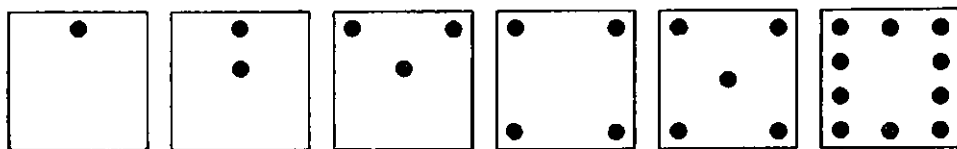


FIG. 10

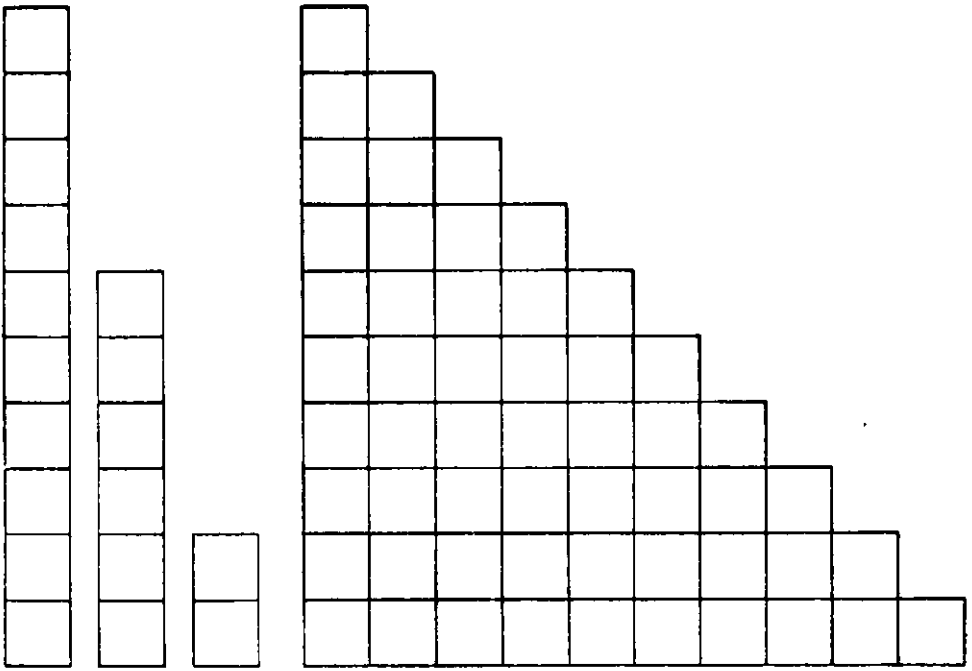
These only confuse a child.

Seeds or beads can be placed under the domino cards.

Second Step

When the composition of numbers up to 10 has been learnt in this way, a further development is the Number Stair, consisting of strips of cardboard divided into equal squares, from which a number stair may be built up (Fig. 11).

This should be sufficient to give a good idea of the composition of numbers and children may now start learning the figures.



(a) STRIPS.

(b) COMPLETE.

FIG. 11

Third Step

A number tray is again useful here with the addition of a number in each box (Fig. 12).

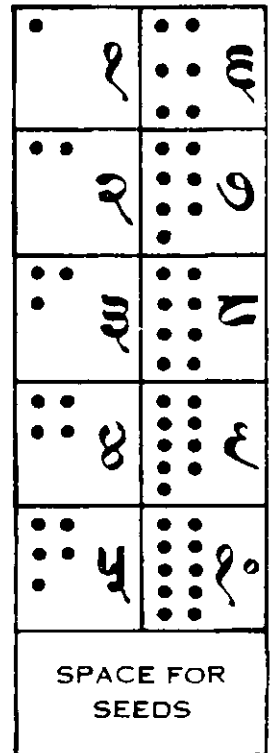


FIG. 12

Fourth Step

Next comes matching with domino cards (Fig. 13).

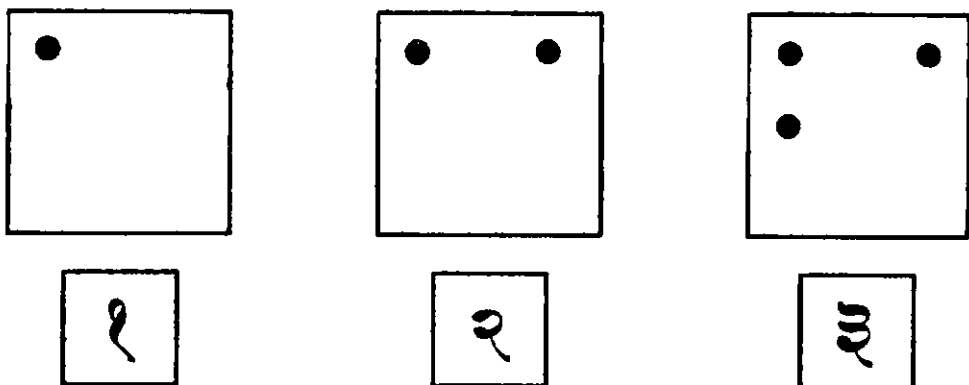


FIG. 13

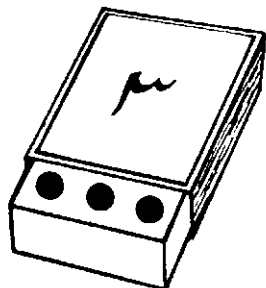


FIG. 14

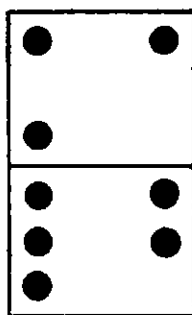
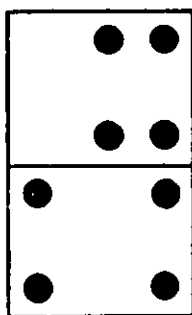
An alternative is a series of match boxes with the number on the lid indicating the number of seeds or beads to be placed within (Fig. 14).

Fifth Step

The domino cards are very useful, and their use may be extended to teach the composition of numbers still further (see Fig. 15).

There are of course endless combinations, but these will suffice for this stage.

The simple apparatus given above has all been tried in village schools with excellent results. Its use has reduced the time spent over the first steps in the Junior Infants Class, with appreciable effects on the problem of stagnation. Not only does it give scope to the children's play instincts but it keeps them happily employed while the teacher is occupied



$$8 + 8 = 16$$

$$8 + 8 = 16$$

$$8 + 8 = 16$$

$$8 + 8 = 16$$

FIG. 15

elsewhere, as he must so often be in one- or two-teacher schools.

A word of warning is necessary. Keep the apparatus simple, don't have too much and remember that the principle is self-corrective. Apparatus that must be worked by the teacher does not fulfil these conditions as the children watch instead of doing, and the teacher cannot devote his attention to others. Finally don't overburden the child's attention with too much ornament. Simplicity should be the keynote.

V

THE TEACHING OF GEOGRAPHY

ITS IMPORTANCE

GEOGRAPHY is an important subject of the primary school curriculum and perhaps the most difficult to teach. The main content of the primary syllabus has always been the teaching of the three R's, but the generally accepted aim of education now includes the preparation and the training of the young to become intelligent members of the social and civic life of the nation. Hence the school curriculum includes many other things besides the three R's—nature study, hygiene, civics, geography, drawing and handwork.

The primary school lays the foundation for a broad outlook and tries to give a healthy vision to every individual passing through the school.

Modern transport by bus, train and aeroplane has made travel easy for everyone, yet although much of the strangeness with which the people of the south look upon the people of the north has now disappeared, the Indian villager is still in a world of his own. He still considers all who do not conform to his own manner of dress or custom, as uncouth and barbarian. It is here that the primary school teacher finds the subject of geography an excellent help to give a broad world outlook to village children.

Scope

Having realized the importance of the subject of geography in primary schools, the teacher has to select his material and to understand how he has to treat the subject. Geography is often defined as the description of the earth. But it is something more than this. It describes also the life

of men in relationship to the surroundings in which they live. The distribution of plants and animals over the earth depends on the relief on the earth's surface, and on the amount of sunshine and rainfall received. The life of man is influenced therefore by the nature of the country he lives in, the kind of plants and animals, and the type of climate. The life of man is to a great extent dependent on the kind of environment in which he is placed. His food, dress, habits, thoughts and even his very appearance are all influenced by his surroundings.

But man is continually fighting against these great forces of nature, and trying to bring them under his control. Lands have been reclaimed from the sea in Holland; hitherto inaccessible mountain peaks conquered; rivers dammed to irrigate the land; bridges built, canals cut to overcome the great land barriers; forests cleared; marshes drained and made habitable.

It must be remembered, however, that although man has been to a certain extent successful in conquering the forces of nature, he has only been able to do so in those cases where nature is least resistant and most amenable to his efforts. In other words he has progressed only with the help of nature.

Realization of this struggle of man against the natural forces of the world must form the background of geography teaching.

Human interest

From this, we can see that the subject of geography has changed a great deal from the dull and uninteresting lists of towns, rivers and hills which were taught some years back. It has now been made one of the most fascinating sciences—the description of effects, and the searching for causes.

The modern method of teaching geography can be said to deal much more with the *human* aspect of the subject than it did before.

The life of man, in relation to his surroundings, in other

parts of the world is described and the pupils must be made to imagine accurately the conditions in other parts of the world.

No one ever saw the whole of India at once, nor has any one ever seen the world as a great sphere floating in space. But with the help of what we see around us and with the help of the words and pictures of those who have been to other places, we can *imagine* conditions as they are in strange and far-off lands.

Equipment

It will be of great help to the geography teacher if each primary school is able to get one or two illustrated monthly journals or weekly magazines. These will not merely give news of other places, but will also describe modern conditions of life and explain the progress in modern developments in other parts of our own country and in other parts of the world.

The greatest difficulty in our primary schools is the lack of adequate equipment for the geography teacher. He has not the best type of geography books to help him in choosing the material and imparting it to the children. Most of the textbooks are written to a syllabus framed by people who are more familiar with urban conditions than with rural life, with the result that many of them are of the type of travellers' guidebooks.

LOCAL GEOGRAPHY

I shall not discuss in detail here the necessity or otherwise of following a set syllabus for primary schools. Briefly it is true that a great deal of system and uniformity is gained by adhering strictly to a prescribed syllabus. The syllabus gives a definite shape to the work of the teacher, who would otherwise drift along in a vague and aimless manner. At the same time, it is necessary for the successful teacher to adapt his lessons to the special circumstances of the locality, particularly

in selecting topics for observation by the children. Thus while he should bear in mind the broad outline of the syllabus, he should not lose sight of the chief function of geography, which is to give clear and accurate pictures of human life and to lead the children to understand and appreciate the causes which go to shape the lives of men in different lands.

Beginning with that part of the earth's surface which can be seen by the children, they are taken in imagination to see the other parts which are beyond. The children perceive the realities in the life around them, and are then able to picture the unseen in other parts with the help of the vivid stories chosen by the teacher. From the neighbourhood of the home and the school, the pupil learns about the village and the town, and then he learns about the lives of people in other parts of India, and lastly in other parts of the world. The more the pupil learns to observe nature at home and in the neighbourhood and to express what he has seen and understood, the better is he able to understand the descriptive stories and pictures of other places. It is therefore necessary to plan the first lessons in geography as observation lessons. A great deal of home geography is usually taught inside the classroom. This should not be the case. The teacher must arrange visits to the surrounding places and thus provide plenty of opportunities for the pupils to observe and to group details of information regarding home geography.

Good subjects for observation work are as follows:

- i. Observation of the sun, moon, stars, action of wind and rain on roads and trees, the full moon and the crescent moon, clouds and rain, prevailing winds, rocks and sand, sunshine and plants.
- ii. Visits to roads and fields after rain, the seashore where possible, a nearby hill or fort, irrigation channels, wells (to note the manner of lift irrigation).
- iii. Noticing the seasons for sowing, planting and harvesting, and their connexion with the rains. Noticing the village festivals associated with the flooding of rivers, harvesting, etc.

- iv. Visiting the various workers in the village who supply our wants, the rice, oil or cotton mills in the neighbourhood, the lime or brick kilns, the railway goods shed.
- v. Pointing out the situation of the village market, the chief articles sold there, the roads radiating from the village, the various modes of transport for goods and people.

This will help the pupils to understand thoroughly their home geography, and form the basis for a fuller understanding of the geography of other lands.

Excursions

It is therefore necessary to organize periodical excursions. Such systematic school journeys are very rarely made in our primary schools. At least one day in every month should be set apart for excursions. It is not enough for the teacher to arrange an outing where the pupils enjoy a lunch or a dinner by the river bank or in a shady grove. Some village schools continue to observe the relics of an ancient custom of taking the pupils for an outing during some festivals, but the educational importance of these excursions is overlooked. Compulsory monthly excursions should form part of the school syllabus. The outing may be conveniently organized so that the excursion is associated with some outdoor activity which is common in that locality during that particular season, such as hay-gathering, picking dry leaves or faggots, herding or fishing. By his interest in and his encouragement of these activities, the teacher can easily secure the active sympathy and co-operation of the parents in the village. At the same time the teacher will guide the observation of the pupils to the essential points which have already been explained in class, and will get them to record their impressions in some kind of expression work, after their return to school.

The hundreds of little English books printed with attractive coloured pictures show how children in other lands love outdoor life. Children enjoy immensely life in the open air,

and it is indeed a great pity that we teachers in primary schools in India have not taken full advantage of this natural love of children to combine learning with pleasure.

Excursions should not be confined to one particular standard or to one particular year. Among the topics enumerated, the teacher must choose those suitable for each standard. He must use his discretion and bear in mind the various conveniences at his command, choosing visits to nearer places for the younger children and excursions to more distant places for the older children.

Nature stories

Stories to illustrate the excursion should be told either in class or during the excursion. Natural phenomena can best be taught by stories chosen from legends and folklore. Stories of Dhruva, the pole-star, which is always seen at the same place; of Aruna, the legless charioteer of Surya; of Trisanku (the constellation 'Southern Cross'); of the waning moon and how the god Shiva saved the crescent moon; the story of the wind and the sun; how the sun god drank up the sea; how the clouds were heated by Indra to give rain; the story of the rainbow; the story of how the children went to touch the sky; the story of the river goddess Cauveri who went forth to marry the ocean god; of the descent of the Ganges; the story of the digging of the ocean by the sons of Sukara—these are some of the stories from which teachers can easily choose. It is not essential that they should be told in exactly the same manner as in the legends. The teacher would do well to omit the highly fantastic. He can easily mould the stories in such a way that emphasis is laid only on one important aspect which has a relation to present-day life. A great deal depends on the direct and simple narration of the story by the teacher.

Songs. Simple and suitable songs may also be chosen to illustrate the stories. Just as the teacher can make stories on

the topics mentioned, so he may also attempt to compose songs for particular stories, if he cannot lay hands on existing songs. Children enjoy singing in chorus, and songs to illustrate stories will be a great help to enthusiastic play-acting.

