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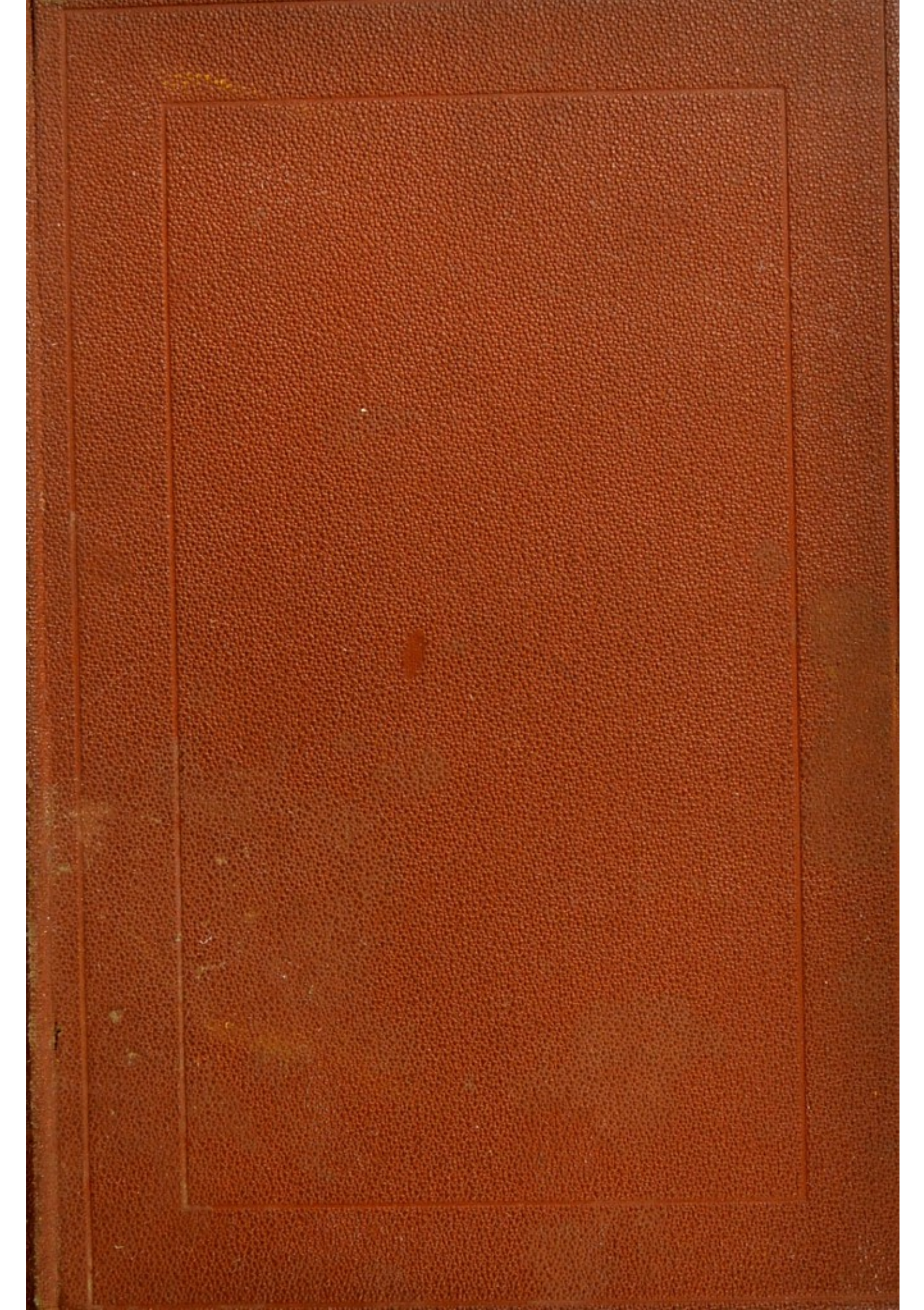
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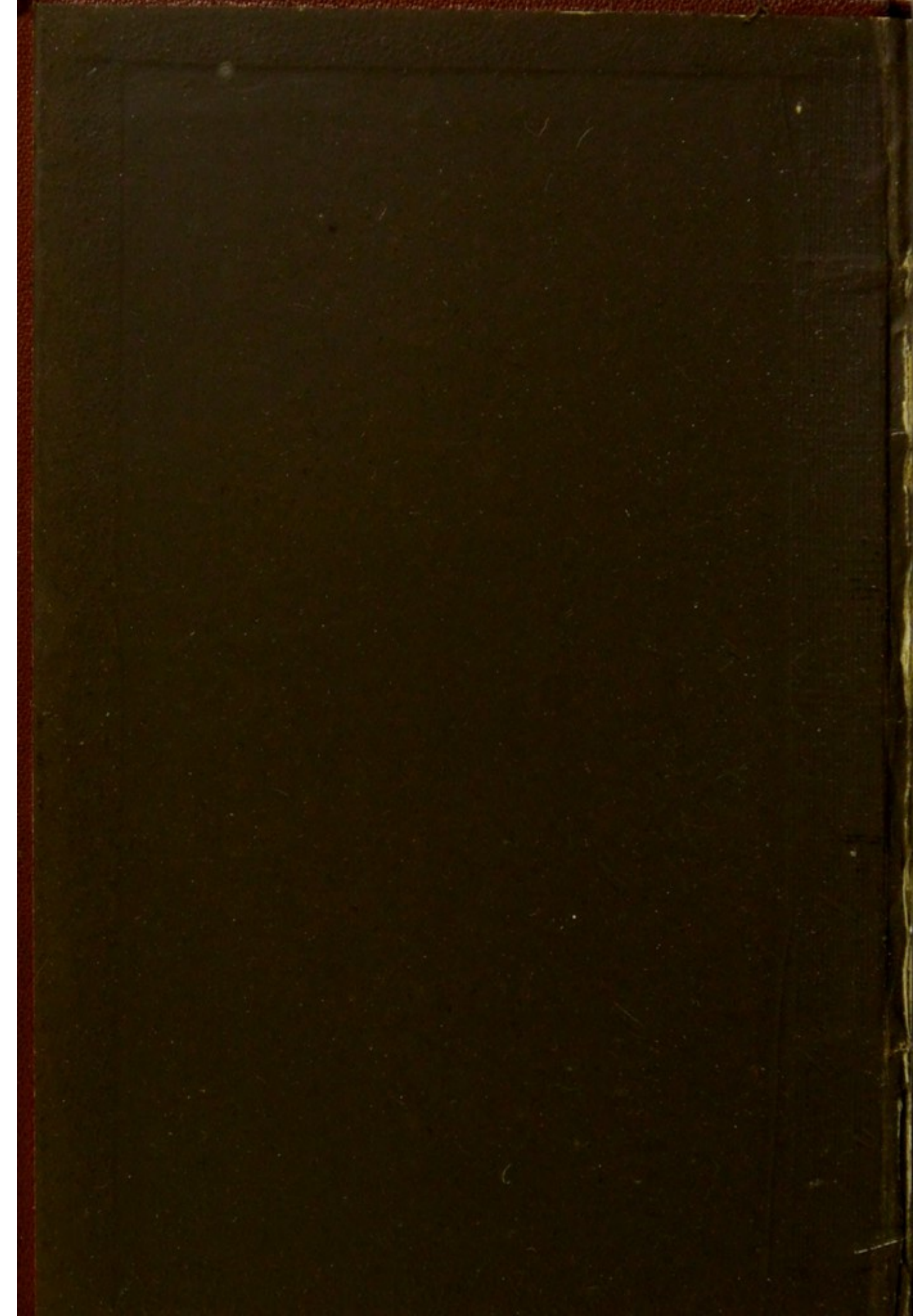
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HEALTH AT SCHOOL.

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HEALTH AT SCHOOL

CONSIDERED IN ITS

Mental, Moral, and Physical Aspects.

BY

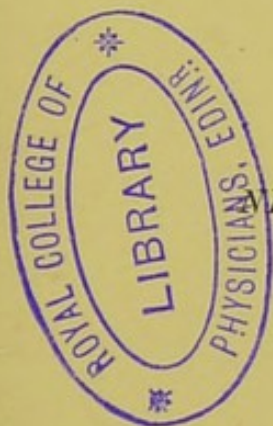
CLEMENT DUKES, M.D. LOND.,

MEMBER OF THE ROYAL COLLEGE OF PHYSICIANS OF LONDON ;

PHYSICIAN TO RUGBY SCHOOL ;

SENIOR PHYSICIAN TO THE HOSPITAL OF ST. CROSS, RUGBY ;

HOWARD MEDALLIST OF THE STATISTICAL SOCIETY OF LONDON.



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"LET MEN KNOW THAT THEY ARE MEN CREATED BY GOD,
RESPONSIBLE TO GOD, WHO WORK IN ANY MEANEST MOMENT OF
TIME WHAT WILL LAST THROUGH ETERNITY."—*Carlyle*.

To the Memory
OF
THOMAS ARNOLD,
OF RUGBY.

THE BENEFACTOR OF SCHOOLS AND SCHOLARS.



P R E F A C E .

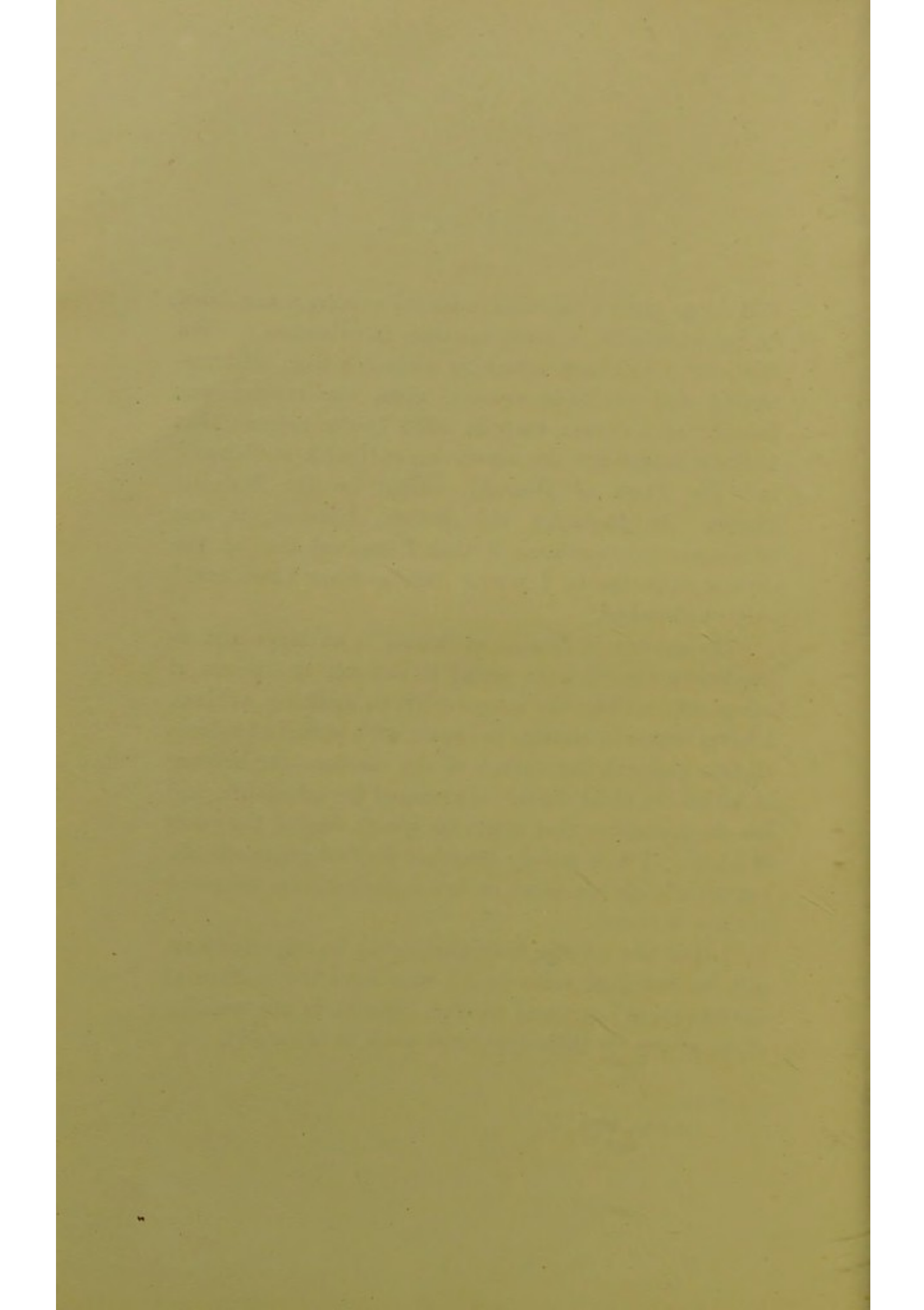
FOR many years I had contemplated writing a text-book on School Health, as none was then in existence. With this view I had been collecting materials from all trustworthy and available sources, when the resolve was brought to a climax early in 1882 by the request that I should contribute the article on "Health at School" to "The Book of Health," edited by Dr. Malcolm Morris. In preparing this article, however, it was necessary so to condense it that I resolved that, at the earliest opportunity, I would develop what there could only be sketched.

