

## FURTHER PARTICULARS OF HYGIENIC SCHOOL FURNITURE, ETC., FIRST SEEN IN CONTINENTAL SCHOOLS.

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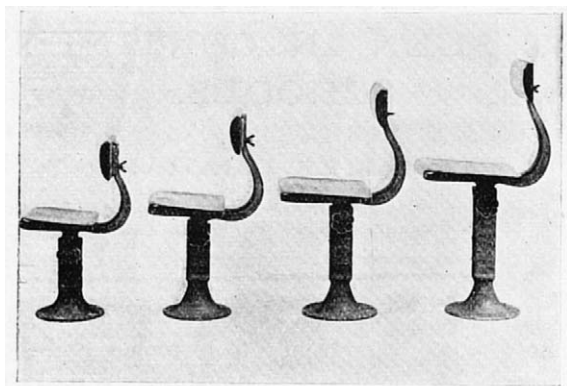
**O**BSERVATION has shown that the difference in heights of children of the same age may vary from 6 to 11 inches, and these differences in height and growth can only be accommodated by desks and seats the height of which may be easily changed; that is to say, desks and seats should be adjustable to the pupils' bodies, and not the bodies to the desks and seats. Investigations have shown that being seated hour after hour at a fixed desk, even where, in a rough-and-ready fashion, they have been adapted to the size of the pupils, adversely affects boys and girls—and particularly girls. This is most harmful in the case of young children, but the inconvenience is very pronounced in the case of young men and women in attendance at technical and evening classes, who have to squeeze themselves into the ordinary fixed desk provided for the older pupils of the elementary or even of the secondary school.

As regards the *desk* problem, the experiments in connection with the hygienic Swiss desks have produced a series of desks now regarded as satisfactory. Each desk can be readily adjusted

- (a) To give the right height for the length of the pupil's body;
- (b) To give the natural slope required for drawing, reading, and writing, and
- (c) To enable pupils alternately to work sitting and standing, with the desk top quite flat, or at a slight slope, at the required height.

The facility and range of adjustment, and the accompanying rigidity at all times, are striking features as regards the desks, and the movement of the desks is generally held to be both satisfactory and simple.

As regards the *seat* problem, experiments were in progress in July last with a view to the production of a satisfactory seat, and the result of these is submitted for your inspection and criticism to-day. The seat produced is shown in four standard sizes, the heights and range of adjustment of which are as follows:—



	No. 1.	No. 2.	No. 3.	No. 4.	
	Height.		From Seat to Top of Backrail.		Size of Seat.
No. 1 ...	12" rising to	16" ...	9½" rising to	12" ...	11½ × 11
" 2 ...	14" "	18" ...	11" "	13½" ...	" "
" 3 ...	16" "	20" ...	12" "	14½" ...	13½ × 12
" 4 ...	18" "	22" ...	13" "	15½" ...	13½ × 13

(In both seat and backrail, intermediate heights to quarter inches may be obtained.)

Special attention has been given to the seat itself. It is of the chair pattern, of good size, the concavity and tilt being such that circulation is not impeded and good posture is obtained. The seats vary in width and depth, according to the size of the pupil, the inner edge being arranged to come within 1½ inches of the bend of the knee. The back rail is made so that the lower part of the body of the pupil projects beyond the shoulder line, is slightly concave, and gives support where it is most needed, viz., just under the shoulder blades. The curved iron support to the back rest permits of considerable freedom for the lower part of the body, and is also adapted for the better disposition of clothing in the case of females.

The seat support is of the pedestal type, with a circular base which fits close to the floor and thus prevents any accumulation of dust. It is

much easier for the caretaker to sweep with standards of this description.

Four heights of standards, ranging from 12 inches to 22 inches, have been made. These should ordinarily be sufficient to meet all requirements of elementary, secondary, and technical schools. The back rails in each case are also adjustable as regards height.



The method of adjustment is quite simple; everything required is fixed to the seat or back rail, loose keys being dispensed with. It may be of interest if detailed particulars of the adjustments of both desk and seat which were found necessary to meet the needs of a group of pupils are given.

The ages of the above children are 11, 12, and 13, respectively, from left to right, the boy being shorter than either girl.



No. 3.



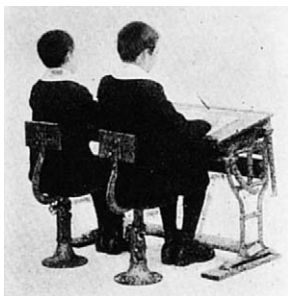
No. 4.

No. 3 gives the taller girl seated on No. 2 seat—

Height of seat	...	...	16 inches.
From floor to top of backrail	...	...	28 „

No. 4 gives the boy seated on No. 2 seat—

Height of seat	...	...	15½ inches.
From floor to backrail	...	...	27 „



No. 5.

No. 5. Two boys, each 12 years of age, seated on separate adjustable seats at an adjustable dual desk—

Height of desk, 24½ inches; height of seat, 15½ inches.