Practical work: Games

The value of excursions will be nothing if the teacher fails to direct the observation of his pupils. He should first explain the details for observation and afterwards get the pupils to express what they have observed and learnt. This expression work is the best form of testing the knowledge gained by pupils. Oral or written answers are not the only means of testing knowledge. Many pupils are very clever in expressing what they have seen by means of sketches and drawings, models and arranging suitable pictures. Such varied activities help to bring out the latent faculties of children, who are often very shy of talking. They should be encouraged to work in sand and clay. Tin or wooden trays may be provided, and children working in teams may be allowed to plan a hill and a stream. Plasticene is the best material for such work, but is very costly. Soft clay is easy to obtain and plenty of it should be supplied.

HUMAN GEOGRAPHY

Stories

After dealing with the topics of the home locality, typical areas first of the district and then of the world may be chosen for describing the life of the people. The best way of describing the life of people in other parts is by means of picturesque stories with a human interest. The primary school teacher has to be a clever story-teller. Children love stories, and the teacher who studies their likes and dislikes can work in close co-operation and sympathy with them. After telling a story, the teacher should always get the pupils to do expression work, by retelling or dramatizing the story,

or by making models to illustrate it. He must himself take an active part in these games, and enter into the children's enjoyment of them.

While choosing stories, the teacher has to plan a set of stories for a course of three years at least. There are plenty of story books in English, describing the children of other lands—such as the Eskimo boy, the cowboy of the prairies, the pigmy of the Congo forest, the Canadian boy of the coniferous forest, and similar stories. These are quite good for giving a world outlook. But it will be necessary to draw up also a set of stories of children in different parts of India. The Indian child may not be so much interested as the English child in listening to stories of the prairie wheatlands of Canada or the gold mines of Transvaal. An English boy feels proud of his ancestors—of Livingstone or Stanley who explored Africa, or Cook who sailed to Australia. He knows how his ancestors sailed abroad to America and India to open trade, to establish colonies or to lay out plantations. But the Indian child cannot take the same interest in stories of this nature, and the teacher would do well to mingle with stories of other lands, those having a more topical interest, such as descriptions of the life of people in the tea plantations of Assam; the timber yards and oilfields of Burma; the Kolar gold mines; the Tata iron works; the Kidderpore docks of Calcutta; the Rajput boy; the peasant boy of the Delta; the shepherd boy of the Deccan, and the mountain boy of the Western Ghats or Kashmir.

Many teachers feel that this world-outlook which is now emphasized as the essential aspect of modern geography is rather too ambitious for primary schools, and that the children should gain a thorough knowledge of their own country before attempting to learn about foreign lands. But with a careful and judicious planning of the geography course, stories of the conditions and occupations of foreign people can perfectly successfully be interwoven among

information on the Bikaner camel-herd, the Kashmir carpet-weaver, the coffee-planter of Waynaad, and the copra-worker in Malabar.

A resourceful teacher can introduce a tremendous amount of variety in his presentation of different facts, and need not only keep to simple narrations. He can assemble a group of children from different districts and get each boy to describe his own district and the life of its people. Ballads and songs of that locality, if the teacher can get some, will add life and colour to the stories. Imaginary journeys to Benares, Delhi, or the Taj at Agra, may be arranged in the form of stories. There is a fine song in Tamil, called the *Cauveri Kuram*, depicting the river goddess as a girl wandering along with her maids (the tributaries), in search of her lover the Ocean God. Another Tamil ballad describes a train journey from Madras to Srirangam. These songs need not be taken as models, but they may at least serve to help teachers in looking out for all possible ways of adding charm and life to the stories. A few topics for stories are as follows: Stanley meeting the pigmies; Livingstone attacked by the lion; the boy Kumaran (an imaginary character) meeting the Todas on the Nilgiris; Nansen caught in the Arctic ice; Raman's adventures during his pilgrimage to Bhadrinath; the story of a rubber tyre; of a pearl button, or of an ivory comb; of Nestlé's milk; of Bangalore silk; and 'Tomco' soap.

Stories dealing with the district may be easily adapted. The railways and roads of the district, the products and industries, the mode of life, the food, the dress and the habits of the people in the various parts can be dealt with in the course of these stories.

Pictures

To make the stories realistic and interesting it would be best to have plenty of pictures, stereoscopic views and lantern slides, but, of course, these are too much to expect in our

village primary schools. The travelling picture showman is commonly met with in village markets. He carries a tin box inside which are about a dozen pictures showing Benares, Ramesvaram, etc. The villager who pays a pice is allowed to look through a magnifying lens, and the pictures are displayed one after another. The children crowd together to see the picture show. The village teacher can arrange a similar show. He may collect pictures of the Delhi Durbar, the Ganges bathing ghats, the carrying of mails by air, the capturing of elephants in Mysore, the smelting of iron, and such topics. Picture albums may be prepared, and a short descriptive note given at the bottom of each picture. These pictures will be a great delight not only to the pupils of the school but also to the adults of the village.

It is not possible for the primary school teacher to get ready all these aids in the course of a week or two. He will have to work for some years, steadily adding to his collection. Old pictorial magazines, railway guides and posters, and the descriptive catalogues of various workshops are some of the sources from which the teacher can select pictures. The keen teacher will be continually on the look-out for all possible sources of pictures.

GEOGRAPHY OF INDIA

In the final stage of primary school work, something of the usual systematic geography of India has to be done. The majority of primary school pupils discontinue their school career at this stage, and therefore it is necessary to equip them with the essentials of the geography of India. For this work a definite plan has to be laid down. The various kinds of observational work and expression work connected with the stories learnt already have to be revised, and a connected whole built up by grouping the details.

The work must be carefully systematized. A plan must be laid down and followed. For example, if it is decided that

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The work must be carefully systematized. A plan must be laid down and followed. For example, if it is decided that

the pupils must know the names and positions of thirty big towns in India, and the main railway connexions between them, the following scheme of work could be successfully followed.

The pupils must first of all prepare a railway map of India. They must start by studying a physical map of India. The position of the chief towns and of the rivers and mountain ranges will indicate the likely routes, and the children should make their own maps marking the probable routes along the valleys, up the plateaux and through the ghats. After they have done this they must be shown an actual main line railway map.

The following game has been found to be highly popular. A large garden map of India is marked on the ground. Bricks are planted in their proper places to locate the chief towns, each brick bearing a card with the name of the town. The railway tracks are drawn on the ground. Children forming a train march along the path from town to town. Half a dozen pupils make up the train, while other pupils representing passengers wait at the various towns with tickets to different places. As the train comes along and halts at each town the passengers for that town drop out and new passengers join the train. The game has been found to be exciting and interesting.

An indoor game in the same manner was designed by the writer. A large map of India on a stout millboard or plywood is necessary. A tour from the pupils' own village to the chief towns of India is arranged. Along the track, which is shown conspicuously in colour, are numbers from 1 to 100 (number 1 at the start, and number 100 at the finish). Three or four children play the game. All players start off from number 1, each player's 'train' being represented by a small coin or pebble. Each player throws a dice (or four cowries) and moves his coin forward according to the number obtained by the throw. Along the track in some places are marked

favourable or unfavourable stops which advance or set back the coin. Three or four numbers make him miss a turn, or even send him back to the beginning. Notices like: '*Train derailed near Poona—go back 4 places*'; or '*Down gradient—go forward 3 places*', help to increase the fun of the game. Small coloured pictures of the Taj Mahal, the Benares bathing ghats and various other famous places may be attractively pasted in the proper place on the map. The game has been found to be highly educative, while at the same time it is an exceedingly interesting and exciting pastime for primary school children.

Other aspects of the geography of India can be similarly taught by games, the practical use of the knowledge thus gained being constantly stressed.

The length of a river in miles from its source to its mouth is not so important as the fact that the major portion of the river's course is in the plains and the minor portion in mountainous country. Thus the Ganges is more important than the Brahmaputra. The position of a resthouse or the opening of a *pan*-shop or a hotel at the meeting-place of two roads, a market place or a pilgrim centre, and other similar examples may be of great help to illustrate the growth of towns. The pupils of the final year should be able to understand and appreciate the increase of people in towns; the growth and extension of towns, and the consequent formation of suburbs, the opening of new roads and railways, and the location of seaports. These facts should always be taught in a logical manner, associating cause and effect.

VI

THE TEACHING OF HISTORY

THE TIME SENSE

WHEN shall we introduce history in primary schools? In the Bombay Presidency history is first taught in the fourth year of the primary schools in the form of simple stories of the province. But the children do learn some interesting stories from the *Ramayan* and *Mahabharat* long before they are promoted to the Standard IV. They also read or hear historical tales of Shivaji and other heroes. This means that in all probability our children are introduced to some kind of historical matter when they are about nine. I think this is the proper age to make a start.

The introduction of history at the age of nine can be justified on certain fundamental grounds. Why do we teach history at all? There are many answers to this question. One fundamental object of including history in our modern curriculum is that we want to develop the time sense of the children. History deals with the past. We want the children to visualize this past, to see before their mind's eye the pageant of past events as they happened. Now these events have happened in time in a particular order. They have followed a time sequence. We want our children to acquire the time sense based on this time sequence. The conclusion therefore is that the age at which the children are able to cultivate the time sense is the age which is suitable for introducing history. Indian children acquire this time sense when they are about nine. They do develop a time sense of a sort much earlier than this, but it is extremely doubtful how far it is adequate for history teaching.

This time sense then is a fundamental necessity for history teaching. Certain events of the past may be very important from certain points of view. They may be romantic or thrilling, but they cannot be studied in isolation. In order to be historical they must follow some events and precede other events and be in intimate causal relationship with them. They must find a place for themselves in a time scheme or go out of 'history'.

It is unfortunate that no systematic efforts are made in our schools to build up the time sense of the children. At the primary stage we tell them stories. These stories are certainly taught in a chronological order. But when the children learn, say, twenty stories spread over some hundreds of years they are unable to look back and realize how these events are spread over a certain period of time. They cannot visualize the distance in time between the different historical characters. To take a concrete case: they learn the stories of Buddha and also the stories of Akbar and Shivaji. But they cannot realize how near Akbar and Shivaji are to us, how much more recent and modern they are than Buddha. Take another example: at a later stage they read about the Imperial Guptas (fourth century), Harsha (seventh century) and Akbar (sixteenth century). They vaguely feel that all these persons lived together somewhere in the past, in spite of the dates which they may have committed to memory. They are unable to visualize the immense distance between Harsha and Akbar as compared with the insignificant distance of just three centuries between him and the Guptas.

Dates

It may be asked here, Do we not teach them dates? Surely nothing can be more precise and accurate than the dates? If the dates do not give the time sense, perhaps something is wrong with the children, or probably the time sense is beyond the capacity of boys at the primary stage.

The question is pertinent and so we shall discuss the utility of dates in relation to the time sense. Why do we use dates in history? Obviously for the proper understanding of time sequences. The dates by themselves are mere abstractions. They have no historical importance if studied in isolation, but if they supply a *scheme* of time, a definite sequence, they will serve the purpose of developing the time sense of the children. Do they do that? In primary and secondary schools in India we have to admit that they do not.

The question then is why do dates fail to serve this essential function? My answer is, because we teach too many of them—and also because some of us moderns teach too few of them. Look at our textbooks. Our authors are lavish in the use of dates. All kings are given their dates; all Governors-General are given theirs with absolute impartiality. All wars must have their dates and all acts and all treaties theirs. As there is no selection of persons and events to be included in history, there is also no selection of dates.

Dates are like milestones. The stones mark the miles and give us an accurate idea of distances between different places mainly because they are not too near one another. But imagine the lot of the poor motorist, who is using the road for the first time, if these stones are placed at each yard. Well, we place them like that in history lessons as well as in history textbooks. The other extreme to which some people have gone lately as a reaction against the multiplicity of dates is also wrong. Their slogan of 'dates are out of date' is absurd. We do need dates, but only a few, to serve as milestones and not as yard stones. A list of essential dates in Indian history is appended to this article. It is very likely that some important dates may not have been included in that list. It is also likely that some of the dates selected may not appear important to some people. My object in selecting these dates is to supply a list which may serve as a basis for discussion and criticism.

A few important dates carefully selected will help to build up the time sense, but mere use of a few dates here and there is not enough for this purpose. A date by itself does not convey any idea to a child, but if a certain number of dates are selected and the children are made to study and compare them, going forward and backward from one date to another, they will develop the time sense.

Visual aids

Time Lines. In order that these dates can be presented simultaneously to the children they must be spread out in space. Time is a one-way street, and different points in time are not co-extensive, but they follow one another. Time relations must therefore be reduced to space relations to facilitate the comparison. Time lines and time graphs and other suitable spatial representations of time are employed for this purpose. We may, for instance, draw a line measuring a foot to represent a century, and divide it into ten equal parts which will indicate units of ten years. The figures for each unit of ten years will be written on the left hand side of the line. On the right hand side the dates which are considered important during that century will be marked at suitable points on the line. To avoid confusion in the beginning we may drop the figures on the left hand altogether, and only mention the important dates on the right hand side. This time can also represent ten centuries or any large portion of time.

At the primary stage teachers should be careful about two things. The time line should not be too small; I would recommend a line measuring two or three feet to be drawn on the blackboard. Then the dates should be very few. The purpose of time lines will be better served if they are used to represent large periods. I have known of teachers using time lines for the reigns of individual rulers like Akbar, Aurangzeb or Shivaji. Time lines for individual rulers are certainly useful for revisional work and also for

remembering the important events and dates of those reigns, but it is doubtful whether they will help to build up the time sense. On the other hand if at the preliminary stage we are doing stories from Indian history covering a period of some three to four thousand years, the line of time will be invaluable. Suppose we do the story of Rama and then go on to Buddha and Asoka or Samudragupta. If we draw a time-line covering this long period we shall find that Buddha, Asoka and Samudragupta will be somewhere-down on the line very close to one another, and Rama will be somewhere at the top at a considerable distance from all of them. If we draw a line covering the period between Buddha, Shivaji and our own time—a time line of some twenty-five centuries—we shall have to put Shivaji so near us that his period will hardly be distinguished from ours. In comparison with Buddha, Shivaji or Aurangzeb will appear modern—just one of us—on the time line, instead of all of them belonging vaguely to ‘the past’.

After the preliminary stage of stories, when we start narrative history, time lines are still more useful. They can be used to illustrate the foundation, rise and decline of the Moguls, the Marathas or other powers. They can also trace the development of the great historical ideas and movements, Brahmanism, Buddhism, the rise of the Rajputs, development of English education, local government, social reform, nationalism, etc.

Graphs. Graphs however are more useful to show these developments, and for the comparative study of the careers of two great men or of the fortunes of two great powers or dynasties they are indispensable. Two comparative graphs showing the rise and fall of the Moguls and the Marathas will provide a vivid *time sense* for three important centuries of modern history. Two similar graphs for the conditions of Brahmanism and Buddhism from the birth of Buddha to the death of Harsha will be found equally useful.

Comparative references

In primary schools we generally do only Indian history. Otherwise the graphs representing the same period from Indian and English history would be very interesting. These comparative graphs are of immense value to show the stage of culture and civilization of different countries at a particular stage. Two or more time lines of the same period will also serve this purpose. How interesting it is to know what the wild Britains and their Germanic cousins were doing in Europe when Kalidas was writing his immortal *Shakuntal* at the court of Chandragupta Vikramaditya in the fourth century A.D. And what a shock to our sense of vanity when two graphs will show us that the beautiful Opera House in Paris was built at a time when Shivaji was not even crowned a king.