The subject of Health at School is so large and so important, that I have found it difficult to discuss it adequately within the compass of an ordinary volume. I have, however, striven to depict with sufficient fulness all that concerns the welfare of the scholar—the manner in which the child should be prepared for school-life, and the circumstances that affect his health during the years at school. I have mainly described the first-grade schools, but all schools are more or less included from the point of view of health.

I trust the volume, notwithstanding its imperfections, may be found of value to all who have the welfare of our schools at heart and take an interest in the training of the young for their appointed work in the world.

RUGBY,

October, 1886.



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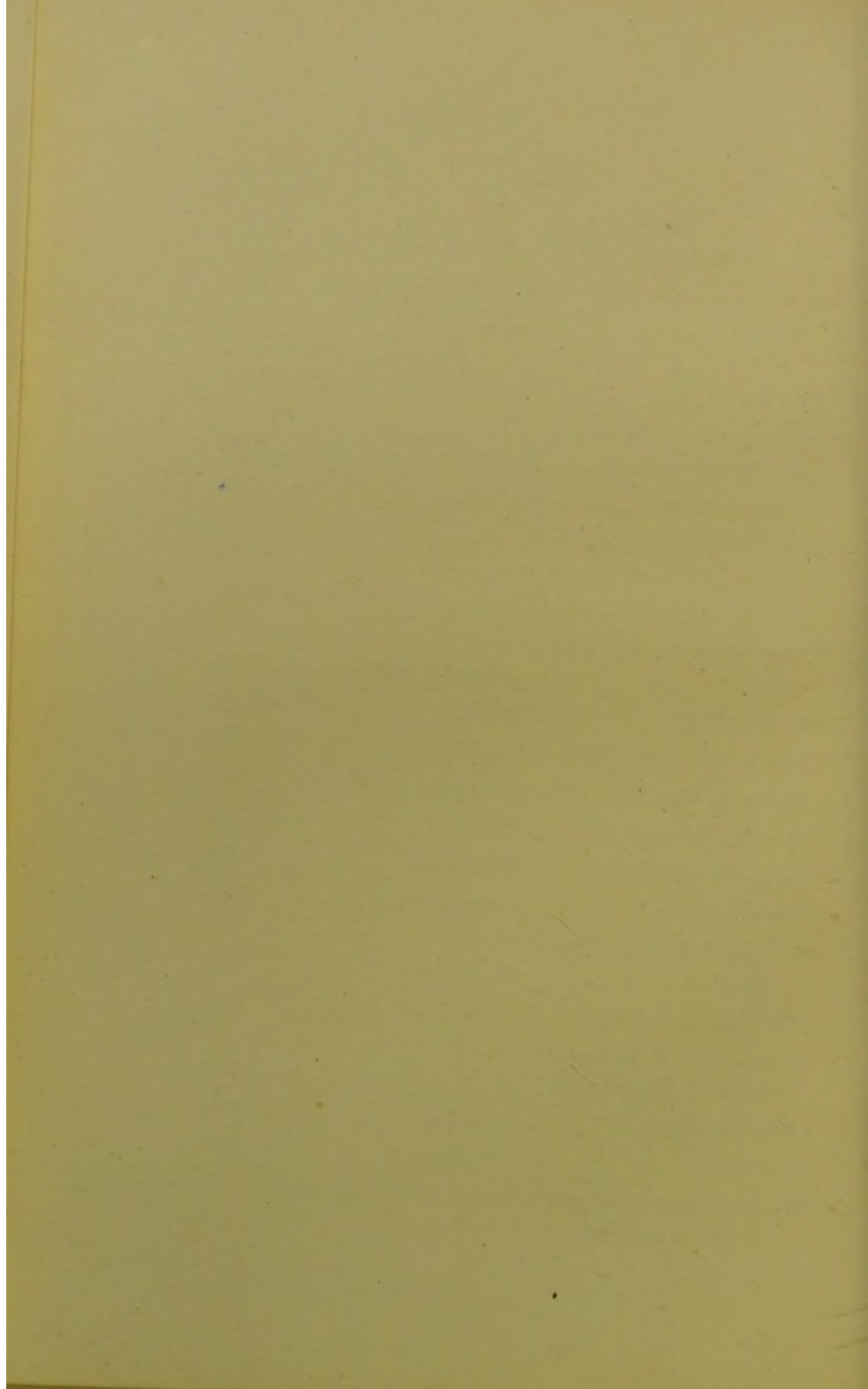
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LIST OF AUTHORS

TO WHOM REFERENCE IS MADE.

TITLE.	AUTHOR.	DATE.
"Practical Hygiene" . . .	Parkes and De Chaumont	1883
"School Life in its Influence on Sight and Figure" . . .	Liebreich	1878
"Healthy Schools" . . .	C. Paget	1884
"International Health Exhi- bition Literature" . . . .	. . . .	1884
"Our Public Schools" . . .	<i>New Quarterly</i> . . .	1878-80
"House Boarders and Day Boys"	<i>Contemporary Review</i> . .	1884
"Book of Health" . . .	Morris	1883
"Prisons and Lazarettos" . .	Howard	1777
"Manual of Diet" . . .	Chambers	1876
"Dwelling Houses" . . .	Corfield	1880
"Life of Rowland Hill . . .	Birkbeck Hill	1883
"School Hygiene" . . .	Farquharson	1885
"A Schoolmaster's Retro- spect"	M. C. Hime	1885
"The Practice of Education" . . . .	. . . .	1883
"General Aims of the Teacher and Form Management" . . . .	. . . .	1883
"Form Discipline" . . .	Sidgwick	1886
"Our Homes"	Murphy	1884
Numerous Papers in Periodicals and in the Proceedings of various Societies.		



HEALTH AT SCHOOL.



I.

INTRODUCTION.

LIKE many accepted truths, the unity of man's nature, and the consequent intimate relation between his physical condition and his intellectual and moral efficiency, had long endured the fate of lying bed-ridden, as Coleridge expresses it, in "the dormitory of the soul, side by side with the most exploded errors"—as little operative as though it formed a member of the latter class.

This truth, however, is now being rescued from such companionship, and attempts are at last being made in various directions to render it practically vital. It will be admitted that at no stage is it more imperative to give effective recognition to it than during the period when both the physical frame is in process of natural development and the mental powers are at the same time, by every method known to able and experienced teachers, being brought into active play and power. A false step here—a want of concurrent development between the mind and the physical basis with which it is connected—may seriously affect the whole of the future life, and the efficiency of the boy as a worker in the world. It is accordingly a feature of great encouragement to those of us who have to direct the care of health, that, following the examples set by recent masters and

teachers of sound sense and knowledge of human nature, the teachers of the present day are generally willing and eager to receive and act upon the teachings of sanitary science, knowing that *their* work is aided and improved by the work which that science takes in charge. Education happily has ceased (or, at all events, is ceasing) to be the mere cramming of facts into pupils' minds, to the consequent over-development of memory and the neglect of the active powers of mind; and it is now recognised that it must not simply store brains, but educe faculties, and, simultaneously, that the physical powers and functions require also a genuine education of their own.

How far this encouraging change is due to the enlarged study of natural science, now so prevalent in our schools, and the tone of thought and observation which it produces, it is not within my province to inquire. The introduction of that study has, no doubt, borne its share in the change; while the principles with which it has made parents, boys, and masters familiar, will render easier their perception of the principles of sanitary science, and increase their ability to apply them.

The time, therefore, seems to be ripe for some adequate and simple guide to the application of the principles of hygiene to school life; and my object in the following pages is, consequently, not simply to describe the general principles of health, but to treat of them in their relation to the circumstances of life at school, and, as far as possible, to lay down precise and clear rules by which, to an adequate extent, the masters and the boys themselves may be readily guided.

I shall speak largely of the scheme that should be adopted in "public schools," with respect not merely to the individual health, but also to the entire surroundings of the boy: his play, his time, amount and mode of work; the sanitary conditions requisite in the school-room, the

study, and the boarding-house ; his meals ; and his general course of life while under school control ; together with the relations, in respect to health, between the life at home and at school.

It is obvious, however, that my remarks will equally apply, allowance being made for purely local arrangements, to "private schools," whether for boys or girls.

The relation between home and school, in respect to health, is of the most intimate character ; for the best supervision at school can only work upon the raw material, so to speak, which the home supplies.

The most elaborate sanitary appliances at school, and the most carefully-constructed scheme of life, cannot rebuild the imperfect constitution—so frequently brought to school by the boy—produced or fostered by foolish indulgence, by sanitary defects, and by neglect of the rules of health, at home.

It is to be remembered that in some of our best schools—not always the most expensive ones—boys are *already* better housed as regards sanitary arrangements, more appropriately fed, and more carefully looked after, than they are at the homes from which they come ; while other schools, which, from their high social position, their wealth, and the costliness of the education they afford, should lead the van in all necessary improvements, furnish almost typical examples of the faults they should avoid.

I, therefore, indulge the hope that such methods and rules laid down hereafter as may be applicable to home life (for, though here regarded in relation to school, they necessarily possess the widest range) will gradually be adopted, until the boys furnished to our schools shall be, as far as healthy conditions and personal parental attention can secure it, strong, manly fellows, who shall complete that happy transformation of our schools

throughout Great Britain which for years past has been continuously taking place.

I am also hopeful that this result will be aided by the inculcation upon boys of simple personal rules of health, which I shall deal with later on ; not only because their intelligent concurrence in some of the methods adopted to secure the fullest health to them is needed, but also that they, in their future capacity as parents and teachers themselves, may intelligently and more zealously devote themselves to the work of providing and maintaining, wherever their influence extends, that sound body in which they are to develop a sound mind.

I shall conclude with a few remarks upon the proper training of girls during their school life : a most important subject, looking to their destiny as the mothers of the future, and the need of their transmitting a hardy and healthy race. Unfortunately, this subject is not only too often overlooked, so that the physical education of girls is wholly neglected, but some of the prevailing methods of female education—among which I would specify the excessive competition in examinations which is now so rife among girls—are absolutely fatal to a healthy girlhood.

