

from any suspicion of political bias, and containing names which for business and other reasons would secure the confidence of the community as a whole. This was done. The capital was divided into two classes, preference at 4 per cent., and ordinary at not more than 5 per cent. The former shares were, as was intended and expected, mainly taken up by smaller capitalists; the latter by the richer, the proportions being roughly two-thirds preference, one-third ordinary.

3. *The Government.*—By limiting interest to 5 per cent. the Company could be, and was, registered as an industrial society, thus obtaining the maximum advance on the most favourable terms from the Government. The interest charged is  $3\frac{1}{2}$  per cent., and the amount to be advanced is approximately equivalent to 66 per cent. of the share capital, repayable in 30 years. To save the expense of repeated inspections on behalf of the Government, the intended loan has not been advanced by instalments, but will be drawn *en bloc* on the completion of the first 67 houses. Meanwhile, temporary and satisfactory arrangements have been made with a local bank.

The capital raised by the three above agencies was secured at an average interest of a little under 4 per cent., even if the maximum interest is paid on the ordinary shares. The principle repayable represents not more than would be required under other conditions to be placed to an adequate reserve fund. A local firm of architects was employed, who, before submitting plans, visited several garden cities. The houses were built by contract by local firms, whose work has given entire satisfaction. Every tenant has to take up at least £3 in shares (instalments allowed), and these are liable for the cost of internal repairs.

It will be seen that a considerable percentage of the houses are let at rents as low as 4s. 9d. per week, free of rates. This includes three bedrooms and a fair-sized garden. A great majority of the houses are let at rents not much above this. The houses have been let to show a gross return of a trifle over  $6\frac{1}{2}$  per cent.; out of this the Company has to pay rates, which in Hereford vary between 5s. and 6s. in the pound. At 4s. 9d. it is possible to compound, but not above. These rents are, it is believed, as low as, if not lower than, those charged by any other garden city company. It was necessary to build with great economy as wages are low, the Town Council standard rate of wage for unskilled labour being 19s. per week.

**CIGAR END IN SALMON.**—Dr. Richmond, medical officer of health to the Dartford Rural District Council, has reported three cases of food poisoning, due to tinned salmon, which have occurred at Stone. Upon examination the salmon was found to contain cigar leaves, and one young fellow swallowed the end of a cigar with the salmon, which he subsequently vomited.

## THE TEACHING OF WRITING.

By JAMES KERR, M.D.,

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THE tedious and time-destroying method of communication by the ordinary cursive writing ought to be replaced by some more rapid and elegant form, such as phonography, but so strong is the force of custom and habit that any change is quite improbable. The loss of school time in acquiring the power of writing and the bad writing so often acquired are, however, almost entirely the result of faulty educational methods. What has been said before of the very young child under five years of age is so important that it must be again referred to. In school the infant learns by sight and sound; he is almost passively impressed by the things going on around him. Attempts to ground him in the elements of formal education apparently produce as little effect as water on a duck's back. He may be taught the names of letters, only to forget them in half an hour, but at the same time he may never forget the tone of voice of the teacher, the accents or phrases she uses, or particular points about her behaviour or attire. Subconsciously his character is being formed as far as environment will do this, although the results may not be evident till years later; mere academic teaching, however, is almost a waste of time. The memory of letters is purely a conventional affair, and is made up of a memory of sounds and movements. The sound is the name given by the teacher, whether it be an alphabetic name or a mere phonetic gurgle. The memories of movements are from the articulation efforts in pronouncing this name after hearing it. To these are added movements of the eyes in going over the printed or written letters, and it is important to remember that, however sharp the child's vision may be, the larger the letters the sooner it will learn them, partly from wider movements of the eye muscles and partly from more voluminous impressions from the larger retinal images. How many teachers have observed which is the earlier acquired, whether the child can first point out letters named or name letters pointed out?