References to persons and events of other countries can be made even when we are using a single time line. We can write down the important dates of Indian history on the left side and mention on the right side the typical persons and events of other countries with their dates. This will only be possible in those primary schools where we teach the history of England in addition to the history of India.

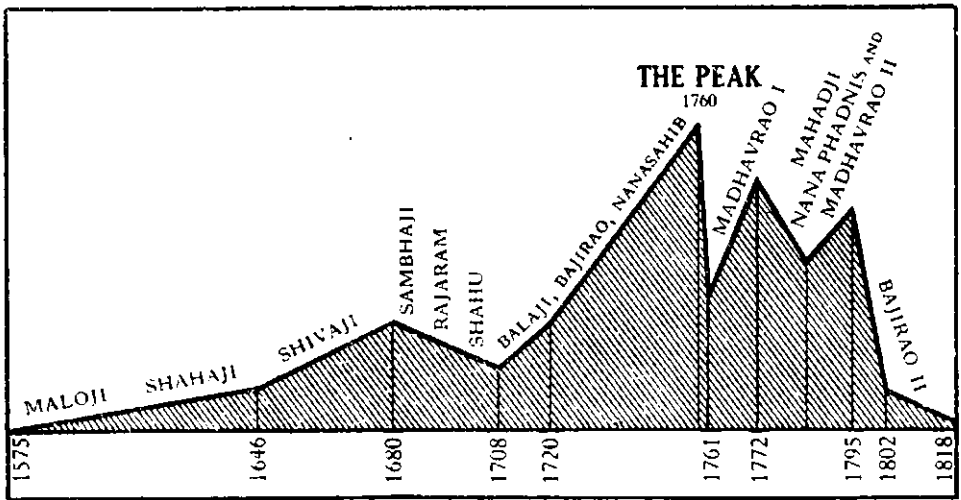
Southern and Northern India. But India is a vast land, a continent by itself. It was rarely under one power and it rarely had the same social, economic and political conditions in all its parts. It is therefore necessary to use comparative time lines and graphs to represent conditions obtaining in different parts of India. But how we neglect this comparative study of our own country in the secondary as well as primary schools! I shall particularly refer to the injustice done to Southern India and Dravidian culture by our textbook writers and therefore by our history teachers who *will* not go beyond their textbooks. When do we read first about Southern India? Probably first when Rama conquered it and then again when Ala-ud-din Khilji

and his general conquered it. We mention only the periodical raids into the south and occasional surveys of its social conditions. We give details about Harsha and his exploits, but do we also mention the exploits of the southern Pulakeshin who defeated Harsha? Do we realize that the south was mainly responsible for saving and reviving Brahmanic Hinduism for India, and that the great teachers, Kumaril Bhatta, Sankaracharya and Ramanuja were all southerners? Indian history, for most of us, is chiefly the history of Northern India, until in the seventeenth century Shivaji compels us to turn our attention to the Deccan plateau. How little do our children know of the great Vijayanagar and Bahmani rulers, and still less of the remoter kings of the extreme south.

Comparative study of the north and south with the help of time lines and graphs is, then, a vital necessity. While doing the Imperial Guptas, Harsha and the Rajputs, Mahmud of Ghazni or the Delhi Sultanate we must also mention Shalivahan, Pulakeshin, the great Singhana, the wise Gawan and Ambar, the mighty Krishnadeo Raya and Ferozshah. We must repeatedly go from north to south and from south to north, and in order to do justice to the south we must also select the south as our principal theatre of operations at certain periods and refer to the conditions in the north for comparison.

Modern times. Coming to modern times, we have already seen the importance of the comparative study of the Moguls and the Marathas. Similarly we can compare the fluctuations in the fortunes of the French and the English. The eighteenth century was a very busy period in Indian as well as world history. Important persons were making history in different places. The Mogul court had declined in importance after the death of Aurangzeb and there was no one central power and no definite part of India on which the historian can concentrate. The Marathas were building an empire; the Bhonsla overran Bengal and Orissa, and Raghunath Rao

captured the Punjab. The subedars of the Mogul empire were becoming independent in Hyderabad, Bengal and Oudh, and were coming into conflict with the Marathas and the foreigners. Dupleix was busy at Hyderabad and in the Carnatic. The French lost their all at Wandiwash in 1760, and the Marathas received their death blow a few months later at Panipat. The Americans soon after that won their independence and the French Revolution started in its bloody career before the fateful century was over. How can all these varied movements and developments be properly understood



THE MARATHA RANGE

by the boys? How can they place all these persons and things and movements in a time scheme without the help of the time devices explained above?

The utility of graphs at the primary stage is likely to be questioned by some people. It is however quite possible to use the graphs from Standard V onwards in our primary schools, and if we give a pictorial form to the graphs the children below Standard V will understand them without any difficulty. I give above a pictorial graph of the Maratha power from 1575 to 1818. The graph is constructed in the form of

a mountain range and I have called it 'The Maratha Range'. The base is a time line with the important dates of Maratha history marked at suitable places. Each important date shown at the base corresponds to either a rise or a fall in the height of the mountain. There was, for example, a steady rise till 1680, then the period of Sambhaji and Rajaram show a fall. The mountain again rises to great heights under Bajirao I, and the summit is reached in 1760 on the eve of the battle of Panipat; then comes the beginning of the end, Madhavarao, Mahadaji Sindia and Nana Phadnavis contributed to a considerable rise, and the battle of Kharda in 1795 shows the last ridge. Then there is a rapid fall till 1818 when Bajirao II was deposed. Such pictorial representation will admirably help the time sense at the preliminary as well as the later stages.

Conclusion

These devices are useful in their own ways. By themselves they can however do very little. After all, the time lines and the graphs are all dates and the dates are abstractions. In order that they should be concrete and real they must be made meaningful. Their significance and meaning will become clearer to the extent to which we can describe vividly the life and the conditions at each period. It is easy to show on the time line the relative distances between Buddha and Nanak, and between Nanak and our own times, with the help of the dates. But after all the time sense acquired is probably more mathematical than—how shall I put it?—'human'. If on the basis of the time line we tell how people lived their lives at the time of Buddha and Nanak and contrast them with our own lives, the time sense tends to become more real and fuller. This will show that the time devices have their own limitations and that it is dangerous to exaggerate their usefulness. They must be used but they must be supplemented by vivid description and visualization.

THE THIRTY ESSENTIAL DATES IN INDIAN HISTORY

Pre-Aryan Civilization of Mohenjo-Daro	...	...about 3000 B.C.
First Aryan Settlements—The Vedic Age	...	... 2000-1400 B.C.
Later Aryan Settlements of Gangetic Plain—The Puranic Age	... ..	1400-800 B.C.
Death of Buddha	... ..	543 B.C.
Alexander's Invasion	... ..	326 B.C.
Chandragupta Maurya—First Emperor of India...	... ..	321 B.C.
Asoka: Accession	... ..	269 B.C.
Samudragupta	... ..	330 A.D.
Chandragupta (Vikramaditya): Kalidas...	... ..	375
Harsha: Accession	... ..	606
Mir Kasim's invasion of Sind	... ..	712
Death of Sankaracharya	... ..	820
First Invasion of Sultan Mahmud of Ghazni	... ..	1001
Battle of Thanesar: Prithviraj and Ghori	... ..	1192
Ala-ud-din captures Deogiri	... ..	1294
Timur's Invasion	... ..	1398
Birth of Nanak	... ..	1469
Second Battle of Panipat: Babar and Lodi	... ..	1526
Battle of Talikota	... ..	1565
Akbar	... ..	1556-1605
Birth of Shivaji	... ..	1630
Death of Aurangzeb	... ..	1707
Battle of Wandiwash (End of French Power)	... ..	1760
Third Battle of Panipat (End of Maratha Power)	... ..	1761
Macaulay's Minute (Beginning of English Education)	... ..	1832
Indian Mutiny	... ..	1857
The Birth of the National Congress	... ..	1885
Partition of Bengal (Rise of militant Nationalism)	... ..	1905
The Great War	... ..	1914-1918
Declaration of Dominion Status as goal for India	... ..	1919

VII

THE TEACHING OF NATURE STUDY¹

I. ITS AIMS AND VALUE

The aims of nature study

(1) To impart a knowledge of the natural world

The teaching of nature study should be considered from two standpoints: first its value as a subject, and secondly its value in training both the mind and the character of the pupils.

Intrinsically nature study—or to give it its modern designation, General Science—is one of the most valuable subjects that can be included in the curriculum of any school. It is a subject that closely concerns the everyday life of every person. Education has often been described as ‘a preparation for life’. Now every human being is a natural object in a world governed by natural forces. Successful living means ultimately a successful adaptation to the natural world in which man is placed, including the harnessing of natural forces to human ends. The advance of civilization is in the last resort only an increasing understanding of natural forces and their successful utilization by man for his own benefit. To take only one example: the power of water, which from earliest times has in the form of floods brought terror and destruction, has been regulated to irrigate peaceful fields; harnessed, it does man’s work through many types of hydraulic engines; now it is being increasingly used to provide electrical power over vast areas.

The production of new forms of plant and animal life, the

¹ I have used the term Nature Study because it is familiar to the elementary school teacher, who might be unduly alarmed if called upon to teach General Science, though this is much more descriptive of the subject.

elimination of plant and animal pests, the preservation of food, the evolution of a correct diet, the conquest of disease—these are but a few of the ways in which man, having once interfered with the laws and processes of nature, must go back to nature to learn how to adapt his altered circumstances and ever increasing desires to the immutable laws that govern the natural world. Modern sanitation, for instance, is not a whim of a more fastidious modern taste. The sanitation of the forest is provided by a perfectly organized and unfailing natural system, but man, by congregating in towns and cities, by building hard roads and changing the surface of the ground and by exterminating or driving away nature's scavengers, has made for himself a state of affairs that is a menace to health, unless he can devise some measures of his own to take the place of the system he has destroyed. In no department of life is education more needed than in personal and civic hygiene, and this means primarily an understanding of natural laws and of the results of disobeying or disregarding them. Much is said in these days of the need for a practical or even a vocational system of education. Nothing can be more practical or of more immediate use than to know how to adapt oneself completely to one's environment. A perfect adaptation will mean proper food, proper clothing, proper shelter, and with these will go, necessarily, the proper utilization of all unwanted and waste material. In other words, the science or nature study course should include a study of the properties and value of food materials, including of course some study of the body and its functions, as well as a study of such subjects as ventilation, heat, light, the action of bacteria, and the laws of simple mechanics. Such studies in their turn will lead to a discussion of anti-social and anti-natural customs like *purdah* and child-marriage, the requirements of a modern town in open spaces and other amenities, and other civic matters. The child who leaves the elementary school to take his place in the community needs to have knowledge in such matters as

these. Nature study or general science, therefore, should have as its first aim the complete adaptation of man to his natural environment.

(2) *Appreciation of the economic value of plants and animals*

There is direct economic value in a properly devised course of general science. In studying the laws of the natural world we find how inextricably linked is every part of the great universe. As Jeans so forcibly tells us, we cannot move a finger without disturbing all the stars. No law can be broken without far-reaching consequences. It is only since the Great War that there has been a general realization that the flora and the fauna of the world are a trust that each generation should conserve and pass on. As the Chief Conservator of Forests in Madras recently pointed out in a lecture, one old woman gathering sticks in a forest will not make much difference, but if all the 360 million inhabitants of India began gathering sticks, the results would be almost beyond man's power to repair. There are areas of the earth's surface which have been rendered barren wastes as a result of such a ruthless destruction of their ancient forests. One example is that of ancient Tarshish, whose ships were famous in early commerce. An obscure village is all that is left of that once prosperous seaport, whose glory departed when it could build no more ships. Now if the word goes forth that the forest is to be protected, the villager, with the half-wild goats or cattle he is totally unable to maintain, feels himself aggrieved and cannot understand why he should not give them the plants which the forest supplies. Legislation to protect forests and wild plants, song-birds and fauna of all kinds is useless without the backing of an instructed public opinion. It is reported that the new craze for snakeskin shoes and bags is causing serious loss to the farmers of East Africa, for the vermin which the snakes destroyed have now no check upon their increase. There are few animals that can be destroyed

with impunity, for even those birds which appear to do the greatest damage to crops have been found in most cases to more than balance what they take by their beneficent activities during the rest of the year. The Rosy Pastor, whose activities are so closely bound up with the newly-established match trade of India, is a case in point. A proper course of nature study therefore should give to the pupils an understanding of the economic value—to put it no higher—of the flora and fauna of their country, and should strengthen the hands of all those who are trying to check the indiscriminate and insensate destruction of what should be regarded as national wealth.

Summary

In these two ways then: by giving such an understanding of the world of nature and the laws that govern it that children may grow up able to live in harmony with nature, free both from the fear that rules primitive man as he looks upon the mystery of the tempest or faces famine and flood and the menace of wild beasts, and from the mistakes of civilized man who, in losing sight of nature's inexorable laws, has too often brought disease and loss by his interference with those laws; and secondly by inculcating such an appreciation of the wonders of nature that a generation may grow up ready to protect and to hand on the wealth of flora and fauna that has come down to us—nature study becomes a subject vital to the interests of the individual and the nation.

The value of nature study

(1) *The possibility of extending knowledge*

Nature study, properly taught, may have a value in India that is peculiarly great. Our knowledge of the animal and vegetable life of this country is still far from complete. In ages past men have learned to use and improve many forms of plant life; animals have been domesticated, and even

insects, such as the silkworm and the bee, have been made to contribute towards man's benefit. It is possible that discoveries of great economic importance may yet be made as a result of further investigation, and it is not beyond the powers of even young children to assist in collecting and classifying the flora of their own neighbourhood, in gathering information about such things as the migration of birds, the habits of insects, rainfall and other natural phenomena, and in so doing to add materially to our knowledge. The enthusiastic nature study teacher, especially in a country school, has the opportunity, not only of adding to the world's knowledge, but possibly of making discoveries that may add to the world's wealth.

(2) *As a Means of Training*

Through nature study much may be accomplished in the way of cultivating habits and developing character. Nature study is a branch of science, and it cannot too often be emphasized that science is not a subject but a method. To observe, to record, to classify and list the results is to be a scientist. The greatest weakness of the education imparted in India, from the primary school to the university, is that it depends too much upon cramming. Nature study does not depend upon textbooks—in fact the students are far better without the average 'Nature Study Reader' so far available in India—but it does offer, as no other subject can do, the joy of self-effort, of increasing powers of observation, of independent discovery. It stimulates intellectual curiosity and sets the pupil on the path of teaching himself and seeking to answer his own questions. In the moral realm, nature study may be used to foster a spirit of wonder and of humility in face of the mystery and greatness of the universe around us. The art that is displayed in the fashioning of a feather or a shell, the perfection of a crystal, the colours of a flower, the immeasurable distances of the stars, the unexplained mystery

of instinct in animals—to have a mind that is attuned to these things is to be for ever enriched. It is for the teacher so to handle the subject and the materials that the pupils will unconsciously develop that spirit of reverence in which alone the wonders of nature should be approached.