I speak briefly upon the mental and moral considerations which enter into all systems of hygiene, and which are inseparable from them. The teaching at home in respect of self-reliance, patience, purity, truth, and endurance, followed by the vigilant development of these virtues in the little world of school, while ennobling the whole nature, aid essentially also in securing that simple strength and vigour of bodily frame which will more and more fit it to become the worthy companion and servant to the soul.

II.

SCHOOL HEALTH.

THE character of a nation depends upon the completeness of the mental and moral training of its young. The vigour and enterprise of a nation depend further on the health and physical training of the young during their years of growth and development. There is, therefore, no more important question for any country to consider than the adequate education and health of its offspring of both sexes. This is true for all classes, but especially so for those who are trained at our first-grade schools, and who become the leaders of this country in all its diverse pursuits.

Education is only *second* in vital importance to Health ; and it is obvious that every teacher who has the education of the young at heart should strive to render the growth and vigour of the pupil as perfect as possible, both mental and bodily. If parents and teachers thought more of sound, healthy *bodies*, and less of encyclopædic *brains*, we should have stronger intellects, finer characters, and less vice. What is the value of education, of position, or of wealth, without that first requisite for their enjoyment—Health ?

In writing on education, Herbert Spencer said, "The first requisite to success in life is to be a good animal ; and to be a nation of good animals is the first condition to national prosperity."

To ensure Health at School all the conditions affecting the pupils should be so regulated and controlled

as to produce, following a maxim of some political economists, the "greatest health of the greatest number." For while an individual pupil may live under obviously unhealthy conditions, and not apparently suffer, yet if a number are congregated together under similar conditions, illness will immediately arise. It is, therefore, manifestly to the advantage of the individual pupil that the arrangements should be such as to secure the health of the number; for a number can only remain healthy when their surrounding conditions are in the highest state of efficiency.

Under healthy conditions alone can the greatest amount of work be obtained from, and the most favourable chances for growth and development be ensured to, the individual during the period of adolescence. Yet parents and teachers often think too much of mental, and too little of physical, education in all its branches; whereas school should be *the* place of all others for developing a strong constitution, and even eradicating any hereditary tendency to disease, for it is during the school years, while growth and development are in full force, that this must be mainly achieved. Without such strength of constitution brain power is of comparatively little avail for contact with the world. This is true as a rule, though there are many well-known instances where the keenest intellect resides in the feeblest body, doubtless cramping its power, and making the owner wish that it were not imprisoned in such a poor tenement, and causing the world to wonder what the intellect would have produced had the bodily vigour been robust.

School health can only exist under such a mode of life as shall tend to produce a sound mind in a sound body, and not a well-crammed head on a stunted body. I shall, consequently, have to speak of the pupils' mental and moral training in considering school health; for the

health of the body is influenced to a great extent by the mental and moral education of the pupil, and no amount of health can exist without the harmonious culture of the mental, moral, and physical conditions of the pupil.

That very large schools—especially under the public-school system—are a feature of English school life is beyond question. That this is the best system is, I think, beyond a doubt. But while I advocate these large public schools (continually on the increase), I am convinced that they should be split up into various boarding-houses or sections, as each can then be better managed; and if infectious illness should arise it is less likely to become epidemic than if all, or most, of the pupils are congregated in one house.

These boarding-houses should contain neither a large nor a small number of inmates: the most manageable numbers range from thirty-five to fifty. A less number than the minimum I have specified is unlikely to induce a first-rate master to undertake the responsibility of a house, or, having undertaken it, to retain it.

III.

THE SELECTION OF A SUITABLE SCHOOL.

THE excellence of a school should be judged, not by the honours gained by the first few boys, but by the character of the training which the *average* boy receives. The boys who gain the honours could probably educate themselves; the quality of the great majority of the boys furnish the test of the effectiveness of the school. Yet in many schools even the bright boys are only allowed to do their best, and little is obtained from them by efforts other than their own; while the dull ones are left hopelessly to themselves.

The school, again, which organises and patronises its eleven at cricket, its fifteen at football, and its eight on the river, and neglects or does *not* organise the recreation and exercise of the remainder, fails in its duty to the boys even more than if it neglected their school work. For more real education, for good or evil, takes place out of school than during lessons.

Before sending a child from home, parents should, therefore, be very careful in their selection of a suitable school. This question involves many points, which require much consideration: thus, there is not only the *choice of the school* itself, but also the *choice of the head- and house-master*; and even more earnestly demanding serious deliberation is the *sanitary state of the house* in which the boy or girl is to reside for eight months in

every year, during seven to ten years, and at the most critical time of life. Yet this inquiry rarely receives any attention at all from the parent.

CHOICE OF SCHOOL.

Many points should enter into the parent's consideration of a question so important; and if I were to lay special stress anywhere, it would be on the choice of the boy's *first* school, for not only his health but his character often depends on this step. Yet the parent frequently deems this school of no importance, and thinks only of the public school that is to follow. It is an indisputable fact that all things, whether mental, moral, or physical, grow best in the soil most suited to them. But parents and masters must remember that, however suitable (to pursue the analogy) the soil of the school may be for a given boy, weeds will grow there also. And it is the duty of the master so to be on his guard that these moral weeds—which vary from term to term, and from year to year—may not only be eradicated the moment they *show* themselves *above* the ground, but also that they should be *sought* for *beneath* the soil. Remember that in a school of good soil, the boy whose nature is that of the *oak* may thrive in spite of the weeds; though even such a boy, in a school of bad moral soil, will develop into a pliable *willow*, without any sturdiness of character, and become a mean, cringing creature, depending on others instead of on himself.

Moreover, in the choice of a school for his son, a parent should not deem it a sufficient reason for his selection, that "I was there, and my father before me, and my grandfather," forgetting that all institutions

change as time goes on, and that there are other reasons besides *ancestry* in schools which should determine the choice. A great wrong may be done to a boy, and his whole life blighted, by this initial mistake.

Healthy
Situation
of School.

And first, I think, the boy himself should be considered as regards his *health*—whether the school be rightly situated sanitarily—for often, in consequence of a prejudicial local situation, the boy, instead of developing, through healthy circumstances, during the years of active growth, into a vigorous man, may become permanently deteriorated. There may be developed, or fostered, an hereditary weakness in his constitution which, under more favourable conditions, might have been checked, and perhaps even eradicated.

Thus, a boy with a *rheumatic* constitution should on no account be sent to a school situated on clay, and surrounded by a humid atmosphere, where perhaps, as I have known, one boy in every thirty suffers from rheumatism during his residence. A boy from a *consumptive* stock should not be placed at a damp, low-lying school, however famous in name and character, and however many ancestors may have honoured it. A boy with a *feeble circulation*, showing chilblains on hands and feet on the slightest cause, should not be placed at school in a cold, bleak situation during his years of growth; his residence should be high and dry, on gravel, and with a climate as genial as can be found. A boy with a *neuralgic* predisposition should not be sent to a bleak, windy, exposed place for his education, or he will be always suffering from neuralgia in the head, face, or ears. A boy with hereditary predisposition to *kidney disease* might be saved from its development by being educated only in the warmest and driest place, and one least exposed to the cold winds of spring. A boy from India, espe-

cially if he have suffered from malaria, requires a dry and warm place during his growing years, and should only enter his school at the most favourable time of the year for fine and warm weather.

The *best situation* for a boarding-school is the top of a hill, facing south, and having the soil of gravel, sand, or chalk ; and if the school can be so placed that it is protected from the north and east by trees, especially pine trees, so much the better as a health resort for all boys during their growing years. Such a situation for a school is of incalculable value to every boy, though chiefly to the delicate ones.

The *worst situations* for schools are those in close proximity to the bed of a river ; those on a low-lying clay soil ; and those which, although high and apparently dry, and having a good soil, such as sand, yet stand upon a sub-soil of clay. The soil of all such situations requires thorough superficial and deep draining if any degree whatever of health is to be secured ; but it is most unsuitable for the residence of the young during their growing years. It is right, however, to add that proper drainage of such soils has diminished the death-rate of wasting disease of the lungs alone by about 50 per cent. I need not add that a *town*, or *city*, is not a suitable situation for a boarding-school. For a *day-school* a town or city may be, and often is, the most desirable site—nay more, the only one feasible.

It is scarcely possible to say too much about the healthy up-bringing of children, especially those who are tainted with *some* hereditary defect in health ; for on this parental care and forethought, even in small matters, much of the health and happiness of us all depend. If a child from a *consumptive* stock, for instance, be placed during his years of growth and education in a good dry country air, away from the smoke of a town, and at a

distance from the bed of a river, living in a sunny aspect, with sufficient cubic space indoors, and be provided with proper clothing, and plain food with plenty of fat, in all probability he will develop a sound constitution instead of a faulty one.

Again, a child who has *gouty* parents needs not only a dry atmosphere and sunlight, but regular exercise, and the studious avoidance of all kinds of alcohol, and of pastry-cooks' delicacies, so that his digestive organs may be in the highest state of efficiency to digest plain wholesome food. He should also be specially encouraged to eat slowly and masticate effectually.

Further, where *insanity*, or even an excitable nervous system, which is often exemplified in hysteria only, is known to have occurred in members of the family, the child needs educating where he can be out of doors most of his time on fine days, so as to produce the highest state of health and vigour of constitution; for in this vigour the brain itself largely participates. Such a child should not be allowed to work for any examination until his brain is mature in its growth. Above all, such a boy should be taught that immorality in any form is especially detrimental to his brain.

It is, however, still the custom, unfortunately for those children who inherit some special constitution, to regard them as unhealthy, and, if they do not thrive well, to speak of their hereditary constitution as the reason why they do not do so. Whereas, every effort should be made on behalf of these imperfect constitutions to combat them, and endeavour, by a healthy situation, appropriate feeding, regular exercise, and carefully regulated work, to produce sound health and vigour during the only years when it can be obtained—those of growth and development. Yet, at present, this is scarcely recognised; and little care is taken by parents to select

the most suitable school for such children—to their permanent loss.

The next question to consider is the *capability* of the pupil, so that he may be educated most thoroughly. It is unwise to send a boy who has no taste for, and consequently cannot master, classics to a purely classical school. Such a position frets a boy, and may make him miserable and ill, as he finds that he is losing caste at school ; and this result will be aggravated by the consciousness that he has ability which, in other subjects—mathematics or science—would secure him distinction. This injudicious action, too, is bad from a national point of view, as it devotes capacities to purposes which they were not fitted to subserve. I do not wish to imply that a pupil who has no taste for languages should on that account be exempt from the trouble of learning them. Far from it. I would have every boy educated thoroughly all round, and I would try to encourage a taste and a liking where none, simply often through long latency, appear to exist. But what I mean is this : in a classical school, a boy who is a good classic is supreme ; while a boy who is not a classic (and whom no forcing can convert into one), although he may be a genius in science and mathematics, is “nowhere”—a cipher. Were such a boy placed in a suitable school, he would become one of the leaders, and his pride and pleasure would maintain him in that stimulating position. Yet, being fitted into an unfit place, he becomes unhinged, and feels cowed because of his inability successfully to compete with his school-fellows, in spite of his talents in other directions.

Capability
of Scholar.

It seems to me that schools consider the *real* education of the individual boy far too little, forgetting that he is sent to school to learn to prepare himself for his

The Nature
of the
Education.

contact with the world as a reasonable being, and not simply as a skilled classical scholar, and it may be nothing more. In one boy classics may be the best mental training, and may—as is supposed—give him a finer intellectual polish; but for another boy, who with every effort cannot master them, his whole school-life is wasted in the attempt: he learns nothing, and, being disheartened, his health suffers, and he mentally, and, through the depressing influence on the body of a hopeless state of mind, physically fails to develop.