The desk in this case is too high for both boys. The near boy would



No. 6.



No. 7.

require the desk about half an inch lower, while the other boy should have

it at least  $1\frac{1}{2}$  inches lower still, viz., at a height of  $22\frac{1}{2}$  inches. This shows the necessity, when dual desks are in use, of carefully selecting boys and girls in pairs as nearly equal in stature as may be possible. This should not be a very difficult matter, but it emphasises the need for the adoption of single desks, if satisfactory hygienic conditions are to obtain, *e.g.*, the questions of eyesight and hearing of two children of the same height should and must also be considered.

No. 6. A pupil teacher, 17 years of age, on adjustable seat at a single adjustable desk; desk set for writing.

Height of desk	...	...	...	$27\frac{1}{2}$ inches.
Floor to top of backrail	...	...	...	31 "

No. 7. Same as No. 6, but with desk-top adjusted to give the required slope for drawing and sketching.



No. 8.

No. 8. Same as Nos. 6 and 7, but working standing. Height of desk 39 inches.

No. 9. Artizan, 22 years of age, about 5 feet 10 inches in height, seated on adjustable seat at single adjustable desk, engaged in writing.

Height of seat	...	...	...	$18\frac{1}{2}$ inches.
" desk	...	...	...	$30\frac{1}{2}$ "
Floor to top of backrail	...	...	...	34 "

(Note the removable sliding inkwell or colourwash block on desk top.)

Another artizan, aged 24 years, was tried in a similar position; his height was 5 feet 8 inches, and the necessary measurements were as follows:—

Height of seat	...	...	...	$18\frac{1}{2}$ inches.
" desk	...	...	...	$27\frac{1}{2}$ "
Floor to top of backrail	...	...	...	$31\frac{1}{2}$ "

No. 10. Same as No. 9, but with desk top sloped for drawing, sketching, etc.

Mr. Marples, the director of the Huddersfield School of Art, when reporting recently upon the equipment of the evening schools of the West Riding for art work, wrote as follows:

"The desks being those used by the elementary school children are usually too small for the larger boys attending the evening schools. It is difficult to suggest a remedy for this, as it is impossible to have two sets of desks in one school; the type of desk used in the elementary schools of Geneva, the height of which can be regulated at will, would completely meet the case and is worthy of consideration in the future equipment of any school."

A class-room furnished with adjustable furniture of the above type, not only meets hygienic needs, but, in addition, its value as accommodation is more than doubled because thereby it suitably meets the requirements



No. 9.



No. 10.

of a variety of subjects and pupils. Hygienic adjustable furniture, from the point of view of the health, eyesight, etc., of the pupils, is comparatively of as great importance as buildings, and should receive equal attention; yet fine buildings, carefully planned, are too often spoiled by being provided with the cheapest furniture obtainable, generally the opposite of hygienic.

Lockers for containing books, instruments, etc., are incorporated in many desks. The incorporation of a locker is an impossibility in the case of a properly adjustable hygienic desk, and the advisability of its addition to other fixed desks is very questionable. The space between the elbow and the knee (when the pupil is properly seated, with his leg vertical from the floor to the knee, and quite horizontal from the knee to the seat,

as it should be) should allow of at least a three-inch play below, between the knees and the desk, to meet minimum and maximum height of knees, and about the same amount of play is required above for lowering and raising the top of the desk to suit the minimum and maximum heights of elbows from the floor. No child or youth, when properly seated, has a space of six inches between the knee and the elbow, the minimum space is one inch and three-quarters. Only the other day, however, the headmistress of a girls' secondary school insisted on having desks with lockers six and a half inches deep, in order that the books might stand on their ends!

Lockers should be separately arranged, in cupboard fashion, alongside one of the walls of the class-room. They could thus be readily inspected at any time, and pupils would avoid having an accumulation of dust-soiled books, and sometimes rancid sweets, continually under their noses.

The movements of the above hygienic desk and seat are quite simple and free from danger; the use of a key, a screw, or of a pinion has been avoided, and with them the liability to accidents to the hands of the pupils.

The desks and seats have passed beyond the experimental stage, and are now being tested by various educational authorities. The following is a list of schools which have class-rooms furnished with the adjustable desks:

Gresham School, Holt, Norfolk . . . .	Single desk and seat combined.
Sowerby Bridge Technical Instruction Committee . . . . .	Technical single desks—single desks—all wood—no seat, ordinary chair with indiarubber shields on feet.
Doncaster Educational Authority . . . .	ditto
Wath-on-Dearne Mechanics Institute . . . . .	ditto
Harrogate Technical School . . . . .	ditto
Normanton Technical School . . . . .	Technical single desks.
Glasgow School Board . . . . .	Technical single desks—elementary dual desks.
High and Low Bishopside School Board, Pateley Bridge . . . . .	Elementary dual desks.
Hebden Bridge, U. D. School Board . . . . .	ditto
A school in Sydney, N.S.W., and certain government schools in Malta have recently been furnished with the adjustable desks.	