In writing, the learning of the letters will come almost spontaneously, at first often, as in mirror writing, reversed either wholly or more generally for particular letters. The essential element in learning writing is the hand and arm movement. The arm movements of the larger and coarser sort from the shoulder are the earliest developed and acquired, and therefore best remembered and least straining in the infant school. Freearm drawing at arm's length, the child standing erect, printing and writing, extensively used in the infant school, could be made to replace entirely the

teaching of writing by laborious methods. The muscular sense of space and form being accurately developed, there is little need for writing on paper till the children have learned to write or print words clearly and easily, and the longer any small writing is delayed during the early years the more successful is the ultimate result likely to be as regards clearness and intelligibility in the good form and shape of letters. The same might be said about reading, if children are gradually accustomed to printing words on their drawings. Beyond its mere mimicry, the average child's capacity in an academic way is nearly always much over-estimated before its seventh birthday. Some years ago it was suggested in my Annual Report that many children would learn to read almost unconsciously if letters and small words were employed in naming the drawings they make on the blackboard, and that at a very early stage each child should be taught to print its own name on its work. The name is learned as a sign or logogram, and even word-blind children will learn to write their names. As far as possible all work in the infant department should be distant work; there should be nothing that requires much bending over of the head, and letters should be learned so perfectly that the child with closed eyes could write any letter, as large as its hand, on the blackboard. The majority of Standard I children cannot do this with their eyes open. The short and as yet undeveloped eye of the young child cannot see near objects clearly without great effort at accommodation. This it will not maintain long, as the immature muscles will give up the effort from readily induced fatigue, and the child, straining its convergence and stooping its head, will bring its eyes nearer the work, and gain a stronger nervous stimulation from the larger although perhaps less clearly focussed image formed on its retina. This is the worst of school habits, and accounts for much of the overstraining and many of the awkward attitudes met with in school. In sewing, in writing and in drawing the majority of children, from habit and not from necessity, bring their heads to less than half the distance at which they ought to work, and suffer from round backs, contracted chests, anæmia, and occasionally eye-strain and myopia. This is the first factor to remember in connection with attitudes in writing, and is the one which occurs most often with poor illumination.

The use of the pen or pencil by young children leads to a particular way of holding it, which throws all the strain on a few muscles. Teachers endeavour in vain to make young children keep both first and second-fingers on the pen, but the first finger is the only one comfortably used, and from overstrain it is habitually bent sharply at the second joints, and efforts are made to correct this by means of xylonite finger-splints (*Finger-*

*halter*) sold in German stationers' shops. Much that has been written about script, about slope of letters, and attitudes in writing requires to be considerably discounted when applied to English script. It has nearly all been produced under the influence of German researches which have to do with a cramped style of writing, employing many long strokes very highly sloped, and whilst the cry for vertical writing must be maintained as against the highly sloped writing (*Schrägschrift*) which was the basis of most of these researches, the arguments do not apply to our English script, in which a slight slope is quite allowable, and if anything preferable on hygiene grounds to the vertical style. The usual position of the blackboard, unsymmetrically placed, sometimes nearly in one corner of the class-room, must be mentioned, as it tends to make the children take up twisted attitudes on their seats.

#### THE ATTITUDE FOR WRITING.

An individual sitting upright is in a position of comparatively unstable equilibrium; he is balanced on the two seat bones (*tubera ischii*), and the centre of gravity is vertically over the line joining them. Equilibrium is only maintained by constant muscular adjustments of the body on the pelvis, and this means much muscular strain and rapid fatigue. If a third point of support comes in, then there is stability and considerable muscular relief. If the child sits back, this third point is afforded by the back-rest; if forwards, it may be the front edge of the seat under the thighs, or the edge of the desk against the chest, or the feet, or the arms. The problem of writing attitudes, then, is to find a posture which will enable the child to write and yet afford such support as to relieve or prevent any considerable muscular fatigue, without assuming attitudes leading to deformity. The chief deformities are lateral spinal curvature, from one-sided support of the body, and anteroposterior curvatures, chiefly from the bad habit of too near working distance of the eyes. The first is to be avoided by correct adjustment of seats and desks; the second by preventing the development of the near-work habit in the infant school, although both are so intimately related that it is impossible to dissociate them in their effects.