I am quite unable to understand the persistent pleading for the virtues of a classical education as the best training for the youth generally of this country. That it is the best training for some boys I freely admit, and to abolish it for these would be simply disastrous. But I would contend that a scientific education is just as suitable for others, and to deprive them of it is, to my mind, equally disastrous. Mr. Hime* has truly said: "Nearly every boy is clever at something or another; and if this or that boy be not clever at anything just now, this may arise from the slow growth of his intellect; not from the fact that he is really a stupid boy. It is the schoolmaster's business to find out for what subjects he has most capacity, and to what his non-proficiency is especially due. But he certainly ought not to regard him as stupid simply because he is slow in learning Greek, Latin, Euclid, etc. But a master's duty is to educate; that is, to develop a boy's best faculties of every kind—his religious and moral, his intellectual and æsthetic, and his physical faculties—his manners being closely attended to all the while. This is a master's duty: a duty which he cannot possibly perform honestly unless he attend to everything—every-

* "A Schoolmaster's Retrospect." M. C. Hime. 1885.

thing I say emphatically—connected with the proper up-bringing of the young with whom he is daily brought into contact.”

Further, it is said that classics develop more polished gentlemen. Now, I number amongst my friends some of the best classics—even Senior Classics—and some of the best mathematicians and scientists—even Senior Wranglers—this country can show. I do not find that the classics, as compared with the mathematicians, think better, speak better, or write better; nor do I discern in them a larger culture or taste; nor do I find that they are shrewder, more truthful, and more upright; nor that they make better fathers, better citizens, and better Christians; and certainly I do not find that they are the most business-like men in their own or in others' affairs. In what, then, does the virtue of this fascinating classical education consist? It has been said that the object of education is not really to learn, but “*to learn how to learn* :” that education is not the acquisition of knowledge simply, but the process of training the mind so as to be capable of acquiring it. It is difficult to see that classics are better adapted than mathematics and science for this purpose. Does it count for nothing that Trollope, an old public school-boy, should say of his teachers in after years—“I have met them all three since my school days, and found them shallow and ignorant, no doubt with plenty of Greek and Latin in their heads, but without knowledge of human nature, or power of appreciating the different dispositions of their pupils”?

Dr. E. A. Abbott, “a born teacher of the first rank,” said, in 1883, with reference to the teaching of Latin verse composition, “As at present taught, it is one of the most tedious, mechanical, and profitless of our school studies; and a teacher's attention may well be drawn to

the best means of diminishing the evils and increasing the benefits that may result from it."

Also Sydney Smith said in 1809: "that there are few boys who remain to the age of eighteen or nineteen at a public school without making about 10,000 Latin verses. The prodigious honour in which Latin verses are held at public schools is surely the most absurd of all absurd distinctions. You rest all reputation upon doing that which is a natural gift, and which no labour can attain. If a lad won't learn the words of a language, his degradation in the school is a very natural punishment for his disobedience or his indolence; but it would be as reasonable to expect that all boys should be witty or beautiful as that they should be poets. In either case it would be to make an accidental, unattainable, and not a very important gift of nature, the only, or the principal, test of merit. This is the reason why boys, who make a considerable figure at school, so very often make no figure in the world; and why other lads, who are passed over without notice, turn out to be valuable, important men. The test established in the world is widely different from that established in a place which is presumed to be a preparation for the world."

And is this not true still? No word of argument is necessary: a statement of fact suffices. What becomes of a large proportion of the *heads* of our great English public schools? They are selected, on leaving the University, as masters to the schools where they were educated, or to other schools, showing conclusively that the tendency of the education given in our great English public schools is chiefly to produce public-school masters instead of able men of the world. For the boys who are *ablest* at school tend to be fit only for public-school teachers in years to come, while their inferiors at school tend to become the able and ruling men in after-life.

Again, in 1826, Sydney Smith said: "If there be anything which fills reflecting men with melancholy and regret, it is the waste of mortal time, parental money, and puerile happiness, in the present method of pursuing Latin and Greek." And this waste, in the main, continues still, though with some bright exceptions.

At the meeting of the British Association, held in Montreal in 1884, Lord Rayleigh, the President, said:—"From the general spread of a more scientific education we are warranted in expecting important results. Just as there are some brilliant literary men with an inability, or at least a distaste practically amounting to inability, for scientific ideas, so there are a few with scientific tastes whose imaginations are never touched by merely literary studies. To save these from intellectual stagnation during several important years of their lives is something gained; but the thoroughgoing advocates of scientific education aim at much more. To them it appears strange, and almost monstrous, that the dead languages should hold the place they do in general education; and it can hardly be denied that their supremacy is the result of routine rather than of argument. I do not myself take up the extreme position. I doubt whether an exclusively scientific training would be satisfactory; and where there is plenty of time and a literary aptitude I can believe that Latin and Greek may make a good foundation. But it is useless to discuss the question upon the supposition that the majority of boys attain either to a knowledge of the languages or to an appreciation of the writings of the ancient authors. The contrary is notoriously the truth; and the defenders of the existing system usually take their stand upon the excellence of its discipline. From this point of view there is something to be said. The laziest boy must exert himself a little in puzzling out a sentence with grammar and

dictionary, while instruction and supervision are easy to organise, and not too costly. But when the case is stated plainly, few will agree that we can afford so entirely to disregard results. In after-life the intellectual energies are usually engrossed with business, and no further opportunity is found for attacking the difficulties which block the gateways of knowledge. Mathematics, especially, if not learned young, are likely to remain unlearned. I will not further insist upon the educational importance of mathematics and science, because with respect to them I shall probably be supposed to be prejudiced. But of modern languages I am ignorant enough to give value to my advocacy. I believe that French and German, if properly taught, which I admit they rarely are at present, would go far to replace Latin and Greek from a disciplinary point of view, while the actual value of the acquisition would in the majority of cases be incomparably greater. In half the time usually devoted without success to the classical languages most boys could acquire a really serviceable knowledge of French and German. History, and the serious study of English literature, now shamefully neglected, would also find a place in such a scheme."

It may be an essential part of a boy's school training that he be taught to master thoroughly something difficult, and necessitating great labour to attain it; but this training may surely be found in science as well as in classics. I think the importance of learning the dead languages, as a training for young minds, is very much exaggerated, and I fail to see their superiority to mathematics, science, and the modern languages, while the latter are far more useful to the average boy on entering the world. Moreover, were these latter subjects more taught, and the classical languages less the fashion, there would not be so much scope for the use of "cribs."

As evidence of the inappropriateness of our public-school education for contact with the world, I would ask how many of our first-grade schools are capable of passing boys into Woolwich, Sandhurst, Cooper's Hill, or the English and Indian Civil Services, without passing through the hands of a "crammer"? Some there are, I know; all honour to them. It will be said that my complaint is too late, as all these schools are rousing themselves to the exigencies of the occasion, as is exemplified by the formation of a "modern side" to many of them. But these changes are totally inadequate for the purpose, and are literally ludicrous to any one who knows anything about the matter. For instance, look at the teaching of science! Sir John Lubbock called for a Parliamentary return, with this result:—

TABLE SHOWING SOME OF THE RETURNS FROM 240 SCHOOLS,
IN 1886, WITH REFERENCE TO THE
TEACHING OF SCIENCE IN OUR SCHOOLS.

Number of Schools.	Per Cent.	Hours per Week in which Science is taught.
54	22·5	0·00
50	20·83	1·00
76	31·66	2· or less than 3 hrs.
6	2·5	6·00

This nineteenth century is what it is by reason of the strides made by science, which is an advancing knowledge; and if we as a nation are to go with the times, and not be outdone by other nations, our schools must take the matter up with earnestness, so as to educate the young for their posts in life, instead of compelling them to brood over the idioms of dead languages.

Where a boy has a taste, let it be encouraged by every legitimate means, without making him one-sided ; let him be sent to a school where he can, having regard to his nature and aptitudes, most perfectly develop, mentally as well as physically. Let his *mental* bread and meat be what his natural faculties care for, and he will, of his own will and delight, eat plenty of it. It must be ever borne in mind in teaching that the organ to be trained and exercised is a very sensitive one ; that the mind and intellect, from our present point of view, are simply brain function ; that improper teaching, and too much teaching, act prejudicially upon the brain tissue, and cause disordered mind, very much in the same way as improper food, or an excess of it, cause a disordered stomach.

If we have a choice rose-tree, and wish to see its "bright consummate" flower, we do not plant it in a gravelly, and therefore uncongenial, soil ; if we do we shall not only be disappointed in our desire to see a perfect flower, but the tree itself will gradually dwindle away. If we plant it in its appropriate stiff clayey soil, it will thrive and blossom as our reward. Boys should be treated in the same fashion, and they will thrive. They will become resolute workers, because they like their work ; self-reliant, because they can master it ; good and honest, because they are employed at congenial work, with no spare time for even thinking of evil. Give them work not congenial to them, and you will find them mope and be out of health ; dissatisfied with themselves, their masters, and their school ; no credit to themselves or their parents ; idlers, with the terrible consequences of idleness.

One word seems to me to be necessary here, for education is becoming more and more a question of *quantity* of subjects versus *quality* of knowledge, to the serious

detriment of brain development and subsequent brain power. Boys—and, I am sorry to say, girls too—are being educated as encyclopædias, instead of being taught, as the essential of school training, to master one or two subjects thoroughly. In fact, they are taught the rudiments of everything, the approximate mastery of nothing—except about five per cent. who are pushed on for exhibitions and scholarships.

It is folly to uphold this system as the most likely to develop healthy, active, brain power in the average boy. I look upon it as mentally injurious to try to teach many subjects at the same time; not that we want work to be monotonous to the young, for variety of work is as requisite for the brain as variety of food is essential for the stomach. But at the present time, owing to the multiplicity of subjects, there is a want of *thoroughness* in all work, except in the highest forms, in our schools.

John Howard declared in later life, “with more indignation than he commonly expressed, how, after a continuance of seven years at his school, he left it, not fairly taught one thing;” and this state of things continues still, largely owing to our examining institutions demanding quantity of subjects rather than quality of knowledge.

I would also advise parents to avoid placing a child at a school that is one-sided *in character*, in any sense of the word. It is not good for a boy to be placed at a school where the majority are a clique, be that clique clerical, legal, medical, military, naval, political, or masonic: it stamps him with a die, and parents should see to the development of *catholic* and generous sympathies in their children.

The
Character
of the
School.

If you wish your son to leave school educated with a

wide intelligence, and with a strong self-reliant character, able to act with judgment for himself, avoid these cliques, for they are all of the nature of a serfdom : they have a savour of " trades unionism."

Strength of character, like strength of muscles, is produced only by individual activity and responsibility. Individuality is wanted even in schools, and it will show itself whenever it is permitted to do so ; but " sets " lead to intolerance, and all individuality is lost through dependence on others. Who does not know boys and men who on certain sides of their nature have never developed, who have no fellow-feeling for the *poor*, no sympathy with the *suffering*, no pleasure in *high principle*, no pain at *mean-spirited* conduct ? Yet such characters are, roughly speaking, simply the result of faulty education. They may have had the highest mental education, while the moral education has been wholly or one-sidedly neglected—mainly the fault of the parents or teachers.

School
Traditions.

Some schools *have* noble and venerable traditions ; others, more modern, *will have* splendid traditions ; but a parent should seek a school for his son where the traditions—however noble, venerable, or splendid—are subservient to the public-school system, which is older, broader, and more liberal than they ; and masters should strive so to educate boys, that, when they leave school, they are not Eton, Harrow, or Rugby boys, but only public-school boys. A parent or master will then have done his best for each boy. Then, and then only, will he come from school an open-hearted, fearless, ingenuous boy, instead of a weak, cringing, dependent sectarian, or member of a clique, incapable of thinking or acting for himself.