(3) *As Education for Leisure*

What a person does with his leisure is a crucial test of his character, and the tendency of the present day is for an increasing amount of leisure. The nature study lesson should be considered, not as a set task to be accomplished while school days last, but as the opening of gates that will lead into enchanting paths whose delights will last as long as life itself.

II. THE SYLLABUS AND METHODS OF TEACHING

A. SYLLABUS

The syllabus in any subject naturally is determined by the aims it is intended to achieve. From the foregoing it will be seen at once that a rigid time-table is impossible. It will be seen also that it is not enough to make a list of common animals and plants and call it a syllabus. The syllabus must endeavour to convey some idea of the inter-dependence of every member of the natural order, and it must also give opportunity to make the most of any special event, such as the unexpected flowering of a plant, the visit of a rare bird or animal, an eclipse or cyclone, and so on.

The syllabus must start with the lowest class, and must be continued throughout the school, carefully graded so that real progress may be made. From the very beginning pupils must be trained in scientific method, that is they must make their own observations and record them. Notebooks must be retained from year to year, and constant reference made to previous observations, so that in the light of further investigations they may be tested, and the results either confirmed or

Skeleton Syllabus to be Developed—

SUBJECT	STANDARD I	STANDARD II	STANDARD III
Weather diary	A few minutes' conversation every morning. Simple drawings of what children have seen. Simple pictorial weather chart. Looking after a plant or a little garden. Keeping a few pets.	Simple pictorial record of rainy and sunny days. Rain drops. A puddle in the road.	Rain, wind, sun, sky. Quarterly or terminal summaries. Making a wind gauge. Compass.
Nature diary		Conversation and simple pictorial record.	Simple written record.
Plant life		Maintaining pots or small garden. Germination of seeds.	What a plant needs: simple experiments.
Birds		Keeping a pet bird, e.g. parrot.	Cock and hen.
Insects		Keeping caterpillars.	Life of bluebottle.
Mammals		A pet squirrel, or white rat, etc.	Cow.
Reptiles, amphibians, etc.		Keeping a tortoise.	Toad or frog.
Pond life		Watching the aquarium. Simple lesson on fish.	Making a cabinet aquarium. Pond-dipping.
Seashore		Collecting and matching shells.	Shells. Beach.

This syllabus, when worked out in detail, will involve a number of subsidiary lessons: e.g. the thermometer may be made the basis of a lesson on physics; maintaining any animal involves the need for cleanliness, aeration,

—according to Local Conditions

STANDARD IV	STANDARD V	STANDARD VI
Temperature, rain-fall, wind, clouds. Making a rain gauge. Climate. Measurement. A few simple constellations.	Temperature, rain fall, wind, clouds. Making a barometer. Graphical record. Summaries and comparisons.	The same. Foretelling the weather. Use and value of weather charts. The sky at night.
General and particular records. Comparisons with weather record. Comparison and discussion by class.	Same as Standard IV with more details and accuracy.	General record continued. Particular records of domestic animals.
Kinds of fruits; how a plant grows.	Pollination: parts of a flower. Fertilization. Dispersal of seeds, etc.	Maintaining a vegetable garden. Vegetables as food.
Pigeons.	Birds and their value.	Poultry-keeping. Eggs as food. Development of an egg.
Insects in the aquarium.	Insect friends and foes.	Bee-keeping. Honey as food.
Dog and cat.	Life history of a mammal—any easily kept or observed.	Goat-keeping. Milk as food. Flesh food.
How to make and stock a vivarium.	Any animal in the vivarium.	Snakes.
How to make and maintain an aquarium.	Fish.	Pisciculture in ponds and wells. Food value of fish.
Tides.	The ocean. The water hemisphere.	Salt. Its manufacture and use.

etc. The nature diary will supply material for many lessons. Simple studies of local rocks and interesting local geological features will naturally find a place also.

rejected. The field is so wide that individual pupils may take up a subject that interests them, though they should not be allowed to neglect wider interests.

Discussions about their work and discoveries by pupils and teacher will play an important part in the programme of work, and the time-table must allow for this. Incidentally such discussions will form an important means of training children in the use of language, in assessing values, and in the general conduct of a discussion. The proper use of books, where such are available, will also be learnt in this connexion.

The keeping of records will play a very important part and should find a place in the programme of work. Weather charts, increasing in complexity and accuracy as the children gain experience, as well as nature charts must be maintained, scrutinized by the children themselves at regular intervals, and used constantly for reference and comparison. Animals and plants must be kept by the children, and their habits and life-history studied and recorded. Some will be kept at home, such as a dog or cat, cow, poultry, etc. Some may be kept in school, such as caterpillars, fish, etc. As far as possible animals should be studied in their native haunts, without being disturbed. In this way the nests of squirrels, birds, etc., the habits of garden spiders, lizards, etc., may be observed and recorded. A plant should be studied as a whole, and every school should have a garden. Failing this, a pot or box of earth must be provided and a few plants grown, so that the whole life cycle can be observed. Incidentally the pupils must be taught how to make notes and how to make drawings that will record what they have really seen. To copy the teacher's drawing and to write the teacher's dictated notes is to learn nothing. Some provision must therefore be made in the syllabus for definite training in drawing and note-taking.

Visits to the seashore, if it is near enough, to a river or tank, to a forest or woodland, or to any local natural feature must be considered part of the routine work of the school.

Nature study and geography touch at many points, and there must be no rigid demarcation of subjects. In fact the best results will be obtained if the same teacher takes both nature study and geography.

A skeleton syllabus might be prepared somewhat as shown on pp. 78-79.

B. METHOD

Characteristics of Children

(1) *Love of living things*

It is impossible to separate the syllabus from the method of teaching it. Further, methods must be based on the characteristics of children. Small children are interested in living things. Therefore the growing of plants and the keeping of suitable pet animals, on however small a scale, must be the foundation of any syllabus in science.

(2) *Love of drawing*

Little children cannot write at all, and for several years the mechanical process of writing and the intricacies of spelling make writing a difficult form of expression. The smallest children therefore may content themselves with drawing. They love using colours, and therefore their earliest records must be colour drawings on blackboards or brown paper, but the work must be the children's own and not copied. As their skill increases, the drawings may become more accurate records, but throughout drawing should be regarded as a quicker, more understandable and more accurate record than lengthy descriptions. At a later stage composition may be used to supplement the pictorial record, not to supersede it.

(3) *Curiosity*

Children have a strong sense of curiosity. This is nature's way of ensuring mental growth. The pupils should

be set to watch and to find out things for themselves. Only such facts as are absolutely necessary and such as could never be discovered by the children themselves should be given, and even then should not be given as a final answer, but as a stimulus to discover more. Every bit of individual work should be treated with respect, so that the child's interest will be maintained and he will be encouraged to continue.

(4) *Keen powers of judgement*

Children are keen critics and merciless judges. They must be taught to judge their own work. For every statement made they must be made to bring forward evidence. It is useless merely for the teacher to cross out what is wrong. In fact, in the present state of our knowledge it is rash to say definitely that any statement is absolutely wrong where nature study is concerned. The pupils must be made to feel that unsupported statements are useless, and that the responsibility to make their notebooks accurate records is theirs and not the teacher's. It is useful also to have the children working in groups, pooling their results and checking each other's contribution. There is no place in nature study for the individualistic—and suspicion-engendering—method of insisting that each child must do his own work and receive a mark for it. Co-operation should be encouraged, and thereby the children will not only increase their stock of knowledge but will receive valuable training in working together. Class discussions should be held, in which the results of any piece of investigation may be put before the whole class and questions and criticisms invited.

(5) *Children like to make things*

Some apparatus will be required, and this as far as possible should be made by the children. In making the apparatus the principle on which it works will be more clearly understood, the pupils will obtain practice in manipulation,

and they will take a pride in the apparatus which they have themselves made. Further, if they are sufficiently interested to want to continue their studies at home or after leaving school, they will be able to make for themselves much of the apparatus they will require. Young children may at first use what the older children have made, until they in their turn are old enough to make their own.

(6) Children's love of detail

Children have a strong sense of detail. Every story-teller knows how children insist upon having a story told word for word and resent the most trifling alteration. This sense of detail may be used in compiling records, such as lists of the local plants and animals, summaries of weather charts—e.g. the number of rainy days and fine days in a month or series of months, and so on. Similarly children take a great interest in making collections and in sorting and naming them. This is a valuable basis for scientific training, and this interest must be fostered by the teacher. Collections, unless they are named, are useless; carefully arranged and labelled, they may constitute a valuable local record. The teacher has merely to direct and foster what is a natural pleasure to a child.

Conclusion

It should be superfluous to add that pictures, models and the like should never be made the basis of a lesson. Nature study is the study of actual objects in nature, and no picture, however accurate, can replace them. Illustrations, when used, should be merely used as references. For instance, a set of charts showing the local birds will be very useful for identifying the species seen in the neighbourhood, but groups of dismembered flowers, however accurate, are of no value to small children. In the primary stage it is the living plant that is of interest. The best pictures to exhibit are those made by the children, which therefore mean something to them.

In the early stages the dissection of plants and animals should not be attempted. We need at first to inculcate a reverence for life and a sense of its mystery. It is not necessary to pull flowers to pieces. Children are only too likely to do that. In the fourth and fifth standards they may begin to examine the structure of a flower. Young children should be taught how to handle nature's workmanship, and the tendency to destroy should be checked.

Finally, it cannot be too often emphasized that to be successful in its aims the nature study lesson and the training it is intended to impart should begin with the very youngest children. Many teachers have found difficulties in beginning a course of science with students who previously have done no science at all. They find them clumsy with instruments, unable to make an accurate reading, prejudiced against handling certain insects or animals, and full of unreasoning fears and local superstitions. Pupils who have been spoon-fed find it difficult to do anything for themselves, while those who are accustomed to answer stereotyped questions, based on some more or less accurate picture, are certain to feel nothing but bewilderment at the thought of watching a growing plant or restless bit of animal life. Such teachers and such pupils must proceed slowly, choosing carefully the subjects to be studied, so that gradually interest will be awakened, manipulative skill will increase, prejudices will vanish and a scientific attitude will be slowly established. It is, however, the teacher and the pupils who begin at the beginning, with every lesson part of a definite and well thought out scheme, who obtain most joy and most benefit from the nature study lesson. The first day at school is not too soon to begin training a child in the love of nature and a scientific habit of work.

VIII

THE TEACHING OF HYGIENE

To anyone engaged in school work in India it is quite evident that one of the greatest needs is some sort of teaching of hygiene which will really touch the lives of the pupils. This does not mean learning to name the bones of the body. Knowledge regarding the bodily functions is good and is needed, but it is not that type of hygiene teaching alone which will bring to pupils what they need. More than any other subject hygiene needs to be made practical. It should result in habitual reactions rather than knowing lists of facts.

Throughout the primary school the teaching should be done through stories, contests, poster-making and checking health habits on charts. In Standards I and II stories of a fantastic nature are of most interest to the children. Animal stories, inanimate objects which speak, fairies and giants may all be used to make the lessons of interest. In Standards III and IV the fact should be recognized that there is a gradual decline in the interest in fantastic stories and an increasing interest in the stories of real children. At no time should the stories be used as something to be memorized.

Hygiene may be taught as a special subject with a period set apart for it or in an incidental way through stories introduced in some other subject, games being planned for the physical exercise period and posters made as part of the handwork. Whichever plan is used the teacher should have the year's work planned so that something definite will be accomplished.

In a chapter of this length it is impossible to give very detailed suggestions for each class. The following must be considered as a suggestive outline.

THE FIRST YEAR

For the use of the first class it might be well to let the games, stories, songs and poster-making centre about one character. Take a small Indian boy named, let us say, Govind. With no preliminary sermon on cleanliness the opening story might be one in which Govind's pet animals talk about health habits Govind is learning at school and practising at home. In the first story not more than one health habit should be stressed—perhaps washing of hands. In succeeding stories of getting ready for school, washing the face, combing the hair, washing teeth and putting on clean clothes neatly may be brought in. A special story about a toothache might emphasize the need of caring for the teeth.

By this time the child will be interested in Govind. The suggestion that each child make a paper doll Govind will meet with enthusiasm. The teacher should prepare outline dolls which may be cut out and coloured. In some other handwork periods the needful things for Govind's toilet may be drawn and cut out—his soap, towel, *lota* and *dantun* (the toothbrush made from a neem twig). If paper-cutting is impossible, the work may be done with clay. When all of these things are prepared, a game of getting Govind ready for school will be enjoyed and will fix the ideas in the child's mind.

It will be well to follow these stories and games with demonstration lessons showing how best to wash hands and face, clean fingernails and prepare and use a *dantun*. Informal discussions of what is really done about these health habits in the home and what is possible for each child would be helpful.

Now the children will be interested and informed enough for daily inspection and checking of cleanliness charts to be started. For this class at this time only clean faces, hands and teeth should be checked. Emphasis at inspection time should always be on praise of accomplishment. Home

conditions should be considered and help given when needed. Nothing is ever gained by scolding.

Lessons on personal cleanliness in this class should include stories and demonstrations, followed by checking, during inspections for eyes, ears, nose and hair. Stories for this purpose may be found in health books or magazines, made by the teacher or developed during class discussion. If possible they should continue to centre about Govind. It will help if the children themselves can be led to suggest that these new lessons they are learning be written on their charts as new health rules and checked. Inspection time should never become a form. If there is no time for a thorough daily inspection it is better to have it three times a week than to carry it out in a careless manner.

If weight scales are available it becomes a matter of great interest to the children to be weighed and measured regularly. Lessons on food and sleep may be centred about this interest. In this class lessons on food should be very simple. It will be useful to use in a story a dream in which Govind hears articles of food talking and telling one another how bad certain foods are for him and how useful milk and simple foods are. The children themselves may help to make a list of healthful foods, especially vegetables and fruits. A picture chart may be made. Every day for a week or so each child might tell how many of the foods on the chart he has had, and the total number may be put in the square beside the picture and under the date.

A story should be used to bring out the importance of long hours of sleep in fresh air, with head uncovered, alone in bed, with light warm bedding. It is quite true that at present all of these requirements are not possible in most homes, but they should be emphasized as desirable. The teacher should help the children to know how near they can come to the ideal. It will at least be possible to check the number of hours of sleep each child has had.

The outline will not be complete without stories about out-of-door play. New games should be taught.

From this time on, the monthly weighing should be accompanied with some stories suggesting that increase in weight comes with proper food, sleep and play. A good device to keep up interest in performing 'health chores' is to make a large picture of a meadow and sky. Paper dolls may be cut out and stuck on, one for each child. Small paper kites may be made and attached to strings with the other end of the string in the hands of the paper doll. Each month when the children are weighed those whose weights are what they should be for age and height may have their kites pasted higher in the sky. If this is not practical to use in connexion with weighing it may be used for the regular inspection chart. Those who have the largest number of days in the month with all the rules checked may fly their kites highest.

All of this work will be more effective if the teacher helps the child to interest his parents in what he is learning. Visits to the home and inviting the parents to visit the school, together with occasional school programmes in which hygiene plays or talks are given, will be found helpful.