Starting from the large number of round backs noticed in a boys' school, Dr. Barbara Tchaykovsky has been making inquiries into the attitudes of children, and, to extend further the field of experience, reports on the attitudes adopted in writing were asked for at a conference of the school doctors. Some thirty-two reports have been carefully collated with Dr. Tchaykovsky's work, and Dr. Christopher Hogarth has made some careful drawings to show the commoner attitudes assumed. All are agreed that the body should be kept square with the desk, the back erect, the feet

planted equally and firmly on the foot-rest and the chest clear of the lower edge of the desk. There is, however, some difference of opinion as to the exact position of the arms.

(a) The left elbow and forearm should lie along the lower border of the desk, the left hand steadying the paper, which should be slightly oblique from left to right. The right arm should be on the desk from the elbow onwards, the pen being comfortably held and free from strain, in a direction nearly parallel with the right forearm; both elbows should point outwards. This appears the least tiring position, and is not strained, whilst at the same time it allows no rotation of the trunk. (Fig. 1.)

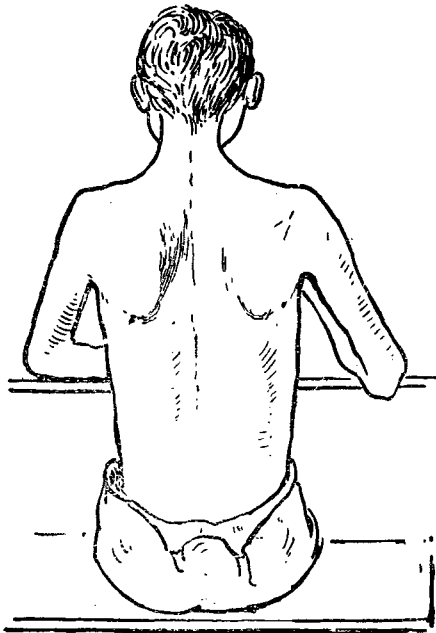


FIG. 1.

POSITION DESCRIBED IN PARAGRAPH (a).

(b) A position with both elbows off the desk is generally shown in the illustrations of children working with various bookholders and other apparatus to prevent near work and keep the head upright. (See Fig. 2.) The position prevents rotation of the trunk, but the lessons would have to be very short, as the skeletal muscles tire easily in maintaining the erect position without the support of the arm on the desk. The wrists will also tire quickly.

(c) An intermediate position is sometimes advocated where the left forearm is along the lower border of the desk, whilst the right is off the desk. This will not avoid curvature of the spine and a little rotation, as the right elbow is much behind the position of the left. (See Fig. 3.)

The position of the writing-paper is of importance. It should not have the lines quite parallel with the desk edge, but be slightly slanted, so that the slope of the writing is nearly at right angles

to the desk edge; this will give a slope of the paper edge to desk edge of not more than 10 deg. The paper will be pushed further off as the writing approaches nearer the bottom of the sheet, so



FIG. 2.

POSITION DESCRIBED IN PARAGRAPH (b).

that the pen is always, in writing, covering the same portion of the desk. The enforcement of a correct attitude, other things being equal, depends on the knowledge and vigilance of the teacher. The sizes of classes make this both difficult and



FIG. 3.

POSITION DESCRIBED IN PARAGRAPH (c).

tiring for the teacher; at the same time there is probably no better indication of the teacher's grip of the children than their positions when writing.