Traditions, when not supported by continued nobility of purpose, lapse into unimpressive and soulless routine. Yet to a large proportion of people a thing seems in

especial favour according to its age, irrespective of its worthlessness and unsuitableness; it seems to be forgotten that bad things are not the better for being old.

In the *Edinburgh Review* of 1825, Sydney Smith says, in speaking of the wisdom of our ancestors, which is very often on a level with the folly of our infants:—“This mischievous and absurd fallacy springs from the grossest perversion of the meaning of words. Experience is certainly the mother of wisdom, and the old have, of course, a greater experience than the young; but the question is, who are the old, and who are the young? Of *individuals* living at the same period, the oldest has, of course, the greatest experience; but among *generations* of men the reverse of this is true. Those who come first (our ancestors) are the young people, and have the least experience. We have added to their experience the experience of many centuries, and, therefore, as far as experience goes, are wiser, and more capable of forming an opinion than they were. The real feeling should be, *not*, Can we be so presumptuous as to put our opinions in opposition to those of our ancestors? but, Can such young, ignorant, and inexperienced persons, as our ancestors necessarily were, be expected to have understood a subject as well as those who have seen so much more, lived so much longer, and enjoyed the experience of so many centuries?”

I yield to no one in the importance that I attach to school traditions: a school possessing them wields a power of incalculable value in stimulating individual boys to imitate noble examples, whether they be recorded of individuals or enshrined in customs. But there is a limit to the value of these traditions, for often, under the spell of “ancient use,” the most ridiculous mistakes are continued, the greatest faults are perpetuated, and the grossest cruelty is enacted.

If there be one class of institutions which should prepare for the future, and not dwell upon the past, it is our schools, where the young of a nation are prepared to take their part in the world.

CHOICE OF MASTER.

Under whose care and supervision a boy is to be placed while at school is a matter of no small importance, for there are masters and masters; and while all may be equally able men as scholars, and all equally high in character, yet all are not equally good as teachers, or wise in the management of boys. Above all, avoid a master who is lax in his discipline.

In a "private school" the master who conducts it is supreme in control. He himself is the sole governing body: he appoints his own assistants, teaches what he pleases, and manages the whole of the establishment himself. Excellent schools many of these are, some even leaving nothing to be desired either in their arrangements or tuition. Whereas of others little good can be said of them in any respect, so greatly do they vary.

Our great English "public schools"—great in every sense of the term—of which we are so justly proud, are among the most splendid institutions of our country. Established five centuries ago, these institutions have never flagged in their success, but enjoy now a nobler position, and wield a greater power in the country, than at any previous period of their history. But, like all other institutions, they are not perfect, and we shall have to speak of their bad points as well as their good—the good, however, greatly exceeding the bad.

The "Public Schools Act" of 1868 appointed a "Governing Body" for each of our great public schools, in the place of the former "trustees." Head-master.

The "Governing Body" appoints its own *head-master*, and the conduct of the school, in every respect, is left virtually in his hands. I think it would be no exaggeration to say, that there is no individual in this country who occupies so autocratic a position. In such a sphere this absolute power may be, and often is, of inestimable value, not only to the individual himself, but also to the institution which he serves; while in weak or incompetent hands no more serious misfortune can befall a school. It will, therefore, be seen that we need for head-masters "something more than competent scholars with agreeable manners."

"It is a work good and prudent to be able to guide one man; of larger extended virtue to order well one house: but to govern a nation piously and justly, which only is to say happily, is for a spirit of the greatest size and divinest mettle.*" So wrote one of the greatest of Englishmen. And this statement is equally applicable to our great schools, for of our schools a nation is ultimately formed.

But our great public schools can never become what they should be until there is some alteration in the selection of *head-masters*. It may be said that a system which has elected such head-masters as Arnold, Temple, Butler, and Percival—not to mention present head-masters—cannot be far wrong. But I would urge that such men are found in spite of the bad system, and I would further add that many more of similar character and power might be found were the system of election as wide as it should be.

It is an indisputable fact that a head-master is not

* Milton, "Areopagitica."

required as a teacher any more than a general is needed to fight in the ranks. His essential qualifications are that he should be a wise organiser, a judicious manager of men and boys, an experienced judge of character, and well versed in matters necessary for health; for the duty should attach to his position, and he should be partly chosen for his fitness and convinced readiness to perform it, of seeing not only that boys get their proper food, and *time to eat it*, but sufficient fresh air also in and out of doors, together with appropriate daily exercise.

Rowland Hill and his brother, the greatest school organisers of their day, say—"The head-master, too, ought to be relieved from all necessity of taking any department of teaching himself, in order that he may be at liberty to attend to the regulation of the whole; to watch for opportunities of improving every part; and, by engaging his pupils in conversation, to seize the proper moments for exciting them to inquiry and reflection."

Yet, a rule exists—unwritten, perhaps, but in force notwithstanding, with most of the governing bodies of our great public schools—that a head-master must be not only a *teacher*, but a "*Clerk in Holy Orders*:" few have realised what this restriction involves.

In years gone by most of the masters in our great public schools were "in orders;" there was, therefore, little difficulty in the selection of a suitable head-master for any given school; but times have changed.

At the present moment, of all masters appointed to our chief public schools, about 73 per cent. are *not* in "holy orders"; so that the area of selection of head-masters of our public schools is practically confined to 27 per cent. of all public-school masters, while 73 per cent. are almost wholly excluded. (See Tables A and B.) It is obviously to the disadvantage of our great schools themselves, that in the choice of headmaster three-

fourths of the masters are excluded, and the choice confined to one-fourth only of the candidates who are otherwise qualified. It is unreasonable to suppose that the masters

A.—TABLE SHOWING THE PROPORTION OF CLERICAL AND LAY MASTERS IN OUR CHIEF PUBLIC SCHOOLS IN ENGLAND.

NAME OF SCHOOL.	Total Number of Masters.	Clerical Masters.	Lay Masters.
Eton	52	9	43
Harrow	33	4	29
Rugby	24	5	19
Winchester	25	8	17
Westminster	14	2	12
St. Paul's	20	4	16
Merchant Taylors'	23	11	12
Charterhouse	32	9	23
Marlborough	32	5	27
Shrewsbury	12	4	8
Wellington	33	11	22
Repton	18	6	12
Haileybury	27	8	19
Uppingham	29	9	20
Clifton	49	6	43
Cheltenham	41	8	33
Sherborne	20	5	15
Christ's Hospital	28	6	22
City of London School	36	6	30
University College ,,	45	3	42
King's College ,,	31	7	24
Dulwich College ,,	32	5	27
	607	135	472

in this one-fourth are really more suitable than some of those amongst the three-fourths. In fact, it is *prima facie* fair to assume that the proportion of qualified men for head-masters is greater—as 3 : 1—among the excluded three-fourths.

The arrangement is unjust also to the masters themselves; for each suitable man, whether lay or clerical,

should feel that he has an equal chance for a head-mastership.

Are the lay masters in our public schools such incom-

B.—TABLE OF HEAD-MASTERS OF OUR CHIEF PUBLIC SCHOOLS IN ENGLAND.

NAME OF SCHOOL.	HEAD-MASTERS.	
	Lay.	Clerical.
Eton	—	1
Harrow	—	1
Rugby	—	1
Winchester	—	1
Westminster	—	1
St. Paul's	1	—
Merchant Taylors'	—	1
Charterhouse	—	1
Marlborough	—	1
Shrewsbury	—	1
Wellington	—	1
Repton	—	1
Haileybury	—	1
Uppingham	—	1
Clifton	—	1
Cheltenham	—	1
Sherborne	—	1
Christ's Hospital	—	1
City of London School	—	1
University College „	1	—
King's College „	—	1
Dulwich College „	1	—
	3	19

petent men that they are unfit to be appointed as head-masters? Nay, in a large proportion of cases it is just the reverse, and the very ablest men are simply passed over in the selection of head-masters, because in early life they have not taken “orders.” And so our great schools do not progress in the ratio they should do because they are fettered by this relic of bygone times.

The governing body that will break through this unreasonable rule, and appoint the very best man to be found, be he lay or clerical, will do well for their school, and better still for the country.

It is unsatisfactory also in another way, for the restriction holds out a premium to masters to take "orders." Masters are tempted to do this on purpose to qualify as head-masters—a result sedulously to be shunned in the interests of our schools, no less than of morality and religion.

This question is, therefore, one for serious consideration in the welfare of our public schools, and it is time that the spell was broken, and the best head-masters appointed, irrespective of their being "in orders." It is hard to get rid of the resistance of custom, and the ties of interest, but the welfare of our schools demands it.

Our great schools need head-masters such as Mr. Sidgwick* speaks of:—"What it was, to come for months or years, into daily contact, at the most impressionable time of life, with a man whose every look and tone and word spoke to us of high aims and resolute endeavour, whose life in the sight of the dullest and weakest of us was plainly based on duty and self-devotion, whom all could absolutely trust, to whom the most timid would naturally turn in trouble or perplexity, whom all could love and venerate without reserve,—such an experience it is not likely that one who had ever known it could forget or ignore." Such was the influence exercised by Frederick Temple of Rugby.

The usual practice of governing bodies, when selecting a head-master, of choosing a scholar who is also a "clerk in holy orders," should cease. For, in the government of a large school, neither of these qualities is really essential, but many other qualities are.

* "The Practice of Education," 1883,

I admit that a *scholar* as head-master will make boys look up to him, owing to the influence he has over them at their work, and by their feeling that he has superior knowledge. Such a one was Thomas Arnold of Rugby, of whom Mr. Sidgwick says:—"When he was composing sermons, histories, notes on Thucydides, and teaching Rugby better than any school was ever taught before, he was writing letters, as his life shows, on every mortal subject of interest—the Newmanites, Niebuhr, Rome, the Jews, the Chartists, London University, the French Revolution. This width of interest took hold of the boys, as it always does and must. And he himself knew it and felt it. 'The more active my own mind is,' he said, 'the more it works upon great moral and political points, the better for the school.'" But how rare are such men!

I also admit that the power for good that a head-master "in orders" possesses, by the influence he can exert from the pulpit over the school, is priceless: witness the power of Arnold, Farrar, Temple, Butler, Bradley, and many others. But then it is an essential quality that he should be able to preach suitably to boys, to get at their hearts, so as to influence their lives for good. How many are able thus to preach, and further, is this their only faculty? The faculty of preaching appropriately to boys is really an instinct. Moreover, that it was not originally intended that a head-master should necessarily be "in orders" is manifest from the fact that, in some of our oldest public schools, fees are paid to the head-master, even up to the present time, for the "chaplain's" salary: so this closely-observed rule has not really the virtue of antiquity.

But there are *many* qualities—often absolutely ignored, or not thought of—which are essential, nay, imperative, in a head-master, for the right governing of

boys and men in large numbers. Yet a head-master is too frequently selected on account of his being in "orders," and on the ground of his knowledge of classics or mathematics; the more needed and momentous function of wise administration being forgotten! The former is simply a *teacher*, the latter an *educator* in the largest sense of the term. The functions of the one are exercised in school, while those of the other are far more concerned with the well-being of the boy during the eighteen hours of every day passed out of school, during which he is practically left to his own devices and desires—hours in which, far more than in the hours of school discipline, the *character* is built up.