THE SECOND YEAR

During the second year the teaching might revise, emphasize and enlarge on the work of the first. A number of other health teachings may be introduced. In order to keep the interest the facts should be presented in a new way. One method would be to base the whole year's work on animal stories of cleanliness. Children of this age will be interested in how the young of different birds and animals are kept clean.

Sleep habits also may be stressed very effectively by animal stories. If it is possible for the class to keep pets such as white mice or rabbits and observe their habits it adds to the interest. Many lessons on cleanliness and food may be given as these animals are kept clean and fed. If it

cannot be arranged to keep pets, plants may be used to show the need of food, water and fresh air. As what to eat and how to eat are discussed the children might 'play house'. Through this activity they can be taught valuable lessons about what to eat and how to serve and eat it.

Lessons on posture may very easily grow out of a study of how different animals walk and what kind of feet they have. These lessons should include cleanliness of feet, proper shoes, good standing and walking posture. Many fine games may be taught to correct faulty posture. These lessons will include incidental mention of the foods needed for strong bones and muscles, without which good posture is impossible.

The topics of keen scent, seeing and hearing of animals will furnish a good starting-point for a further study of the nose, eyes and ears. In this class the structure of these organs should not be studied, but much may be taught concerning their care. Stories will show the danger of putting objects in the nose or ears or close to the eyes. Breathing through the nose rather than the mouth may well be emphasized. Cleanliness of these organs should be taught by demonstration. Reading in a good light should not only be taught but very strictly observed in class. During these lessons the pupils will greatly enjoy contests as to who can hear the most sounds, detect the most scents or see the most things in a given time.

During the whole year inspection and daily checking of charts should be continued together with weighing and measuring. The making of health posters for handwork will give further interest.

THE THIRD YEAR

By the third year it is to be hoped that good personal hygiene habits have been formed. It is well however to continue this kind of teaching, changing the stories to a less fantastic kind. Lessons which give an introduction to the cause of disease and how to avoid it may be added.

If it seems desirable in this class also to follow some one main plan throughout the year it is possible with this age group to use the story of boys and girls in school in a village which knows little about hygiene and cares less. In the story the pupils will become interested in health through rumours of another school in a nearby village where, through the influence of the school, village conditions have greatly improved. During the development of the story the pupils, school and community improve. In connexion with it the rules of personal cleanliness may be revised; inspection, weighing and checking may be continued, and efforts made through school programmes to interest the community.

New items of interest for the year may centre around the study of the carriers of disease, especially the fly, mosquito and flea. This will naturally include a study of cleanliness of the home and community. It will describe the life cycle of the insects mentioned. It will explain how they carry disease. At some time during the study the supply of drinking water and milk, with their effect on health, should be mentioned. The disposal of all kinds of refuse should be discussed.

Little will be gained however if these topics remain in the realm of discussion. To make the teaching of real value, contests should be carried on in which the class is divided into two sides, and points given for such items as killing flies, cleaning places where flies breed, draining possible breeding-places for mosquitoes, and making proper arrangements for the disposal of refuse. The class may also work out dramas which will illustrate what they have been learning, and present them before the community. Instead of posters they might make a roll of pictures illustrating some story of the spread of disease and, fixing the roll on rollers in a box, make a 'cinema' to show. Projects of this sort will help the pupils to learn the facts in an interesting way while they are doing a community service.

THE FOURTH YEAR

In Standard IV much should be introduced which usually comes in First Aid work in upper classes. This is especially true for rural communities where the majority of the pupils do not go beyond the fourth class. It is not advisable however even in this class for the subject of personal hygiene to be discontinued. The simpler of the habits will surely have become fixed by this time, but no harm will be done by continuing to inspect and check. Other rules regarding cheerful mental habits may well be added. Whatever new rules are added should not be arbitrarily written down. They should be worked out by the class as the result of a felt need. The teacher may guide by stories and excursions.

The weighing and measuring may be accompanied by lessons regarding the value of different kinds of food and very elementary lessons on the composition of foods. Diseases caused by malnutrition or unbalanced diet should be mentioned. The need of drinking plenty of water and the influence of this and proper diet on digestion and elimination should be discussed.

Common diseases with their causes and treatments should be studied. The teacher will need to give some of this information by the lecture method, but if the class does no more than listen and answer questions the time spent will be lost. Wherever possible the conditions mentioned should be shown to the class. When this is not practical let the pupils act the situation until it is shown that they understand the causes, symptoms and treatment of the various diseases.

Public programmes, cinemas and marionette plays may all be used in this class as projects during the year. Bandaging, and treatments of cuts and burns may be studied in the same way using the same sort of motivation.

It should be the aim of such a four-year course of hygiene-teaching to ensure the formation of good health habits, the desire for community service in matters pertaining to

health, and enough knowledge of first aid to make such service possible.

It is to be hoped that there will be hygiene textbooks written for or adapted to India available before many years. At present I know of only two sources of material which could be used in following the sort of course I have outlined. By this I mean material already adapted to India. Outlines with stories, games and songs were worked out some years ago for middle school classes by Miss Fernstrom of the Mary Wilson Sanatorium at Tilaunia. And in 1934 detailed outlines for primary grades appeared in the *Moga Teachers Journal*. There are doubtless many other sources unknown to me. Teachers who will work out definite courses, try them in their schools, and give the benefit of their experience to others will do a great service to India.

IX

PHYSICAL TRAINING

THE Board of Education (England) in its invaluable Syllabus of Physical Training for Schools (1933) makes the following remark: 'It must be admitted that the existing facilities for the full development of physical training are far from adequate.' The writer, however, remembers as a boy seeing the drill of the village school. It was formal in the extreme and Indian clubs and dumb-bells were greatly in favour. There was no grading of exercises and a great deal of marching. In fact it was little better than what passes under the name of drill in so many Indian schools today. But since then there has been a very great advance and if it is considered by the English authorities as far from adequate, in India it would be regarded as fulfilling every want. In India in most places we are still in the stage of formal drill-marching and counter-marching—where indeed there is even that. The introduction of physical training in the true sense in our primary schools is only just being attempted.

The great majority of primary schools in India are rural schools and the majority of these are single-teacher preparatory schools with the Infant Class and Standards I and II only. When it is remembered that the large majority of the teachers in these schools are untrained, the question of introducing physical training on approved modern lines will be seen to be a matter of great difficulty. These teachers are poorly paid, poorly housed and poorly fed. The children they have to deal with are generally worse off still. In a large compulsory area in the United Provinces it was reckoned that forty per cent of those attending schools under compulsion had no clothes save a loin cloth. This state of affairs

must always be borne in mind in considering any proposals for the improvement of physical training. But the position is not hopeless, and beginnings made in the United Provinces give promise of developments of real value.

The position there was reviewed by a committee ten years ago. This committee was appointed to deal with the situation generally. It, however, summed up the object to be aimed at and defined the sort of physical training to be given in the following words:

‘The first aim is to provide opportunities of free movement for the children, i.e. simple exercises which contain a large element of play, but play and movements directed by the teacher. Later the lessons become more regular—the recreative element still being retained—later still advance is made to more difficult exercises definitely designed to develop the different parts of the body.’

TRAINING THE TEACHERS

It may be of interest to readers outside the province to hear how a scheme was devised to extend the more modern form of physical training and how it has progressed so far.

After the whole ground had been gone over in a series of committees it was decided to obtain the services of specially trained men who might safely be trusted to undertake the necessary training of teachers. The scheme was not confined to primary schools but was to embrace all types of school. First of all superintendents of physical training, three in number, two of whom had been trained in England, were attached to the three Anglo-Vernacular Training Colleges, and out of the men they trained there, the best were sent to the eight Normal schools which train teachers for vernacular schools. Thus all teachers coming out of Normal schools are now trained in modern methods of physical training. In addition to this a six-week course in physical training is held at each Normal school every year, to which teachers from village

schools and especially from District Board training schools are sent. The Government and other Central Training schools for primary school teachers have also an instructor specially trained in the new methods. Thus all new trained teachers who are now turned out from the Normal, Central Training and District Board training schools have had a course in the new physical training methods. Efforts are being made also to give some training to older teachers in primary schools by holding intensive courses in physical training at various centres in different districts. In order that the district inspecting staff may understand the principles on which the training is based they are sent to the Normal schools while the special six-week courses are being held by the superintendents of physical training, so that they may be able to observe what is being done and learn what points to look out for during their tours. As time goes on, of course, the district inspecting staff also will contain more and more men who have themselves gone through the physical training course at one of the three training colleges and who will be able to supervise the teaching in this direction. One of the greatest obstacles at present is that the district inspecting staff in most cases have little or no idea of what constitutes proper physical training. Most districts have one or more itinerant drill instructors, and these have all been put through a course of physical training under one of the superintendents of physical training. These men hold short courses at central village schools for teachers who have not been through a course at a Normal or other training school, and in this way the new methods are percolating down to every village school.

Of course it is not suggested that this method is ideal, but it is a way to get physical training and games on modern lines introduced speedily in every rural area. If existing teachers have to be put through the course hurriedly and often at second-hand, all new teachers go through a thorough course of training and are competent not only to teach

physical exercises but to organize games and other forms of recreation. Village children are at least being taught to play, and they love to do it. Instead of the somewhat cowed group unwillingly performing so-called drill evolutions, one now sees groups of happy, laughing children playing group games with gusto.

District competitions

To encourage games and sports, central athletic meets are held at central places within a *tahsil*, and the neighbouring schools compete against each other; the programme always includes a competition for teams from each school in physical exercises. These circle contests within a *tahsil* do away with the elaborate organization necessary for district meets and cost nothing. Where tried they have been a very great success. For the older boys it has been found that a competition for the best P.T. squad is productive of the very best results and leads to a high standard being set up. The squads are judged at these circle meets, and marks allotted, and finally the four squads who have obtained the highest marks in the district may be summoned to compete in a final district meet at headquarters. The ingenuity shown by some of these squads in obtaining a simple uniform of different coloured shorts and vests or head-dress is remarkable, and to be encouraged. So much for the organization in outline. Something will now be said about the actual games and exercises which should be taught.

GAMES AND EXERCISES

First it must be remembered that it is necessary to exaggerate carefulness, as the teacher does not start with much background of knowledge and experience. Care must be taken to safeguard the children against stupid instructors who may be inclined to start them on too difficult exercises

too early, or keep them engaged on too strenuous exercises too long.

The Time-Table

Then there is the question of times and periods and dress. The time for physical training in India is decided by a consideration of two things—the time of meals and the season of the year. In the United Provinces school time begins in the cold weather from about 9 or 10—in the hot weather between 6.30 and 7 a.m. In the cold weather the meal is taken before coming to school, in the hot weather after coming to school. The time for physical training, therefore, will be about noon in the cold weather, while the period for games will be in the afternoon. In the hot weather physical training will be taken as early as possible and games will be played in the evenings. Where the school is a one-teacher school the free play periods can, after a little initial experiment with suitable leaders, be given to the younger children while the teacher is engaged in the higher classes, and the adaptation of play way methods to Dalton Plan schemes in some circles has resulted in more play periods becoming available for the younger children. This scheme roughly is to give the upper classes assignments on Dalton Plan lines for the first three periods of the day while the teacher—or, if a two-teacher school, the teachers—busy themselves with the infants and Standards I and II, setting them self-corrective and similar forms of work to do. In these periods the physical training of the younger children will take place when the teachers are free to supervise. Later, when the infants have been dismissed, the upper classes may be taken in more advanced physical exercises. In many villages the school is a centre for the children of other nearby hamlets, and the smaller children from outside come with elder brothers or cousins or caste-fellows and cannot go back until these others who are in the higher classes can go with

them. In the past they were not released, but left to shiver in a cold dark corner or remain in comatose contemplation of their toes until school was over. Now, however, games are organized for them and they are taught to play, or they occupy themselves with simple handwork. It will be seen then that time-tables for physical training and games must be elastic to suit local conditions—the main point to keep in mind being that the periods should not occur too soon after meals or in the heat of the day.

Dress

Dress is another point. With the average village child there will not be too much of this, but the son of the local zamindar will probably wear a coat and sometimes a quilted jerkin. Even teachers who have been carefully trained often do not realize the necessity for stripping off these heavy garments, and great care is necessary to see that proper freedom for the limbs is obtained by discarding all superfluous garments. The ideal shorts and vest for P.T. is impossible of attainment, but much can be done to make the best of what is available by tucking up the *dhoti*, and rolling up the flapping shirt sleeve; and in many schools the children will strip to the loin cloth for P.T. It is a matter of habit, and good habits are easily formed. The rub down afterwards is more difficult as there is nothing to rub them down with, and so, if possible, there should be some garment to discard so that it may be put on afterwards to prevent danger when they are overheated.

The aims

As to the aims to be attained in the infant classes, the Syllabus of Physical Training for Schools published by the Board of Education gives them very clearly. They are:

1. To encourage alertness, independent action and a ready response to unexpected directions.

2. To maintain flexibility of body and so prevent or reduce the need for corrective exercises in later years.
3. To get lightness and spring in all movements.
4. To stimulate the respiration and circulation by encouraging free activity, so aiding growth and helping to secure good health.
5. To encourage a bright, happy, fearless, independent spirit.

This can hardly be expressed better. The first necessity is to get response from the children to simple commands.

THE FIRST YEAR

Children in the infant classes are not far advanced either mentally or physically; and thus the introductory lessons will have to be taken at a slow tempo and there will be much repetition. The children have to be taught to move naturally, to walk, to run, to hop, to skip, to start and to stop. But the very greatest care must be taken to see that they are not strained: no such command as 'Attention' should be given, as the position is too difficult for children at this stage. The very first exercises will be largely imitative, such as walking and running after the teacher and stopping when he does and starting with him. The following taken from the Board of Education's Syllabus on Physical Training will give an idea of the kind of exercises to be used. They are taken in the following order: Introductory including spacing and formation, followed by trunk exercise, balance exercise, jumping and games.

Introductory exercises

They begin with introductory movements which in time will lead on to proper formation with spacing, but at first there will be no attempt at formal lining up. Where there is a wall it will be useful in teaching the children to form in line. If no wall is available, a line can be made with lime on the ground, or it can be dug out. But first it is necessary to

teach spacing. Tell the children first of all 'to find a place alone'. Tell them to keep away from each other and use all the space available. Get them to run and stop at a signal, which preferably should be a whistle or may be the teacher's voice. Then the teacher can run with them and make them toe the line. This will need repetition to avoid crowding. Then they should jump on the spot where they are, keeping on the toes, the teacher showing how it is done. Next vary the exercise by making them hop on one leg or the other.

Trunk exercises

The trunk exercises for these young children will be mainly sitting and rising. The teacher will demonstrate what is to be done. First sit on the ground with the legs crossed at the ankles, knees outwards and as low as possible, hands on knees or grasping toes. The back should be straight and the children encouraged to do this by saying, 'See how tall you can sit' or 'See what a long neck you can make'. The ordinary squatting position will probably be easier at first for the children as they all know it. Then jump up to standing position several times, after a while on the toes with hands stretched over the head. Later, different attitudes may be used to vary the exercise, e.g. sitting with the feet placed on ground in front and knees on level of chin, or legs stretched out in front. Other exercises are crouching down with hands on the ground followed by the crouch jump (when the hands remain where they were and the feet leave the ground with a vigorous lift of the hips). This will lead to the rabbit hop, when the feet are moved up to the hands and the child progresses in a series of hops on hands and toes.