### WRONG ATTITUDES.

These are most marked in the lower standards and towards the end of the day, especially in the non-provided schools. Bad lighting, bad seating, and bad attitudes are all found co-existing. The defective attitude may be roughly classified as sprawling, crouching, oblique or crossed. Sprawling is caused by exaggerated advancement of the left elbow and forearm, encircling the paper with a great deal of weight on the elbow. The forearm lies along the upper edge of the paper, possibly with a view to preventing copying; the whole body leans over to the left, with resulting rotation of the body to the right and curvature of the spine. The boy begins in the attitude sketched in Fig. 4, and drops into more pronounced positions later. The right elbow usually hangs into the lap; the head is far too close to the paper,

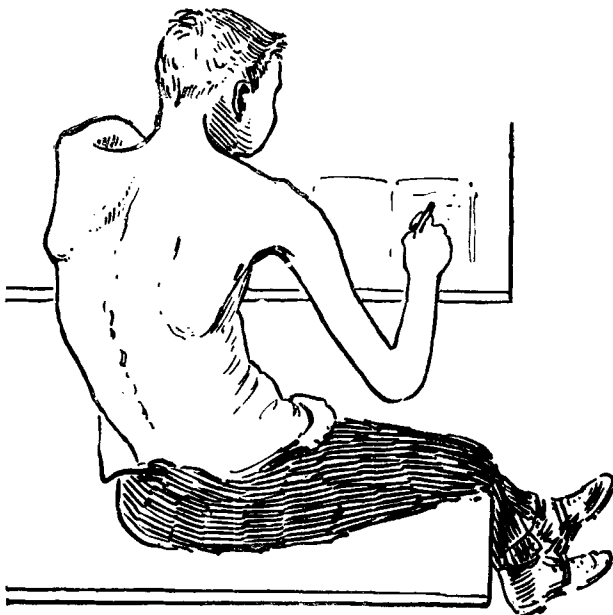


FIG. 4.

bent on the left shoulder or even pillowed on the left arm, resulting in unequal viewing of the writing. The constant considerable alteration of accommodation due to greater distance of the right end of the written line must be fatiguing, and Dr. McHattie suggests that the constantly occurring differences in the visual acuity of the two eyes may be associated with this. The term "crouching" may also be applied to a type of extreme posture produced by bad habit, errors of vision, weariness or laziness. The head is brought close to the paper, the elbows down in the lap, the back rounded, and often the pressure of the desk on the chest interferes with respiratory movement. In the "oblique" attitude there is a marked rotation of the body to the right with the "sprawling" described above: the feet off the foot-rest, the right elbow in the lap, and the head

bent to the left with an oblique view of the writing as in Fig. 5. Sometimes teachers, in setting children to write, actually give them an order to turn half-way to the right. With such instructions the backs remain erect for a few moments,

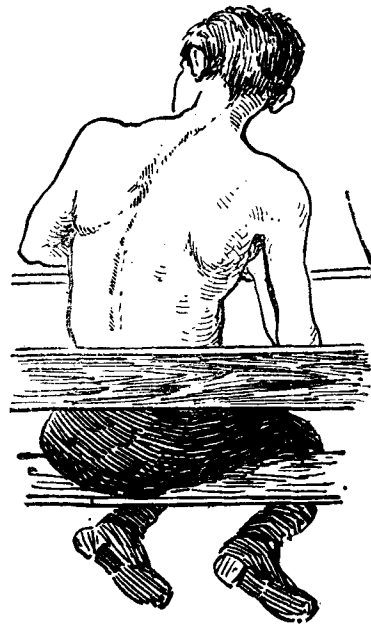


FIG. 5.

and then all kinds of attitudes are taken up, terminating in crouching, twisting of bodies one way and heads another, crossing of legs under the seats, and so on. A commonly noticed position at work is that of the sketch in Fig. 6.



FIG. 6.

With "crossed" attitudes there may be a simple crossing of one leg over the other, the body remaining square with the desk and the body weight shifted to one ischial tuberosity with raising of the opposite hip and shoulder, or the

position of the body on the seat may be oblique with curling of the legs under the seat, a crossing of the feet or resting the feet on the outer or inner margins of the sole respectively in a corner under the seat, the head being supported by the left hand. This is particularly the case where the desk is too small to allow the legs to remain vertical, as when the knees come up against the bookshelf or bottom of the desk.

Dr. Hawkes has set out a grouping of the causes of faulty attitudes, which at the same time suggests the remedies required.

*Educational.*—Want of observation by the teacher.

*Departmental.*—Lighting defective in quantity or direction, natural or artificial. Furniture—seats and desks.