A head-master *must* possess great strength of character; he must be upright, just, and gifted with a large share of "common sense." The great difficulty with a weak head-master is, that he will not follow when he cannot lead. Like all weak men, too, he constantly resorts to strong measures unnecessarily. It must not be forgotten that in the school-world a head-master has to deal with a little world, in which he sees the beginning of every phase of the world's doings; and has the deep responsibility of forming character while it is capable of being readily moulded to good or evil. In "Coningsby," Disraeli observed that, "the schoolboy, above all others, is not the simple being the world imagines. In that young bosom are often stirring passions as strong as our own, desires not less violent, a volition not less supreme. In that young bosom what burning love, what intense ambition, what avarice, what lust of power; envy that fiends might emulate, hate that men might fear." Stanley says * of Dr. Arnold, that he recognised in the peculiar vices of boys the same evils which, when full-grown, became the source of so much social mischief,

* "Life of Dr. Arnold."

and that he governed the school precisely on the same principles as he would have governed a great empire. And it is such head-masters that all our great schools still require.

He has to exercise the function of a just and impartial judge; he must uniformly act in the same way in similar circumstances; his punishments, besides being invariably attendant on transgressions, should be precisely adapted to each class of offence. We should not then hear from time to time of a head-master who is uncertain in his dealings with boys—sometimes treating a heinous offence lightly, at others a trivial offence with severity. Nor then would the moral feeling of a school be injured by the unworthy act of the dismissal of one master for a mere whim, and of another from personal spleen.

If head-masters were only to keep a private record of all their verdicts in dealing with parents, masters, and boys, and would read it through, or hand it over to their Governing Body, at the end of each year, they might see that their decisions were often diametrically opposite for the same offence—sometimes ridiculous, often unjust, generally decisions from the mere caprice of the moment. We should not then hear of the wrong, unjust, and irritating punishments so continually levied against boys—the keenest critics in the world—whose whole life is blighted by an unjust sentence, to say nothing of the wrong done to parents and friends. Would not these wrongs be minimised were the graver school offences dealt with by a council formed of the head and some of the senior masters, who should “minute” the offence and the punishment? Would it not better protect the rights of parents and boys, and remove opportunity for the exhibition of personal spleen and caprice? I would ask, which is the graver evil—the terrible wrongs sometimes

committed by boys, or those committed by a headmaster who deals unwisely and unjustly with them? There is no comparison.

At present, in our great schools, too great power is centred in one man—the head-master. This would not be so great an evil were he placed in his position by reason of his special capacity for exercising that power; but under the present system there is no certainty that this condition will be fulfilled.

Moreover, neither masters, nor parents, nor boys, have any right of appeal from the arbitrary exercise of the head-master's judgment, except through the *Times* and "the Court of Queen's Bench." I need scarcely say that it is contrary to human nature to expect any man to wield such power without committing grave errors of judgment: wronging colleagues from whom he differs; dismissing boys who are only troublesome, thus blighting their future prospects, and occasioning needless expense and untold sorrow to parents and friends. To retort that such acts are rare under the *régime* at present in force in our schools is no argument in its favour; it should not be permitted that the fate of a master, or a boy, should be at the caprice of a single man.

In all institutions necessary changes as a rule do not come from within; they are only initiated from without, often after heart-rending injustice to individuals and classes.

Again, Mr. Salt has well said,* "The selection of his assistants is not the least important of a head-master's duties. The 'University Calendar' is an interesting work; but it is an insufficient guide to character, and a 'First Class man,' even a 'Senior Classic,' may be a very incompetent instructor." Often the greatest failures of

Assistant-Masters.

* *Nineteenth Century*, Jan., 1885.

all are not the inferior teachers, but the splendid scholars who cannot keep the order requisite for the effective exercise of their abilities.

Why is it that in the *scholastic* profession any man is considered fit to teach without a prior training? Is technical aptitude of less importance here than in the medical and legal professions? Is the art of teaching such an instinct that no training is requisite? Why should not teachers be compelled to obtain a licence to teach, just as much as a doctor or lawyer receives a licence to practise? It has been said,* "It is indeed passing strange that the duty of instructing boys 'to learn how to learn' should be so confidently committed to those who have themselves never been taught how to teach." An observant Frenchman has said of our scholastic arrangements in England, "To become a lawyer, doctor, or officer, you must pass examinations, to become a schoolmaster it is quite unnecessary, you open a school for boys or girls just as you would open a grocery-shop." Is it not time that the scholastic profession raised itself to a higher level?

It is an indisputable fact that teachers need to be taught how to teach just as much as members of all the other professions need a special education. The day must soon come when this will be recognised by the public; then, and then only, will it be carried out. In that excellent little book, "Form Discipline," Mr. Sidgwick, himself a genius at teaching, says:—"It will have struck most of those who have been following my hasty sketch of the practical difficulties of the schoolmaster, that while there must still remain very much for everybody to learn from experience, yet there is much which it would be both useful and possible for those who are entering the profession to learn from a properly-qualified

* *Nineteenth Century*, Jan., 1885.

teacher. As it is, the teachers in all our first and second grade schools have to get all their experience at the expense of the boys. Every term there are drafted into the profession batches of new teachers who, however successful they may ultimately prove, yet begin by making a large number of mistakes which might have been avoided. Nobody pretends that having been a year in a training-school will by itself make a good master when the other requisites are not present; but that everybody is improved by training is conclusively shown by the experience of the primary schools. They have, in their trained masters, far inferior material to begin with than the public schools, who can command the pick of the universities; and yet one has only to go into a primary school to see what an immense lift the training gives to the young men when they first begin to have the management of a class of boys. In ease, in resource, in confidence, in mastery of handling, a certificated master could give points to any average graduate—even to many of the best—fresh from the universities. I do not suppose that there is a man of experience in the profession who would not admit that the boys, as well as himself, would have been saved from much that was better avoided if he could have had a regular training.”

Until such a training is put in force I would urge that all first appointments should be made for one, or at most two, terms, so that if a master be found incapable he may not receive the appointment permanently.

From the assistant-masters the *house-masters* are appointed, as a rule, according to seniority. Whenever a boarding-house becomes vacant the next assistant-master in seniority undertakes or refuses it, as he likes. In a public school, the house-master under whose care a boy is placed is everything to a boy, and has absolute control

House-
Masters.

over him during his residence in his house. It is this autocracy of the house-master which gives a boarding-house a character in a school, and almost irrespective of the school—so marked often that a boy bears, willingly or unwillingly, the stamp of his boarding-house all through life ; hence the boarding-house and boarding-house-master are a distinct element for good or evil.

Avoid a “popular” house-master. Woe to the boy when all the “house” speak well of the master of it, for he evidently is not doing his duty. In all houses there must be some boys who need a very firm hand indeed, and who will dislike, and speak disrespectfully of the man who controls them, however much they learn to appreciate him after they have left school.

Some time since I was greatly interested in the diversity of character accorded to one of the ablest house-masters of the day by members of his house during his absence. I knew the master intimately, and his boys well. In every case where the master was spoken highly of, it was by the boys who did their duty and behaved themselves, they were a credit to themselves and their master. In every case where he was not appreciated, and was spoken slightly of, it was because they were boys who required a tight hand, and got it. In most cases I could have foretold the verdict before I elicited the information, according to my knowledge of each boy's character. Nothing was ever clearer than that this master was doing his duty to every individual boy under his care ; to be spoken disparagingly of by the bad or the lazy boy was the very highest honour that could be paid him.

The boarding-house of that master should be avoided who never believes that his boys are telling him the truth, and who, consequently, acts the “spy ;” the same remark applies to the master who believes all that is told him, often irrespective of evidence to the contrary : these

opposite characters both tend to develop inveterate liars. There are few things so bad for a boy as to feel that he can "*do*" his master, it tends to degenerate his whole character.

It is a general rule that nearly every person who knows a boy at all has an opportunity of becoming better acquainted with him than his instructor. This should not be. It is as much the duty of the master to learn his pupil's character thoroughly, as it is the physician's duty to comprehend the constitution and the disposition of his patient: to fail in either case is incompetence. Yet how many masters know their boys thoroughly? How many ever enter into the lives, characters, temptations, and troubles of their boys, and strive to help them to lead upright lives? They are well taught from books; they are kept tolerably straight by threat of various punishments, often most inappropriate ones; but how many masters ever so get hold of the average boys as to win their affections?

As house-masters vary in character, so their houses differ *sanitarily*. One master will seek out and effect every improvement for his house, while another can only be moved by a great crisis which renders changes imperative.

Boys in one house meet boys from other houses in form and in chapel, but for the rest of their time they are, as a rule, isolated; they usually play together as houses, and not as a school, and a boy in one house, as a rule, does not visit at another house, though in some schools this latter custom does not apply to the elder boys. It will thus be seen that one house may differ, from various causes, very considerably from the rest, and while the tone of the school as a whole may be good, the tone of any particular house may be bad; or, while the tone of the house may be all that could be

desired, that of the school itself may be very far from what could be wished.

It must be remembered that our great schools, as a rule, are officered by some of the very ablest in the land—men whose peers it is hard to find. Such schools require such masters. And a parent needs a master who will take his place, and be able to instil confidence in the boy; then that mutual regard will exist which generates not only respect, but affection. Some of the best life-long friendships have been, and are continually being, formed between a boy and his master. It was eminently the case with Thomas Arnold—whose spirit, I am thankful to say, still pervades all our schools more or less—the friendship of whose pupils lives in English literature. It was also the case with James A. Garfield, the teacher, afterwards President of the United States, “who perfectly inspired his pupils with admiration and love for him, because he strove to gain access into their inner soul-life, to teach them a higher conception of life, and the part they have to bear in it.”

If boys differ much in disposition, so do masters; and while both may be equally estimable, they may yet be incompatible, and thus incapable of getting on well together, by reason of continual irritations on one side or the other, frequently without any cause: *e.g.*, a quick, impulsive boy may unfortunately be placed with a master of similar temperament; whereas if such a boy had been assigned to a more placid, even-dispositioned master, he might then have shown that love for his instructor, which is so much to be desired for a boy during the formation of his character, and which all who have had much to do with boys know to be a life-long gain to them.

Form-
Masters

There is another important point which is too often ignored, but which needs consideration, if each boy's

welfare is worth consideration. It is not only requisite for him to have a suitable "house-master," but also that some thought and care should be bestowed in the selection by the school authorities of his "*form-master*." Let me explain what I mean. A parent once told me the following story about his son, who was admitted by all to be the ablest boy in a large school. In his "home reports" he always received the highest character, except in one particular. The parent remonstrated with his son; still, for several consecutive terms, the report was always the same—a fine character throughout but for this single defect. At last the parent perceived the reason: his son and the master must be incompatible in temperament, probably from no fault on either side. After much pressure on the part of the parent that the boy might be placed under another master in this one subject, the request was, with great reluctance, granted, and his son subsequently received the highest character from all his masters. What the incompatibility was, it would, perhaps, be difficult for either to describe, but of its existence there could be no doubt. Therefore, if at any time a boy fail to get on as he should, a change of form-master may sometimes have the desired effect, and this should be tried rather than that the boy be summarily condemned.

All professions have their *Etiquette*, which is usually an understood code of simple straightforward common-sense rules—literally, simply personal honour, and to do as you would be done by—for the guidance of its members in carrying out efficiently the working details of professional life, and also for the protection of the public from their own unwise suggestions and requests, which only too often lead to infinite trouble.

School
Etiquette.