Balance exercises

Balance exercises consist of walking on the tips of the toes, skipping on the same spot, running and at a signal stopping on one leg with arms stretched out sideways, and so forth.

Jumping exercises

The jump exercises are mostly at this stage imitative—horses trotting and galloping; birds flying, hopping, hovering; jumping on to or over the marked line; springing up from the crouch position as high as they can, throwing their arms in the air; rabbit hopping and crawling. Many of these exercises require to be done sitting, lying or crawling on the ground. Most primary schools have nothing but a bare and dusty patch for playground. It is not hygienic for the children to lie, kneel or crawl on this, and for such exercises the *moonj* or tat matting which is generally used in the classroom for the children to sit on should be utilized. Few teachers appreciate this and it has to be made a very prominent feature of their training.

A specimen lesson

A specimen early lesson may now be given as an example of how the twenty minutes' physical training period may be utilized.

Introductory

'Run to the line, find a place alone.'

'Hop on one foot six times. Then on the other six times.'

Trunk exercise

'Crouch down and jump up. Sit cross-legged, then jump up. Repeat.'

Balance exercise

'Walk on tip-toe after the teacher: then run back to the line when he turns round to catch you.'

Jump exercise

'Gallop like a horse, with knees brought well up. Jump on to the line.'

Game

End with a game.

These should be games of movement as far as possible; dropping the handkerchief is somewhat too static for the majority though it keeps them alert. Chasing the teacher will do to start with, and then the teacher will chase the children back to the line. There are several variants which are well known and do not need to be described. Old tennis balls are useful for the children to run after, and later to bounce and catch.

SECOND AND SUBSEQUENT YEARS

It is not proposed to go on with examples. Sufficient material will be found in the Board of Education's Syllabus referred to before—all that is required is intelligent application. This is or may be taught in the training centres where the teachers receive their initial training in physical exercises and how to teach them. The difficulty is the average primary school teacher's habit of learning off by rote and applying by rule of thumb. These exercises require intelligent application and intelligent direction. The exercises will be progressive. For instance, after the children have been at school for six months they should have got as far as forming rings, holding hands and skipping sideways. They should be able to do the following trunk exercises: bending and touching toes, bending and grasping a knee with both hands and pulling head to knee; or from a lying position lifting legs in air, or rolling over, or clasping knees or ankles. They should be able to hop holding one leg, or to stand on one leg with arms sideways. As for jumping, they will now be able to jump over a stick or rope held by others and jump down from a chair and so forth. In games they should be able to pat bouncing balls for some time while running, and play various games in which the idea of chasing and having a safe base or 'home' comes in.

As the exercises change and increase in difficulty to suit the older children it will be found unnecessary to introduce games

in the physical training period. Games will then be taken separately, after the last period in the cold weather, and in the cool of the evening in the hot. This of course refers to the boys of the higher classes of the primary schools, Standards III and IV and possibly II. For them the various scout games have been found very useful. These are so popular that one inspector of schools in the United Provinces reports that even the bazaar boys play them. In addition there are such games as rounders, stump cricket, football with a tennis ball, and games in which the picking of sides comes in—an ever certain delight to schoolboys. The games of the countryside should not be neglected, and of course *kabaddi* will always be popular. Much of the time devoted to games will in many places be utilized for scouting. Cub training has proved to be especially suited to the primary school, and where cub packs are started the problem of games activities ceases to worry.

The bigger boys of the top classes will, of course, be doing regular exercises with proper commands, but the sequence will still be followed of introductory, spacing and formation exercises, such as running in file and at a signal jumping high and turning about to run in the opposite direction; or hop, skip and jump progression across the drill space; or running to form in file behind or alongside the leader. Then will come trunk exercises such as head bending from side to side, trunk bending downward with occasional knee raising to touch forehead; arm exercises; balance exercises, knees stretching and bending on the toes; hopping exercises and general agility exercises to include jumping. It is well at this stage to encourage a high standard by dividing the boys into squads and pitting them against each other, letting the best squad compete for a district cup. The difficulty in all this is, of course, the teacher. It is not pretended that all this can be done with teachers who have gone through a short course of physical training. It is as important to be able to select

suitable exercises as it is to have the skill to perform them. For whatever syllabus is settled on it must be, within definite limits of course, largely selective. The success of the training given to the children will largely depend on the ability of the teacher to select suitable and progressive exercises. Tables help, of course, and without clear and definite tables of exercises, properly graded, any system of physical training will be a farce. Thus it is necessary that every teacher while at the Normal school or Central Training school should be put through a real course of training as a P.T. instructor as well as in the ordinary duties of a teacher. Actually nothing less than six months' training is of much use for the creation of an intelligent physical instructor—that is with the material usually available in training institutions for village primary schools. But training in physical training alone is not enough. In the training schools of the United Provinces each pupil teacher is trained to organize games, run village athletic meets and is also trained as a cub or scout master. Little can be done with the older teachers, especially the untrained elderly men whom a system which is luckily dead had foisted on the rural school. Short courses however can give such men simple ideas for simple exercises and show them how to teach the rural youth to play; and all who know rural India will agree that this is a great advance.

X

MORAL INSTRUCTION

Practice makes perfect

ONE of the well known laws of learning is the law of practice. This law simply states that we cannot learn to do anything unless we practice doing it, unless we take every opportunity of making a practical use of our theoretical knowledge. We have the well known adage, 'Practice makes perfect'. Now this is well enough known and well enough practised in most things. We know that if we wish to learn to play a game it is no use reading about the game, learning the rules, watching other people play. We have to go out into the field and actually play the game ourselves. Otherwise we shall never learn to play. And we know that we need continual practice at actual playing if we are to improve. The same thing applies to school subjects such as learning to write our mother-tongue. It is not enough to read or to watch others writing. We have actually to write ourselves. Otherwise we shall never learn to express ourselves in our mother-tongue.

Now exactly the same law applies to matters connected with morals and character. Here however, we often seem to forget our law of learning, and to think that we can get along without any actual practice. We often seem to think that children can learn to be moral, and can develop strong characters simply by sitting listening to us instructing them, telling them moral stories, or preaching to them about traits of character, or by their reading in books about these things. We often seem to think that the influence of the teacher or the parent is enough, and that the child will pick up morals

without any particular effort on our part or on his part. But this attitude is hopelessly wrong. Strong as may be the influence of the teacher, of the school, of the parent, of the home, a child can no more learn to be moral without practising moral conduct than he can learn to write without practising writing. Our task therefore is not only to provide moral instruction in the shape of stories and information about desirable traits of character, but also to provide opportunities for the child to practise in actual life the things about which he has been instructed. Unless this is done there will be little effective result of our teaching on the characters of our children. We have to realize that 'practice makes perfect' applies in the realm of character as well as in other departments of life.

Relation to life

This means that our moral instruction must have some relation to the life and needs of our children. It must be related not to our needs and difficulties nor to what we imagine the needs and difficulties of our children should be, but to what those needs and problems and difficulties really are. This means that the teacher has to know and understand the conditions of life of his children, the home conditions, the particular temptations which they are liable to meet in their ordinary life, the customs and conventions which may help or retard their moral life. Once he has some idea of these things then he will be able to relate his moral instruction closely to the actual life of his children. The problems and difficulties and temptations which he finds that his children have to face give him his point of contact and his way of approach to the subject. His syllabus of moral instruction should be framed according to the guidance given by the needs of his children. The teacher may be supplied with a syllabus framed by people who have never seen his children nor children like them, and who may have little idea

of the needs of small children, especially of small children in villages. But he should have the courage to adapt and modify such a syllabus according to the needs of his local children. He should have the courage to leave out what does not appeal or is not necessary, and to add what the local situation demands.

In any case the teacher is the best judge of what moral instruction his children need, and of how to approach the subject, of what to take first, of how to present his material. Allowing the needs of the children to be the guide in framing the syllabus and in determining what shall be taught, is the principle on which what is called the project method is based.

Project method

As far as moral instruction is concerned, the project method may be used directly or indirectly. The project may arise out of the needs or problems connected with other departments of life, and moral instruction will then come in as one of the correlated subjects. For instance, I have seen an infant class take up the project of making brooms to clean out their classroom. This project arose out of the bad work of the regular school sweeper, and the necessity for clearing the rubbish out of the classroom. Different subjects were brought in under this project—nature study, handwork, writing, and counting—and it was also used to emphasize the moral lessons of cleanliness, and of not always depending on others to do things for us. The project gave opportunity to bring home the need for cleanliness of the room and also the need for personal cleanliness and the cleanliness of the village. Moreover there was the chance for a practical application of the lessons learnt.

On the other hand the project may arise definitely out of a moral issue. A quarrel may arise in class, and the teacher seizes the opportunity to direct the children's attention to working out some machinery or organization by which quarrels

may be settled and peace made, such as a reconciliation committee. In working this out other subjects, such as reading, writing, and speaking may be correlated and brought in, but the main thread of the project will be a moral one.

Place in the syllabus

The teacher should make use of both direct and indirect methods to carry out his moral instruction. If he is kept strictly to time-table and a syllabus, then the direct moral project can be carried out in the period or time given for moral instruction. One project, of course, may carry on for a number of lessons. There is no need to restrict the time given to any particular project. If a certain amount of freedom is allowed, the indirect approach can be used and moral instruction linked up with the project just when it naturally comes up. If possible both methods of approach should be used as occasion permits.

In any case moral instruction should never be simply confined to set periods. If this is done the effect will be to give the children the impression that morals are a department of life by themselves, without connexion with ordinary activities of life. This, of course, is a false and injurious conception. Morals cannot be separated from any department of life. It is therefore necessary for the teacher to link up his moral instruction with every subject possible, and to make clear that morals and character lie behind everything. This can be done more easily with some subjects than with others, but whenever opportunity offers in reading, writing, arithmetic, history, geography, nature study or any other lesson the teacher should be prepared to take his chance to get in his moral instruction. This may be a matter of attitude and example more than of direct instruction, but it will have its effect. At the same time, important as this indirect approach is, the teacher must never forget the supreme necessity that has

been pointed out, the necessity of providing actual opportunities for the practice of the trait he is trying to develop.

Stories

Whatever method of approach the teacher uses, when it comes to the actual lesson, right through the primary school stories will be the foundation of all work in connexion with moral instruction. Right through the primary school stories will provide the material which the teacher will present to his class. Whether his lessons arise out of a project or not, a story will provide the teacher with his main means of driving home the lesson which he is seeking to teach, and of making clear the traits which he wishes his children to cultivate. Different types of stories will be used at different stages and different types of treatment will be employed at different stages.

With the smallest children in Standard I, rhymed stories, nursery rhymes and stories, and simple nature stories are most suitable. Children of this age like stories with a good deal of repetition in them; that is, stories where the same conversations or sentences are repeated, and more or less similar situations come again and again. The story of the pig that would not go over the stile, and that of the house that Jack built are examples of stories which have this element of repetition.

For Standards II and III fables and fairy tales and nature stories of a little more advanced type are useful. At this stage the story should not have so much repetition and should be more direct. For the older children in the primary school, fables, myths of all lands, legends, and simple historical stories are useful.

When using stories for moral instruction, it is necessary to choose one's story with one's aim in view. It is no good telling a story simply for the sake of having a story in the lesson. The story must illustrate the point which you are

trying to make. It is no use dragging in a story which does not teach the lesson required. The story will be remembered, but children are logical beings and if the story is not apt or relevant they will be the first to see this, and the purpose of the teacher will be frustrated. The story must come naturally because it gives a natural illustration of one's point.

Stories should be such that they awaken the emotions and appeal to the child's feelings. The feelings are the dynamic of action and if we are to get action as a result of our stories we must rouse the feelings. The child should be led to want to do what the hero or heroine of the story does. The story should have a dramatic appeal so that the child lives with the characters in the story. He will then suffer with the wrongdoer and triumph with the virtuous. Thus his character is affected.

The teacher should beware of stories where the characters do good deeds and get some unusual reward, such as great advancement in life or large sums of money. Such things happen very rarely in real life, and the moral effect is bad if good actions are coupled with great material rewards. The emphasis should be on the joy of doing what is right, the effect on character, and on the good resulting to others. We should not teach the child morals or ethics which he will have to unlearn later, or which if he does not unlearn, will have a bad effect on his character. If such material rewards do come in, then be sure to minimize them and emphasize the other side of the matter.

While fairy stories are all right for the very young, with older children it is better to use stories that are true to life. The same applies to nature stories. For very young children there should be plenty of personification, and animals can be dealt with as if they were human beings. As the teacher comes to older children, this will gradually drop.

In telling a story there are several points to be noted:

1. Always know your story well. We cannot tell a story if we are not quite certain of the order of events or of

the facts. It is bad to have to refer continually to a book.

2. Always try to feel your story. Be interested in it yourself. If we are not interested ourselves in what we are telling our children we cannot expect them to be interested. It may be objected that when a teacher has used the same stories year after year, it is very difficult to feel interested. This is true, yet the teacher must try to do so if he wishes to be successful. One way of overcoming this monotony is to tell the story from a different angle. That is, to tell it as though one of the characters in the story were telling it in the first person. This always makes a story fresh.

3. Adapt your story to your audience. We should not be afraid to change a story if necessary. Change the local colour to make it more real to the children. Leave out some of the characters or change them if it seems necessary. The children are the most important factor, and if it seems that a change will make the story more interesting and more real to them, then we should have no hesitancy in making it.

4. Talk simply and naturally. Be sure that your words will be understood by your audience and do not try for too much dramatic effect. Be natural.

5. Try not to interrupt your story by telling one child to sit still and another to stand up and so on. If your story is a good one and if you are telling it well there will not be much need for such injunctions. In any case let them wait till the end. Try not to interrupt the story. Interest will wane if this is done.

6. Have the class arranged in a semicircle and sit in front of it opposite the centre. If this is done, you can see all the members of the class, which is important.

7. Have a logical sequence, no digressions, a single object in view, working up to a climax which comes at the end or almost at the end.

8. Try to present your story so that your children will be made to feel, to think, and to act.

Dramatization. Dramatization is very useful for driving home the lesson suggested by a story. The children are enabled to live and feel the story in a more realistic way, and

thus the effect of the story is increased. With primary school children all dramatization attempted will, of course, be very simple, but the senior pupils will be able to turn out good playlets. In the case of the smaller ones dramatization will really be just playing the story. The teacher will find that if the story is a good one and has been well told, the child will begin to 'play' it naturally without any suggestion being made.

The children should be encouraged to make up their own playlets founded on the stories. Occasionally perhaps the teacher can give them a readymade playlet, but it is usually better for the children to work up their own. The teacher will guide and suggest and help as need arises. One thing that the teacher must watch is that, if there are villains in the story, the part of villain is not always played by the same child or children. The effect of this is sometimes bad. Parts should be distributed with this in view and different children should have turns at different types of character. Another point to be watched is that the element of doing the play for show does not enter in. There is no harm in having an audience when the play is finally ready and shown, but this should be kept in the background while it is in preparation. The value is not in showing it to an audience, unless it is frankly educative of the audience, but in the working up of the play by the children. The emphasis must be in the right place.