*Physical.*—Defective vision, and bad visual habits. Malnutrition and debility, rickets, overgrowth.

*Educational.*—The teacher throughout school life must aim at converting conscious into automatic good habits. Much of the time of a conscientious teacher is taken up in making children unlearn bad habits picked up at an earlier stage. Although recently there has been much improvement in the infant school, it is there that the near-work habit is acquired, to be painfully unlearned later in school life. Showing how the teacher's influence makes itself evident to the onlooker, Dr. Barbara Tchaykovsky observes that in a small school in Chelsea in two classes there were all sorts of faulty attitudes, and correction was obviously less frequent or stringent compared with the third class, where excellent position was kept throughout her visit, although the teachers were quite unaware of the observations being made. In another school Dr. Woodward notes that the positions are good in the boys' department; in the girls' department the children sit as they please, and little interest is shown in attitudes; in the infants' department positions are nearly as good as in the boys'.

*Departmental: Lighting.*—This most important factor in school premises is still sadly in need of improvement, even adopting the low standard yet accepted and making allowances for the great cost of alterations. Many schools are lighted almost exclusively from the children's backs and often high up. Dr. C. W. Hogarth remarks that in some departments maintenance of the straight (correct) position involves writing in a "blob of darkness"; and Dr. Woodcock notes that infants are often unable to round off their letters. Naturally the children turn round and sit obliquely to get the best illumination possible for their paper. The alternative to eye-strain is spinal rotation and its attendant evils. It is very common to find a row of desks along the window

wall which are always in a condition of half-light, what Dr. W. Hawkes terms "blind seats," with resulting constant stooping and crouching over the desk, and often with pressure on the chest. Many of the windows may be so dirty that there is a great deal of the direct light absorbed by them. The artificial light is rarely satisfactory for all the children. The back seats are often in comparative darkness. The more powerful recent burners tend to remain concentrated towards the middle of the rooms, and even there all kinds of dark shadows are thrown from the arrangement of the lights. During the past year it has been decided that sewing should not be done by artificial light, and this is correct, as it is more tiring than the finest writing, in which there is marked contrast between black ink and white paper.

*Furniture.*—To the desks and seats many ascribe a considerable part in the production of faulty attitudes and the resulting deformities. The writing-desk is usually too narrow from side to side and too shallow from before backwards. The left-hand child in the dual desk is at a disadvantage, being pushed by the encroaching arm of his neighbour, causing a hanging over the left edge of the desk and consequent spinal rotation. The same condition is sometimes noticed in the child at the left end of a Sheffield desk, which should be extended a couple of inches towards the left. Some of the seats are too far back, and where there is a 45-degree slope for reading purposes this is so far off that the children sit on the edge of the seat for reading or do not use the slope at all. There is almost universally a want of co-ordination in the sizes of seats and desks and the heights of children using them. Each desk issued should have two numbers on it, giving the greatest and least height in centimetres of the child for whom it is intended to be used. Desks too large is as common a complaint as desks too small. It should be a comparatively easy task to make the necessary adjustments by exchanges. The bookshelf underneath the desk, in a considerable number of cases, renders it impossible to accommodate the knees in an otherwise satisfactory desk, and an oblique or crossed position results, sometimes even when the feet are placed on the floor. It would be an advantage if all foot-rests could be abolished, but in many desks they have structural uses which make this impossible. In the infants' departments dull or backward children are often retained over the age of seven, and there is a tendency for the seats to be too small. The attitudes of infants during sleep are criticised as uncomfortable and harmful to the freedom of breathing when allowed to sleep with their arms on the desk and the head resting on the arms. It would be preferable to allow them to lie on the floor on rugs, or on a slightly inclined surface, or in a hammock chair. The

provision for sleeping children should be definitely recognized for every infant department.