For instance, in my profession there is a rule—a most salutary one for all concerned—that a patient having selected his medical adviser to attend him during a certain definite illness should, except for a consultation, retain his services to its end. But there are occasions when this rule may be, and should be, broken by the patient with justice; and there are causes also on the other side, not sufficiently granted, where the only straightforward and self-respecting course open to the medical man is to refuse to continue to attend. A very similar etiquette exists in our great schools—that a parent having once placed his son under a certain house-master, should leave him in that boarding-house during the time he remains at the school. Now this is a most wholesome rule, in fact, the only one that can work at all satisfactorily for the boy or the school; for nothing could be worse than continually changing a boy from one house to another. But that it should be a rule without any exception, and that a boy should be compelled to leave altogether, rather than permit a deviation from the rule, may sometimes inflict a very great hardship upon the parent and the boy. The rule taken absolutely is, I think, indefensible; for occasions may, and do, arise, in which a relaxation would prove of benefit to all concerned.

Further, in my profession one sometimes hears of a doctor so unreasonable as to expect that when a patient has once consulted him he belongs to him for life. And in schools a similar irrational precept is not unheard of. Not long since a parent removed his son from one private school to another, and the master from whose school he was removed remonstrated with his friend who had received the boy, as if he were a receiver of stolen goods.

There is one thing we are all too apt to forget, that

schools, hospitals, churches, and law-courts, are in existence for the benefit of the public, and not the public for the benefit of the professions.

CHOICE OF BOARDING-HOUSE.

As there are schools and schools, and masters and masters, so there are houses and houses. These houses are often, and will be, with some exceptions, what parents demand them to be.

If parents be satisfied to place their boys in a house or school where dormitories allow only 300 cubic feet per boy instead of from 700 to 800 cubic feet, that area is all that will be provided for them ; if parents demand cubicles, they will be provided, notwithstanding their being so undesirable ; if parents be satisfied that the drains of a school should be connected *directly* with the sewer of the *town*, that serious defect will not be remedied ; if parents prefer a school in the *country*, with cesspools situated on a higher level than the well, so that their contents can overflow into the well, and thus supply an infusion of sewage in the drinking-water, instead of the adoption of earth closets, they will find this arrangement will continue in use ; and the same remark applies in respect of all defects.

This is no "myth," as some will be inclined to say, and as is too often suggested when what should not be is brought to the light.

It is an incontrovertible fact that in many of our schools the dormitory accommodation is actually worse than that insisted on by Government for the paupers in our workhouses—there being less than 300 cubic feet of space per head.

And in those schools where the boys live and sleep in *cubicles*, it is quite refreshing to find 700 cubic feet provided—which is the lowest limit allowed for our paupers, who occupy the same room day and night, in our workhouses.

But the most unsatisfactory fact is, that the expensive school—where a parent thinks his child is sure to be placed in the most favourable hygienic conditions, because he pays so highly—is often the worst of all. When pupils go home for the vacation looking unwell, the parents frequently complain, as the cause, that “the boy or girl has been worked too hard,” or “that the food has been insufficient in quantity or inferior in quality;” while in nine times out of ten the whole secret is that the pupil has not been allowed sufficient air *indoors*, but has had to breathe the same air more than once.

Air is the greatest essential to life—greater far than water or food. We cannot exist a few moments even without it; and yet schools, as a rule, provide plenty of food, are less particular about the quality of the water, but have very little regard to the amount—and therefore to the quality—of the air.

Not that the boy does not get out of doors enough, for this out-of-door life in most schools for boys—would that I could say the same for girls—is ample; the defect lies in the insufficient air-space indoors, especially in the sleeping apartments where a third of every day is spent. This latter fact means that, in a term of three months, one month is passed in the dormitory, where the air-space is, as a rule, so deficient that it literally stinks in the morning after eight hours' occupation.

Fortunately, so much time is spent in the fresh air, that the evil, to a great extent, is counteracted; yet, I would urge, that no growing boys or girls can thrive as they should and would while they spend a third of their

time under these most unfavourable conditions. Some boys apparently are not greatly affected, but to many a delicate boy the presence or absence of this adequate air-space determines whether he shall grow up strong and hearty, or show some latent disease which need not otherwise have been developed, in fact which could not have been developed during a favourable school-life. Parents should understand that hard work rarely makes a boy look ill, provided he is well fed, properly housed, and has regular exercise. But I have known disease and death to be caused by compelling boys to work hard under the most unfavourable conditions that it is possible to conceive.

I have *seen* living and sleeping rooms combined in schools where the only safety for the boys who occupy them is, that they only live in them for three months at a time; were they to reside in them day and night for twelve consecutive months, every occupant would be ill. For instance, a boy working hard in his school begins to lose health and spirits day by day; an acute illness—brain fever (tubercular meningitis)—supervenes, and he dies. What is the verdict? *Overwork!* But is this true? Is it not rather owing to hard work given to be done under unfavourable hygienic conditions? Had the boy been allowed plenty of fresh air and light, instead of being put to work in greatly deficient light, living, too, in the same air day and night, which he re-breathes again and again, he would probably do his work without any ill effects.

I have *seen* the cesspools at a school in such a state of repletion that it would be impossible for the boys to avail themselves of them without defiling themselves with the decomposing ordure. I may add, that when I saw this it was on the last day of the vacation, and the state of things had existed probably since the end of the previous

term. And yet so little care or interest is taken in sanitary matters by the school authorities and parents, that this school is one of the most popular and expensive in the kingdom—so popular, that I question very much whether, if I were to put a son's name down to-day I should be able to find a vacancy without waiting five years. Moreover, there is no school in this country to which I would sooner send a son, and yet if I were offered a scholarship for him there to-day, which would render free his five years of public-school education, I should feel that I should do him a great wrong in accepting it for him, the risk to his health being too great to be faced.

No one appreciates the benign influence of venerable institutions and noble traditions more than I do. But I hold still more strongly that where these venerable institutions mean also the absence of essential hygienic conditions, it would be wiser to avoid such institutions, and have the hygiene in any school which is wise enough to put in practice even the rudiments of cleanliness, to say nothing of sanitary science. In seeking education, it is too great a cost to sacrifice health, perhaps life. But there is no necessity for this, as there are many schools—some having already illustrious traditions, others daily making them—where health is already a first consideration.

From what I have said, it will therefore be understood that the sanitary state of our schools is a question that should be at least considered by parents before they place a boy at school.

What house or school improvements parents deem *necessary* they will often have to ask for; otherwise, as a rule—fortunately, with some exceptions—they will not be supplied, except under extreme circumstances which, after the mischief has occurred, imperatively demand them; but if masters find that parents are alive to the

necessity of certain arrangements in a school for ensuring its safety, and ask for them before placing a boy there, the arrangements will be provided.

The approximation to a sanitary ideal in the boarding-house of a public school, and the dwelling-house of a private school will be considered hereafter.

IV.

BEFORE ENTERING SCHOOL.

THERE is much that has to be learnt by the child before the age for school arrives ; in fact, the basis of all subsequent education, mental, moral, and sanitary, has then been laid, suitably or unsuitably. If the mother has fulfilled her part in the tuition of her child, which no one but herself can accomplish, the gain to the child is life-long and priceless. What mother does not realise those beautiful words—of Lady Gifford to her son, the present Earl of Dufferin—when she parts with her child for his first school :—

At a most solemn pause we stand !
From this day forth, for evermore,
The weak, but loving, human hand
Must cease to guide thee as of yore."

INTELLECTUAL EDUCATION.

The boy should have been taught something, however little, thoroughly ; whatever he may have learnt should have been inculcated with method and despatch. The plan of keeping young children at work for a certain number of hours, quite irrespective of what they may learn, as so many children are treated, is wrong. I mean, that work which ought to take half an hour to get through should be finished in that time, and then cease, and should not be permitted to occupy three hours ; besides the in-

tellectual benefit of this course, the moral habit is early and steadily formed of saving and utilising time.

Early pressure of work cannot be sufficiently deprecated, nor long hours for young children ; either evil may cause an acute brain illness, or entail prolonged ill-health.

Children, as early as possible, should not only be taught to exercise their *memories*, but should also be encouraged to develop their *reasoning faculties*, so that they may learn to think before they speak, and not ask stupid, unmeaning questions. A little wholesome "chaff" at home—especially sisters' chaff, it does a boy a world of good—when a senseless question is put or a foolish observation made will often act as an effectual, though mild, corrective, and will save him from much of that unpleasant chaff and teasing which a boy is apt to receive at his first school, owing to his "greenness," and for which he has often to thank his parents. It frequently makes his school-life, during the first few weeks, a misery ; sometimes causing him to be really ill ; sometimes ending in his "running away."

MORAL EDUCATION.

A child's *Moral Education* also cannot be too soon begun. The chief reason why we so often have bad boys at school is the almost criminal neglect of parents during the younger years of their children, for the foundation of *character* is laid during the earliest years of infancy and childhood. It is during these years that many parents wholly neglect their children, and transfer them to the care of subordinates. Early they commence little wrong-doings, of which the parent knows nothing whatever, and is scarcely likely to know. For it is the rule,

unfortunately, for parents to support the child against the governess or nurse, instead of selecting, after much care and anxious thought, the best substitute for themselves that can be obtained, and then giving her the heartiest support and sympathy in her very trying duties. The child soon learns this, and seeing that the governess or nurse is not trusted implicitly, more and more develops the evil of character that is in him, and virtually with the parents' support. Then the governess or nurse strives to put up with the misconduct, rather than incur the displeasure of her employers and the taunts of her charge. In the larger world and temptations of school, the growing defects expand into grosser faults, and often culminate in some vice or crime that demands expulsion. Then the parents are aghast, and the school and school-fellows are blamed, whereas the guilty offenders are the parents themselves, for not fulfilling their parental duties while the children were young. Parents must bear in mind, if they desire to be spared such fearful calamities, that truthfulness, honour, and uprightness are habits which are formed in the earliest years—really before school-days commence; nay, more, that it is all but impossible to form such habits afterwards. In effecting this early formation of character punishment may be requisite, but it should be uniformly adapted to the offence committed, and not vary according to the humour or temper of the parent; the rewarding of good conduct, however, is often more effectual than punishing bad conduct, for this latter course is only employed after the commission of the offence.

If this moral education be commenced at home as early as it could and should be, and is wisely pursued, the child will act rightly almost intuitively, and will shun wrong without hesitation. If this early home training be neglected, later on self-control becomes a hard lesson

to learn : sometimes only obtained after many deplorable falls, sometimes never attained at all through life : the untrustworthy boy becomes the dishonourable man.

Above all, parents should teach their boys early to act from "high principle:" they should be taught that there is but *one* Morality and *one* code of honour—applicable everywhere and to every condition of life, not one kind of morality suited to home, another to school, and another to politics.

The child should also be early taught *self-respect*, for his own sake as well as for that of others ; he will then be ashamed to do wrong, he will feel it a self-humiliation. If he respect himself, he will soon learn to respect others, whether they be below or above him ; then he will not only learn, but feel, that wholesome lesson, so important for a *boy* to know, that a schoolfellow is not a *gentleman* or a *cad* according to his birth or means, but one or the other by his personal conduct alone. Only too well does the physician see who is the gentleman and who the reverse, for when a boy is ill his true character comes out most clearly.

Parents too often allow—nay, encourage—their children to presume upon their noble and ancient birth, and teach them to expect homage on account of their ancestors. A long line of noble ancestors is much to be coveted by all ; but noble birth does not cover worthless personal conduct. Better far to teach children, irrespective of a long line of noble ancestors, that each one may become, and should strive to be, a noble ancestor to succeeding generations. Then we shall have men relying on their own personal conduct and ability, and not resting on the laurels of a past race.

The old dramatist Dekker said that "Christ" was the first true gentleman !

Some may be inclined to think that, in a treatise

upon Health at School I am venturing beyond my province in making any observations on education, and its mental, moral, and social aspects; but I cannot consider the boy at school apart from his surroundings—what he is and may be mentally and morally—because on them much of his happiness depends, and if his happiness, then his health. I might also appeal in vindication to the inter-influence that exists between a well-ordered mental and moral condition and the physical framework through which it acts.