Traits of character

In dealing with moral instruction, with the older children in the primary school, whether the project method of approach is used or not, it is a good plan to deal with the subject by means of traits of character. The story will still have a central place in this treatment of the subject but more emphasis can be placed on that part of the work known as the conduct assignment. This is simply the planning and carrying out by

the children of ways of putting into action what they have learned and heard. Each section of work thus grouped round a trait is a unit of work. The following is an example of such a unit showing the different steps. The trait dealt with is dependability.

DEPENDABILITY

Teachers' preparation

Let the teacher collect, for some time before starting the unit, any instances of untruthfulness in his class, and let him try to understand the reasons why untruths were told.

Let the teacher also collect instances of lack of dependability such as broken promises, exaggeration, statements made without proof behind them, work not done when required, work not properly done, things being done for show without any real permanency. He should also try to arrive at the reasons for such actions.

Let the teacher also examine his own actions and find where there has been lack of absolute honesty and sincerity and dependability. (Sincerity is one of the virtues most commonly talked about, but also one of the most difficult to put into practice.)

Let the teacher know thoroughly the stories to be told in connexion with the unit, and let him think out ways of encouraging his pupils to cultivate the habit of speaking, thinking, and acting truthfully.

Aims of the Unit

To develop in the children a desire to tell the truth always.

To help them to understand all that is involved in being truthful and dependable.

To help them to understand the evils of lack of dependability.

To develop in them a love for honesty and sincerity.

To help them to cultivate the habit of absolute dependability.

Approach

1. *The Problem.* Ask the members of the class all to be present on a certain day for some special work such as the preparation of a play, for which each one is to be responsible for definite work of some sort or other. The work each is to do should be definitely assigned to each individual. Unless the teacher is very lucky he is sure to find that there are some who have promised to be there at the time with something ready who have either failed to put in an appearance or have not prepared what they were supposed to prepare. Some will be late. Some will have done their work carelessly. This will give an opening for taking up the question of dependability. The class will have had a practical example of how lack of dependability may affect others as well as the person himself. Get the class to make a list in a notebook of any other examples of lack of dependability they can remember, either in their own lives or that they have seen in others.

Now take up with the class the question of what is included in lack of dependability, first seeing that all the members of the class understand what is meant by dependability and its opposite. Are such things as broken promises, doing things for show, doing work carelessly and not finishing it properly, not doing the task we have been given to do, making statements for which we have no proof, saying things about others when we really know nothing about them, included in lack of dependability? Take up then the question of what is included in dependability.

Truthfulness is a form of dependability. See if the class agrees with this statement. Can a person who tells lies be trusted? If not why not? Can people act lies as well as tell them? See if the class can give any instances.

2. *Analysis of the Problem.* By means of the following cases see if any members of the class can suggest causes of lack of dependability or qualities necessary for dependability. If they cannot do this themselves the teacher can use the cases to bring out these causes and qualities himself.

(a) A boy is in charge of games material, but never has it ready when it is wanted, so that time is lost and everybody is kept waiting. What is wrong with him?

What sort of boy ought to be in charge of such work?

(b) On inspection day the boys clean up the school very well, but two weeks later it looks as though it had not been cleaned for months. Why did they clean the school up? Was this a good reason? What should have been their reason? What did their action tell you about them?

(c) Someone asks you about another boy. You know all about him and tell the inquirer all his good points but do not tell him about a bad quality he has. The person who has asked you for information finds out about this quality later on. What will he think of you? Will he trust you?

(d) You are asked the distance to a place. You have a very vague idea, but you say definitely that it is three kos.

(e) You are asked to come to see your teacher at a certain time at school. You arrive half-an-hour late and keep your teacher and others waiting all that time.

(f) You are describing a fight in your village and you say that several men have been seriously injured and that the whole village was in an uproar, whereas only one man was injured, and most of the people in the village did not know anything about it until it was all over.

(g) A mason is building a house and puts in unburnt bricks coloured red to look like burnt bricks.

(h) Some men are working on a house. As long as there is someone to watch them they work well and are busy. When there is no one to watch them they work slowly and waste a lot of time.

Take up the special case of truthfulness and try to arrive at the causes for untruthfulness. Try to get the class to think of why they have been untruthful in the past. The following cases may be useful.

(a) You hand in to your teacher work that you have copied from someone else and lead your teacher to think that it is your own work.

(b) A man sells a cow and the buyer discovers later that it is suffering from some disease.

(c) A boy takes a small thing from another boy and then denies having done so. What are all the possible causes of his untruthfulness?

(d) A boy travels in a train without a ticket. Is he truthful?

(e) A boy has broken a window in school. No one has seen him do it or knows that he did it. But he comes and tells the headmaster.

The class may be able to arrive at such causes of untruthfulness as fear, laziness, selfishness, desire to make an impression, desire for gain.

Presentation

Use the following stories to bring out the lesson of dependability and the traits that are necessary if we are to become dependable.

1. The story of the boy who cried 'Wolf! wolf!' when there was no wolf.

2. The story of the door-keeper who tried to bribe the fisherman.

(A fisherman brought some fish to sell—the door-keeper of a rich man's house would not let him in without a bribe—made the fisherman promise him three-quarters of what he got for the fish—fisherman agreed—asked as the price of the fish twenty lashes on the back—got five, then asked for the door-keeper to be called—the door-keeper got his share and was then discharged.)

3. The story of the man and his four sons.

(The man sent his sons away to work for a year promising a bag of gold to the one who did best—after a year they came back—the eldest son said he had become a barber—he could shave a hare while it was running at full speed—second son said he could shoe four horses in a carriage in five minutes without stopping it—the third could use a sword so well that he could keep himself dry in a shower of rain with it—the fourth son said that all he had learnt to do was to tell the truth—father told the fourth to take the money—his was the best work.)

4. The story of the workman and the railway bridge.

(Some workmen were building a railway bridge—one man was a bad worker—did not drive his rivets home properly—bridge finished—day for testing came—an engine sent over—a crack appeared where this workman had been working.)

5. The story of Varuna and the axes.

Traits

The qualities that are necessary if we are to be dependable are courage, sincerity, honesty, energy.

See if your class can arrive at these for themselves from discussion and talk about the stories you have told them. Take the instances and cases that you have dealt with before in the unit and find how different the results would have been in the various cases if these traits had been present in those concerned, or if any one of these traits had been present.

Conduct assignment

Plan and stage a small play to show the results of lack of dependability in contrast with those of dependability. The stories studied may suggest plots for plays. Let the class members make a solemn decision and sign a pledge always to own up when they have done anything wrong, always to keep a promise when they make one, and always to carry out as well as they are able tasks which are given them to do. The signing of this pledge might be made the occasion of a special ceremony.

The opportunity might be taken to start Wolf Cub packs, or if they are already in existence to recruit more cubs with the special aim in view of training in dependability and truth-telling.

Conduct assignment report

At some later date the teacher should try, informally, to find out how the children have succeeded in keeping their pledge, to get them to talk over their difficulties with him and to help them in any way he can. This should, as a rule, be done individually rather than with the class as a whole.

XI

THE TEACHING OF DRAWING

It would be difficult to exaggerate the importance of drawing for little children, and it is a great pity that there are so many primary schools where full use is not made of this subject. Partly this may be due to a misunderstanding of its aim.

As far as little children are concerned drawing is first of all a means of expression. There is no question of training young artists, and so the children should be drawing just what interests them. It is of no use setting them down to draw something simple if to them it is dull. I have known the back of a plain envelope recommended as a suitable model, because it was simple, but I am sure that is not the best way to start children on drawing. They should feel it as an opportunity for joyful self-expression, and skill should come through plentiful practice rather than through anxious straining after neatness. Just as children want to touch any new thing they see, so most of them enjoy making a picture of anything that takes their fancy. This instinct to represent what pleases them should be the mainspring of the whole scheme of drawing in primary schools. Teachers should work along the lines of the children's own interest, developing it by every means in their power. If we provide suitable materials and show what can be done with them, the children will soon be roused to enthusiasm, especially if we are lavish of encouragement.

Some children are slow to profit by this freedom. They have got into their heads a dreary idea that school is a place where you cannot do what you like, or they are apathetic and cannot think of anything they want to express. They wait to



Rag Painting for Infants
(The larger the better)

The drawing from which this illustration is copied is twice as big (10 inches high instead of 5).

It is best to use rag folded in a long strip, and to keep one section for reds, another for blues, etc., rolling the strip to a point here or there as required. This keeps the colour from becoming too messy, though a certain amount of mixing is much to be desired.

he told in detail exactly what to do. Then it takes all the teacher's skill to rouse the dormant interest. I am sure that the interest is there and only needs rousing, for the desire to draw is more natural, more primitive, than any interest in writing or counting. We are not demanding anything contrary to nature when we expect young children to draw. Illustration and pattern work are specially valuable, but every sort of drawing is worth while when we are trying to develop lively, individual minds.

METHOD

Now if we let little children try something they themselves want to draw, we must help them do it a bit better than they could alone.

Suppose they think they would like to illustrate a story they have just heard about a prince and a talking fish.

The first step is to get them to realize the scene vividly. Talk about it, drawing attention to the points that little ones can show. 'What was the colour of the prince's coat? What about his turban? Was he standing under a tree? Were there reeds along the edge of the river? How much do you think the fish rose out of the water when he spoke to the prince? What do you see on the water when there is anything moving there?' Choose points which will help the picture. Reeds will help to show the edge of the river (and they may conveniently hide the prince's feet!). Rings will help to express the water. And so on. See the illustration facing this page. More or less detail can be suggested according to the age of the children and the ability they have acquired. Tinies may be content with a red coat and a blue turban and half a green fish.

Some may be ready to start off at once putting down the scene as they have it in their mind's eye, while others with less self-confidence will need to see how to set to work. So the teacher demonstrates on the board with the same

materials as the children are using. It is most important that she should actually draw or paint while the pupils are watching and not merely bring to class a finished painting. The children must see how she sets to work and gets her effects. She must work on a large scale so that all can see clearly, and she must not attempt anything more elaborate than the children should try to imitate. That is a most important point. The teacher must curb her own powers to suit those of her class, and must not discourage them by setting a standard too far in advance of theirs. She will far more often need to show the children how to simplify than how to elaborate, and she must head them off from attempting too much detail. Luckily the children's instinct is to imitate, and if they see her painting, they will follow it.

In another way too this willingness to imitate can be turned to good account. Without any mention of the word 'perspective' or discussion of its theory, the children can absorb a few simple ideas on the subject. For instance in the picture suggested, there are rings on the water. Lightly the teacher sketches in ellipses and the children accept that as the way to draw rings. Cups or wells would bring out the same point.

Scenes involving other perspective can be tried. Roads and rivers can learn to wind away into the distance peacefully, without invading the top of the picture where we expect to see the sky, and there will be plenty of opportunities for showing that things in the distance look smaller than the same things close at hand.

And so the teacher tells stories and draws, and the children follow her, but she must see that this copying is not slavish. Sometimes the children should copy, and at other times they should certainly be left to themselves. They must not feel bound to do exactly what the teacher does, and the teacher should be thankful for any signs of originality and independence. It may also happen that a child seems to pay

no attention to what the teacher is demonstrating. This does not really matter as much as an anxious or imperious teacher might think. Idleness alone matters. As long as the child is working, experimenting, practising, he is gaining experience of his materials and is expressing himself in one way or another, and the teacher is justified in leaving him to do so. Besides, it is probable that the child is taking in more of the explanation than the teacher realizes. She must think of herself as a helper of those who cannot get on—a helper, not a commanding officer.

This must not be taken to mean that the teacher is never to give definite instruction. From time to time she can claim the attention of the class to some point on which the majority are finding difficulty. Suppose they place their talking fish too near the prince's head, so that it seems to be floating in the air. Without in the least laughing at the children's efforts—that would be fatal—the teacher draws attention to the point. 'Wasn't the fish nearer his feet than his head? In fact, on a lower level than his feet? There—doesn't that look a little more real?' This should be accompanied by further sketching on the board.

I feel many teachers may be thinking, 'Who in their senses would attempt all this? What a mess there will be! What will the parents say? What will the inspectress say?' I am afraid it is true that many grown-up people judge children's drawings by no standard except neatness, and the teacher will have to convince them that drawing is far more than a training of hand and eye; it is training in self-expression, visualization and the appreciation of beauty. By far the most important result of a lesson is the development of the little child's mind. The results on paper matter next to nothing by comparison. The nerves and muscles of small hands are not sufficiently developed to be capable of accuracy and neatness. That will come later through love of the subject and practice, but it is a great injustice and a waste of

priceless opportunity to let drawing degenerate into mere straining after neatness. It may take a good deal of courage on the part of the teacher to stand out against tradition in this matter, but I am sure that enthusiasm and perseverance in free methods of drawing and painting will delight the children, and presently produce such results that the critics will be convinced.

Another reason for letting the little ones start figures (etc.) young, is that they may acquire some small degree of ability before they become critical of their own work. By demonstration and judicious hints the teacher leads them to improve their drawings in one point after another. And this is important, that hints and advice should never be tinged with ridicule. That would have a blighting effect upon the children's enthusiasm. In proportion as their drawings are part of themselves, their own little bits of creative effort, so they are sensitive on the subject. Loving help will lead them on, but the merest suspicion of ridicule will wound them till all hope of self-expression is gone. However comic their drawings may appear to us, to the little ones they are very real, and the wise teacher will treat them accordingly. Progress is best secured by encouragement, and by finding *something* to commend even in the oddest effort. A cheerful, hopeful atmosphere in the class is all-important if the children are to do their best.

Materials

At all costs teachers must procure colour for the children to work with. Colour has great educative value, and stimulates interest as nothing else can. Children notice the colour of an object before they notice anything else about it, and therefore we should exert ourselves to supply colours.

Various kinds are obtainable, but probably the best is water colour. It is cheapest to get large tubes of a school quality such as Reeves', and only three colours are necessary,

Crimson Lake for red, Ultramarine for blue and Gamboge for yellow. Each child should have a saucer on which small squeezes of paint can be put and worked about, and he must be able to reach a pot of water easily. For little children a piece of rag, thickly folded and twisted to a point, does very well instead of a paint brush and has much to commend it. In the first place rag is cheaper than brushes. Rag is easier to manage in so far as the water does not run about the paper (but is harder to wash out when you want a change of colours). It is held in the hand as a teacher holds a piece of blackboard chalk and this encourages free movements of the whole arm from the shoulder. Fine pointed instruments held like pencils are managed by the fingers alone and may lead to cramped work, but it is impossible to niggle over details with a piece of rag, and therefore one of the worst pitfalls of beginners is avoided. Rag lays on the colour quickly with large, bold strokes, showing mass rather than outline, and this is what children ought to aim for. If paint brushes are used at a later stage, they ought not to be smaller than No. 7, and they must be of sufficiently good quality to straighten themselves again after each stroke. They must be well rinsed, and kept so that the points are not bent and that insects do not get at them to bite the hairs.