*Physical Conditions.*—Here the all-prevalent and pernicious school habit of too short a working distance is the most evident trouble. Many of these children have no serious refractive defects, but in cases with diminished visual acuity due to refractive troubles of all varieties there is crouching over the desk, with its harmful results as described above. Even after correcting the visual defect the habit will persist, just as in the normal-sighted children who have learned it. This is the worst of all school habits, and it is in this respect that the vigilance and constant supervision of the teacher are most required.

#### REMEDIES FOR FAULTY ATTITUDES.

During later life there are degrees of deformity, from a mere appearance of general slackness like the Eton slouch to actual curvatures which unfit the individual for many positions in life, and may prevent them attaining certain occupations—as, for instance, that of a teacher. The immediate lines of reform in regard to attitudes in writing lie in—

Constant watchfulness and correction by the teachers.

Improvement of illumination (natural, by altering placing of desks, removal of "blind desks," and more frequent and better cleansing of windows; artificial, by improvement of sources of light and better distribution).

Correction of the usual too short eye-work distance and of any eye defects.

Adaptation of seats and desks to the children, certain sizes for certain children only, and a few extra sizes for each school; alteration of interfering bookshelves and, where possible, abolition of foot-rails; wider desks.

Shorter writing lessons, with frequent breaks and a short setting-up drill by placing hands behind the back.

**THE DISTRIBUTION OF MILK.**—Mr. Hailwood (Manchester), in his presidential address on September 14th at the annual conference at Chester of the National Federation of Dairymen and Cowkeepers' Associations, spoke of the waste of time and labour in the distribution of milk, especially in the winter months. During this period, he said, milk might be delivered once a day without any inconvenience to customers or any deterioration in quality, provided that it was properly cooled and cared for, and all the milk vessels were thoroughly cleaned and sweetened. If this system of one delivery were adopted it would mean an immense saving to the small farmer. The time which he was now compelled to give to delivering the afternoon's milk could be devoted to grooming his cattle and sweeping away all those unsightly accumulations of filth which were often too prevalent about farmsteads. The system was in actual operation not only in America, but in some parts of our own country.

## THE PROVISION OF SCHOOL MEALS AS AN EDUCATIONAL INFLUENCE.

*From the Report of the Board of Education on the Working of the Education (Provision of Meals) Act, 1906, up to March 31st, 1909.*

THE advantages of treating the provision of meals as a part of the educational system and of connecting it with the training in conduct which every public elementary school tries to give are obvious. To many of the poorest children a well-ordered meal, with its accompaniments of clean table-cloths, clean crockery, and seemliness of behaviour, is almost unknown; and it is hoped, with some confidence, that the object-lessons supplied by the meals which have been provided either by private benevolence or by money derived from the rates will have more than a transitory effect upon the behaviour of the children who have received them. There are, it is true, some conspicuous exceptions, due rather to bad organization than to parsimony, in which the arrangements for meals are wholly unsatisfactory. Some Local Education Authorities have stated that they made no regulations with regard to behaviour; a few merely distributed food, which was eaten in the street or the school playgrounds—an arrangement which can hardly be expected to have a civilizing effect, or to yield satisfactory results from a medical point of view. In other cases the number of supervisors or attendants is insufficient: successive batches of children use the same unwashed plates and spoons, and there are not enough mugs to go round, with the result that the food is consumed in a dirty, untidy, and scrambling manner. The Board will, of course, do everything in their power to secure improvement in these cases. In a large number of cases, however, it is clear that authorities have, by providing clean table-cloths once a week, by methodical service, by prescribing the saying or singing of grace, and by requiring the children to come with washed hands and faces and to sit quietly at table, sought to secure some especial training in deportment.

The result, so far as the information supplied to the Board extends, has been distinctly satisfactory. The information is for the most part based upon the reports of teachers, though some of them, not unnaturally, seem rather to resent the suggestion that the ordinary training given in school hours is insufficient or that it needs to be supplemented. Doubtless the discipline of school is futile and inadequate if it has no effect on the conduct of the children outside; but the additional and wholly different opportunity of training which is provided by the dining-room may be appreciated without any slur being cast upon the training given in the class-room. Training given in the dining-room, which follows the same lines as the training which