If water colour paint is considered too expensive, various dyes can be got from the bazaars. Any kind of colour is better than none. The teacher must exert herself to find what the locality can provide by way of vegetable dyes or coloured earths.

As a rule cheap paint boxes are unsatisfactory, as the colours in them are inferior and muddy, and do not blend well when mixed. It is better to get the three primary colours only (the tints here named have been found the most suitable) and to let the children find out how great a variety of green, purple and orange, brown and grey can be made from them. It is excellent education.

Various kinds of chalks and coloured pencils are available. White or coloured blackboard chalk can be used on slates or blackboards, or on specially prepared stretches of the wall. One can make very useful little blackboards from spoilt pieces of three-ply wood intended for making tea chests, etc. These are light and a better size than slates, which tend to cramp the children's work. Blackboard chalk and pastels have the disadvantage of being dusty, and the children's hot hands get grubby, and clothes suffer in consequence. Still, some may find chalks easier to manage than water colours, though one does not escape mess thereby. At any rate they have the advantage of being easy for the tinies to manipulate.

Crayons and coloured pencils are very nice and clean, but are apt to come a little expensive as they break in unskilful hands and need resharpening rather often. Besides which, children miss the education of seeing colours mix, which they get in using water colour. A great deal of fun however can be had with those rather stout pencils, red at one end and blue at the other. They are specially useful for pattern work, or for decorating initials and numbers.

If ordinary pencils are used at all they should be soft and short, held like blackboard chalk, not like a pen. These can be used for the child's occasional scribbles.

Every child should be provided with a scribbling book wherein he may draw what he likes in odd moments. Cheap foolscap is all that is needed for these. The children themselves might make the books with stiff paper covers decorated with their own designs.

For work in drawing lessons, it is better to have separate sheets of paper, not books. This gives the opportunity of varying the size and colour of the paper according to the drawing of the day. A cheap cartridge paper, such as the ordinary school drawing books use, is quite sufficient. Children are more than likely to make a mess at first and they had

better have plenty of cheap paper on which they can experiment freely and which can be thrown away if things go wrong.

Styles

All teachers of drawing should introduce as much variety as possible into their lessons.

A very good type of work is the free painting of bright objects of varied colour and not too regular shape. Without drawing an outline, dash on fresh colours to let them mix on the paper. It is best to paint from imagination something like a many-coloured cushion-cover, where the purples and greens and oranges, which appear when the primary colours meet, add interest to the result instead of spoiling it. Children should learn colour-mixing by experience, and subjects should be chosen where they can find this out without ruining their picture. Sunsets clear or stormy are useful in this connexion. The sky may be almost any mixture of red and yellow, with a dash of grey or purple for clouds. The land must be definitely darker, usually a dull brownish grey, as it is when daylight has gone. All sorts of effects may be tried, with mountains, trees and dimly seen houses added for interest. As skill increases, such pictures will set the stage for illustrations. Sita can walk through the gloomy wood, and the sunset be seen between the trunks of the trees. Such pictures are also of great value in attracting the children to the beauties of the sky and scenery. Hereby the children gain experience, and before long will justify the method, having a far fuller knowledge of what can be done with three colours and a little water, than if they had worked on more cautious lines.

Something has been said already about illustration, which is a very valuable exercise both in itself and as leading on to other work. Many children have very little power of visualization and need help in developing it. Some again are slow

to grasp what a picture means, and making their own pictures teaches them to look at others more intelligently.

Illustration gives an interest to object drawing, for children are more willing to learn how to draw things when they need them for a picture. But little children are not able to study a thing and commit one view of it to paper. It should not be expected of them. They put down their *idea* of an object, drawing mostly from memory, and if the object is before them they may refer to it now and then. It is only in the course of years that they learn to put down simply what they can see of it, and not all they happen to know about it. I remember when I was small drawing a house with the front and both sides showing, because I knew there really were two; and I remember someone persuading me that one could not see both sides of a house at once. Such mistakes a wise teacher deals with gently, preventing their recurrence by sketching the right thing on the board. They must not be made too much of, for after all the main object of the lesson is to give an outlet for self-expression.

If a model is brought to class, it ought to be something which will not look very bad even if the drawing is poor. Baskets, bags and cushions will be better than hard, smooth things like buckets or ink-bottles. Various fruits make good models. Sometimes a shape like a doll's frock or a butterfly may be cut out in paper and then coloured.

Whatever the children are drawing the teacher must know what she may fairly expect from them considering their age. It is extremely difficult to give exact figures on this subject as children vary greatly according to their environment and previous teaching. As a rule in the primary school neatness and accuracy should not be emphasized; but children come to an age when they desire order and straight lines, and when this happens they can be shown how to satisfy their desire, though not at the expense of originality and imagination.

Flowers and leaves should often be brought to class. Antigonon is a very good model as it can be represented by clusters of little pink dabs, but the disciplined curves of lilies would be too hard for small children. It is wonderful how drawing and painting help to develop our perception of beauty. Even if the painting itself is nothing much, the child retains an affectionate interest in a plant he has tried to draw, especially if the teacher knew how to attract his attention to its beauty. The fine free sweep of a palm leaf, the dazzle of red and gold in a croton, the streaks of purple and yellow in sugar cane—these and many more can be enjoyed by children if someone will give them a lead. As she paints boldly on the board, the teacher can show that she is getting a lot of satisfaction out of it, and the children will fall in with her mood. Her pleasure must be infectious. How much richer and better life is if we learn to see the beauty that the Creator has lavished all around! Yet too many of us need a lot of training before our eyes are opened.

Pattern making

Just as children love illustration, so they love pattern making. It is quite natural to them. Rows of dots and lines easily grow into simple patterns and can be ornamented and added to indefinitely. No guiding lines should be ruled nor any attempt made to regularize the pattern by measurement. Strips of paper instead of sheets give as much guidance as is necessary, and it is very interesting to see how a sense of rhythm can help spacing. The children and teacher sing together some well known jolly song, marking the beat very definitely. When the children have thoroughly got the rhythm, the teacher marks the beat by strokes or dots in a row on the board. The children follow her and the pattern grows as they sing. *The swing of the rhythm must be maintained* and there must be no going back to touch up an unsatisfactory stroke. This is no time for drawing, but for

dashing or dabbing one detail of pattern rhythmically right along the line before another detail is added. Different colours may be used and the pattern thought of as designs for embroidery in tacking stitch, or decoration for clothes, crockery or other household articles.

When the children are tired of simple patterns, one can try building up the spots and lines into flowers or animals or even into little men and women. These little men are on the well known match-stick pattern. They are very useful, as they can easily show all sorts of actions and positions, and even the most diffident beginner, child or grown-up, would not fear to try them. A row of little men running for the bus, or a row of cringing beggars or of dhobies beating clothes, would be sure of a welcome. Of course these stick men are also very useful for illustrations, as clothes and accessories can be added to taste.

Patterns can also be founded on the repetition of some simple unit such as a letter or a number from the vernacular or English systems. This should help to fix the shape of the letter in the child's head. Another plan is to draw the letter on a large scale and ornament it with various devices. Children love treating their own initials in this way.

Another type of easy pattern has the wavy line for its foundation, the hollows of the waves being filled in with some flower or simple unit.

These suggestions are necessarily fewer and less fully explained than I should like, but those who are interested will do well to follow up the subject in Miss Sawyer's books. From her I have learnt almost all I know about drawing for little children. Her *Everyday Art at School and Home* is published by Batsford at 12/6, and contains a great deal of valuable theory and a wide variety of suggestions for work in all classes.

XII

A SCHEME OF HANDWORK FOR INFANTS AND JUNIORS¹

HANDWORK is recognized as a method of real educational value by a large majority of teachers and educationists all the world over. It is deemed an essential part of the primary school curriculum in almost every progressive country of the world. It is finding its way into the schools in India, but too slowly, the chief drawbacks being the absence of suitable schemes of work, having reference to local conditions, and the absence of sufficiently explicit instructions to make the teaching of the subject easy. In the present chapter suggestions are made towards a progressive scheme of work, which will, of course, need modification according as to whether the school is situated in a town or in the country, whether it is for children coming from rich or poor homes, and so forth.

The chief classes of handwork are:

Paper work, including paper-crumpling, paper-twisting, paper-tearing, paper-folding, paper-weaving, paper-cutting and paper-modelling.

Cardboard-modelling.

Dry and wet sand-modelling.

Clay-modelling.

Weaving in wool, cotton, cane, rushes, etc.

Stick-laying.

Stencilling.

Leather work.

Book-binding.

Light woodwork and simple metalwork.

Drawing.

There is ample material for handwork everywhere: in

¹ See also Chapter I, p. 8.

cities, empty tins, cardboard boxes, match boxes, cotton reels, and the like; in villages, the dry stems of maize, palm leaves, twigs, shells and pebbles from the beds of rivers, coconut shells, various kinds of fibre, clay, feathers, and the like. Huts, houses, castles, pieces of furniture, toys, ornaments, implements, and many other things can be made from them. A good stock of such material should be kept at the school and the children encouraged to add to it from time to time.

The forms of handwork suggested in the following scheme are those which are generally found to be easy and simple, and are such as require no expensive outfit to practise, while the material is easily procurable and costs very little. It is suggested that the cost of material for handwork be met from the sports fund, on which it is surely a legitimate charge.

Handwork waits upon the instincts manifested in children's play, and may take the form of group work, class work, or individual work. Successful handwork combines each form of work in the right proportion. Too much free work leads to careless work, too much class teaching to mechanical work, while too much group work may lead the weaker children to depend upon the stronger and to copy them rather than to look to the teacher for help. Free work is particularly useful when the children are working out a definite project the details of which have been made quite clear to them.

In the scheme that follows the work has been graded very carefully with reference to the age and interests of the children, and to invest it with a sense of reality there is some reference to adult occupations familiar to most schoolboys in India. The scheme is based upon several years' experience as handwork teacher of the Scindia School, Gwalior, where the subject was introduced both as a school subject and as a leisure time occupation. It may not be out of place to state here that the introduction of handwork into the school has given a great stimulus to the desire and ability of the children to use their hands deftly, besides quickening their interest in

those subjects of the curriculum (such as arithmetic, science and geography) which employ handwork for purposes of exposition. The boys have themselves organized handwork exhibitions, and several of the exhibits have aroused interest and won appreciation beyond the four walls of the school, for instance at the All-India Educational Conference exhibitions of recent years. Handwork as a subject has undoubtedly tended to develop the creative powers of the boys.

SCHEME OF WORK

Age : 4 to 5 years

1. *Aim.* To gain control over the muscles and bring about the development of the senses.

2. *Exercises.* (a) Matching and sorting and other sense-training games with varied material. (Individual work.)

(b) Free play with dolls' house toys, shells, pieces of stone, etc. (Individual work.)

(c) Illustrative work: to build, in the form of floor games, scenes showing occupations of people and other scenes familiar to the children, such as people seen in the home, at school and in the street at their various occupations, and the child at play, at meal time and at bed time. (Individual work and, later, group work.)

(d) Preparatory exercises in dry and wet sand-modelling, clay-modelling, stick-laying, paper-crumpling, paper-twisting, paper-tearing and paper-weaving with direct reference to: (i) conversation based on nursery tales and rhymes, (ii) familiar natural objects dealt with in the nature lesson, (iii) number lessons (association of symbols with units, tens and hundreds in simple addition and subtraction), (iv) reading and writing lessons (in developing sense impressions and promoting visualization, helping forward vocabulary work and the like).

3. *Material.* Coloured beads, seeds, cotton reels, wool, paper, rings, corks, shells, empty match boxes, empty tins,

buttons, pebbles, cardboard, sticks, tape, rope, twigs, sand, clay, palm leaves, pieces of wood of different shapes and sizes, pieces of cloth of various kinds and colours, bamboo, dried stems of maize, etc.

Age : 5 to 6 years

1. *Aim.* Sense training, the manipulation of tools, training the observational powers and powers of self-expression.

2. *Exercises.* (a) Exercises in sense training. (Individual work.)

(b) Building, in the form of floor games, scenes of occupations of people about whom the children have been told stories or whose occupation (e.g. weaving) the children are engaged in (group work and class work), the work to embrace talks on:

The washerman, with talks on the care and folding of clothes, etc.

The dyer, with talks on colours, etc.

The green-grocer, with talks on the names of common vegetables, Indian weights, etc.

The grocer, with talks on the names of the articles usually sold by him, weights and measures, etc.

The milkman, with talks about cows, buffaloes, goats, etc.

The sweetmeat-seller, with talks as for the grocer.

The weaver, with talks about kinds of cloth, colours and prices.

The waterman, with talks about water, wells and tanks.

Gardens, markets, fairs, etc. (Group work.)

(c) Toy-making with odds and ends. (Individual work.)

(d) Free play with dolls and toys. (Individual and group work.)

(e) Graded work with the material already specified in correlation with story-telling, nature lessons, number work and oral composition.

3. *Material.* The same as before.

Age: 6 to 7 years

1. *Aim.* The manipulation of tools and the training of the observational powers and the powers of self-expression and imagination.

2. *Exercises.* (a) Illustrative work: building scenes of occupations of people who work for society in the neighbourhood of the child's village, city or town and in the different parts of the province, after stories have been told and lessons given, as already suggested (individual, class and group); persons: the shoemaker, blacksmith, goldsmith, tinker, carpenter, tailor, engine-driver, soldier, policeman, postman, etc.; scenes: buying and selling at shops, transacting business at the post office, arriving at and leaving from a station, etc.

(b) Toy-making with odds and ends. (Individual work.)

(c) Primitive life, primitive dwellings, arms, utensils, ornaments, etc., in India. (Class and individual work.)

(d) Graded work in paper-cutting, paper-modelling, sand and clay-modelling, stencilling and designing in correlation with other subjects. (Class and individual work.)

3. *Material.* As before.

Age: 7 to 8 years

1. *Aim.* To train the child in habits of industry and perseverance.

2. *Exercises.* (a) Building scenes of occupations of people (sailors, pearl-fishers, millers, etc.), who work for the community in far-off lands, with stories and lessons as before. (Individual, group and class work.)

(b) Toy-making requiring greater skill.

(c) Primitive dwellings of other countries.

(d) Illustrating physical features (mountains, rivers, lakes, etc).

(e) Graded work in paper-cutting, paper-modelling, cardboard-modelling, stencilling and designing in correlation with

other subjects, and the promotion of accuracy in general. (Individual and class work.)

3. *Material.* As before.

Age : 8 to 10 years

1. *Aim.* To prepare the pupil for more formal work.

2. *Exercises.* (a) The making of articles for oneself (such as cases for pen and pencil, albums, scrap books, etc.), and articles for the school (such as toys for the younger children, albums for class pictures, etc.).

(b) Depicting scenes of life in Great Britain, etc. (Individual and group work.)

(c) Making mechanical toys. (Individual work.)

(d) Making models of primitive dwellings, old armour, etc. (Class and individual work.)

(e) Illustrative work in connexion with the lessons in history and geography: forts, monuments, sledges, rickshaws, etc. (Individual work.)

(e) Graded work in cardboard-modelling, clay-modelling, stencilling, light woodwork, drawing and designing in correlation with other subjects. (Class and individual work.)

3. *Material.* Wood, cardboard, etc.