SANITARY EDUCATION.

It is very important that parents should consider some few points connected with the health of their children before they leave home for school.

Proper
Clothing.

And, first, I would mention *proper clothing*—all clothing being used not only for adornment, but to protect the skin against cold and against warmth.

Our *skin* is about the most important gland we possess, and needs a certain amount of care and prudence to enable it to do its duty, and to prevent its functions being arrested by sudden changes of temperature; yet the greatest carelessness exists, and little thought is given to its protection. To prevent its sudden exposure to the various changes of temperature to which we are liable, our skin requires a *non-conductor* to be next to it—in winter, to keep in the heat and keep out the cold; in summer, to prevent the skin being checked suddenly in its action, whether it be in the sun or in the shade, by night or by day; and to secure its efficient action under all conditions. What the non-conductor should

be does not much signify, so long as it is a non-conductor. Yet parents will allow their sons to go to school with linen next to the skin—the very worst of all non-conductors, flannel being the best, then merino, silk, calico, and linen, in the order enumerated.

If there be a good non-conductor next the skin winter and summer, it matters little about the rest of the clothing, and the question of overcoats is then immaterial. This applies to all children, but especially to children from a delicate stock, to those who have been recently ill, and to those who have come from India and other hot climates.

For the purposes above mentioned *woollen material* is the most efficient, and white flannel is the best form. It is the worst conductor of heat, and thus allows the skin to act most perfectly under all conditions ; for, however sudden the changes of temperature to which the skin is exposed, this kind of material prevents a check to its action. It is the best absorber of moisture, and the best retainer of it and of the other elements of perspiration. All will admit that flannel is the best for winter wear ; but it is not so generally allowed that it is even more necessary during the summer. No one, however strong, whether living in a hot or a cold country, should be without a good non-conductor next to the skin, summer and winter.

This under-clothing of flannel should be always worn by day, though the consistency of it may be varied in winter and summer according to the temperature. But in this country the summer season should be well established before a change is made in the thickness of the flannel, as much illness is caused by a premature change suggested by a few warm days in April or May.

It often happens that on the first warm day in February boys leave off their merino or flannel vests, and

simply wear a white linen shirt next to the skin. This is sometimes very dangerous ; and it is always unwise to incur the risk which this premature change involves. Every boy should be taught that the most manly thing is to strive so to live that he may be always in good health, and avoid illness and disease.

One word more on this subject of clothes. Some boys at our schools might as well be without mothers or sisters, judging from the condition in which their clothes, especially their under-clothing, are sent to school. I know boys are careless in the way they deal with their under-clothes, in dressing and undressing ; but their under-garments are sent to school from some homes in such a state that they would disgrace any poor cottager who was short of time to mend and means to buy. With some palpable exceptions, I do not think one would be very wide of the mark in judging a boy's character from the state of his under-clothes ; for where they are as they should be, they would generally be emphatic evidence that the boy had been well brought up by his mother, and had known the influence of a mother's or a sister's love and care.

Boots.

Too much care cannot be devoted to ensuring *warm feet* at all times. The boy should be well shod with thick boots to keep out the wet, and be provided with a sufficient number of pairs to allow each pair to become thoroughly dry, after getting wet, before it is worn again.

And I would also urge on masters the great importance of providing means for the thorough *drying of boots*, so that, after they have been completely sodden, as so frequently happens after playing on wet grass or brook jumping, they may be perfectly dried before they are worn again. For this purpose a heated chamber is

required, well ventilated to let out the moisture, and having narrow bands of galvanised iron, with a serrated edge, on which the heels of the boots can be hung; they can then be dried rapidly inside and out.

The boots should be of sufficient *length*, and so *broad* in the sole that the foot may not be cramped in its growth or its natural arch destroyed; there would not then be produced so many cases of that most painful ingrowing toe-nail, nor would the toes become anchylosed in consequence of inability to move. This question of the provision of suitable boots during the years of growth of the boy's foot is so seriously neglected by parents and teachers that life-long suffering is caused. If a little more care and interest were taken by parents, the medical officer would not be so frequently advising about the deformed condition of the foot, nor having so constantly presented to him those painful cases of chilblains, not to mention corns and bunions, which are chiefly caused by improper or imperfect boots, and which, preventing work and play, and entailing much constant suffering, generate considerable ill-health.

We laugh at the Chinese about their voluntarily deformed feet; but I could show instances without number which a Chinaman would be heartily ashamed of, so great is the deformity just as wilfully produced by fashionable (!) boots.

The bootmaker is usually abused for making such boots; but how is he to avoid it? He exists for the public, not the public for the bootmaker. He must make what he can sell, and consequently he can only make what there is a demand for, and not what he may consider the best.

Warm woollen socks—never cotton—and dry boots are requisite for the preservation of health; for then the feet are both warm and dry, while cold feet are a

fertile source of innumerable small ailments, which often constitute what is called "delicacy."

I am aware how commonplace these observations are likely to be considered, and others I shall have to make; and yet, when one sees errors repeatedly committed, and that by intelligent people, and remembers the serious character of the consequences, one cannot feel that the remarks are of the trivial nature which at first sight would appear.

Daily
Natural
Relief.

There are other subjects also of seemingly so commonplace a nature that it seems almost ludicrous to mention them, while yet their real importance is inversely proportional to their apparently trivial character. Among these subjects is that of the necessity of a *daily natural relief*. Parents constantly neglect teaching their children that this *natural relief* is imperative daily at a certain hour, and the neglect entails a vast amount of discomfort to the boy on coming to school, often a great deal of ill-health, and every now and then danger.

In the schools for boys and girls throughout Great Britain I do not think that five per cent. of the pupils have ever been taught at home this wholesome lesson. The subject has never been thought of; or, if it has, it has never suggested itself as being amenable, and naturally so, to rule, but an aperient has been deemed the appropriate remedy.

The necessity of the daily natural relief is one of the easiest and earliest lessons a child should be taught, and the practice should be enjoined with uninterrupted regularity; if observance is found to be difficult the practice should be *enforced*; medicine should seldom be resorted to. Of course, I am now only speaking of what should be done in health, and am not referring to *illness*.

I have never seen a child in health who really re-

quired the constant aperients which are so often given. The difficulty the child finds is simply the result of early bad management. I have frequently proved this to parents by curing a child at once by a system of rewards in place of a system of physic. One marked instance occurs to me at this moment. A boy, about twelve years old, had had an aperient given him daily, or almost daily, for two years; he never had a relief without one. On being consulted, I refused to continue the past mode of treatment, but gave him one aperient to start him fair. Then I instituted this plan: I promised him sixpence every time he had his daily relief at 9 a.m., and paid the amount at the moment of success; but he was to forfeit a shilling every time he failed, to be taken from him at the time of failure, so that the reward came with the success and the punishment at the moment of failure, and he connected these mentally. On the first morning he earned his sixpence, but on the second he lost his shilling. This was too much for him; he never lost another, but had his daily sixpence (and made his fortune), without requiring another aperient. I could repeat very many such instances.

A little patient painstaking on the part of parents from the very beginning would save trouble to all concerned. It is neglect—early neglect—and that only, which causes subsequent difficulty.

Dr. Brunton has said* :—"As a rule, people are now fully alive to the risks they run from poisoning by sewer gas, or, to put it more widely, from poisoning by products of decomposition *outside* the body; but perhaps we do not all of us keep so clearly before us as we ought the fact that *inside* the body there are all the conditions for the formation of putrefactive products, and the most favourable arrangement for their rapid absorption."

* Loc. cit.

Morning
Cold Bath.

I can scarcely speak too strongly concerning the beneficial effect of the daily cold bath in the morning for all, but especially for the young and growing—boys and girls.

I am inclined to think that the reason why it is not more used as a daily luxury on rising from bed, is owing to the very common practice of bathing infants and young children in the nursery in the evening instead of in the morning. By this means the delight of the morning bath is not experienced from the commencement of life, but is a “new thing” which has to be started after the children leave the nursery; and thus it is neglected, and the start rarely made. I believe if mothers would only see that their infants and young children were bathed in the morning, with warm water at first, gradually using cold water as they become older, and would provide a bath in their room when they leave the nursery, the practice would become continuous as a matter of routine. It is a habit which is not only cleanly, but invigorating, and when started early in life, and practised in a proper manner, is incapable of doing harm to boy or girl.

On rising from bed the pulse is feeble, while the skin, being relaxed by the warmth of bed and of sleep and less capable of resistance, is thus very susceptible to cold. Hence, the value of the cold bath on *rising* from bed, to excite the heart's action, to stimulate the blood-vessels of the skin to contract, and to close its pores. The morning cold bath, followed by a cup of hot coffee or milk before “first lesson,” tends to health and vigour, and is a most wholesome rule for every boy and girl at school.

I know it will be said that it is impossible in a large school for every boy to have his morning bath; this is not so, for it is already an accomplished fact in some boarding-houses.

ENTERING SCHOOL.

THE parent, having decided to send his child to school, and having selected the school most appropriate for him, then naturally asks himself the question—when shall I send him?

PERIOD OF ENTRANCE.

At what age a boy should be first sent to school must Age. depend on many circumstances, but should greatly depend on his disposition and character. When he can safely part with the individual attention of a parent, or a governess, is a matter for mature consideration in each case, and should be partly determined by the fact whether his first school is to be a day- or boarding-school. I therefore think this question should be an open one, to which no general rule can be applied.

With a strong hearty boy it does not signify in the Time of
Year. least, from the point of view of health, when he enters his school, but to a delicate boy, or one who, though strong, has had a recent acute illness, or to one lately arrived from a hot climate, the time of entry is a matter of great importance. The boy in any of these latter cases should always *enter his school* in the spring, so as during summer to get used to the change of place and of life during the most favourable season, and thus avoid the risks of bad weather at a time when he is most susceptible to its influence.

It is better, however, for all boys in respect of their

education to enter school at the commencement of the "school year," which begins, after the summer vacation, in September.

MEDICAL EXAMINATION.

When a boy goes to school he often has to pass through a searching ordeal by his masters, with the view of ascertaining whether his knowledge is sufficient to permit him to enter the school at all, and, further, the standard he has reached, and consequently the *form* in which he should be placed. By this means he is not set at work above, or below, his capability, but a fair knowledge of his working powers is gained.

A similar examination is, or should be, enforced in order to ascertain the capacity of every "new boy" to join in all the *school games*, which are, or should be, compulsory with every boy—for it is necessary to restrain some and to push others, so as to avoid that worst of all evils in a school, Idleness—unless his medical examiner excuse him for some significant and valid medical or surgical reason.

This *medical examination* should be as searching as a thorough examination for life assurance, for several times I have accidentally found boys with mitral disease of the heart joining in all the school games, some of which require active and prolonged exertion. This physical examination should also extend to the eyesight, where a defect is often the cause of a boy not getting on with his work at school, and entails very considerable suffering from intermittent, and then persistent, headache. Many are the boys and girls who have had their health permanently damaged as the result of defective eyesight, which might have been obviated by treatment suggested by an examination of their eyes prior to entering school.

Just as the master, therefore, regards it as essential to the boy's success in his education that he should be examined intellectually on entering school, so the medical officer should ascertain what he is capable of physically—what form of exercise will increase, and what retard, his development.

I append a suitable form on page 60.

The Medical Officer having thus made a complete investigation of the present condition of the entering pupil; and having also studied the Medical Report, described hereafter (which should accompany the boy when he presents himself for examination), is in a position to certify what amount of physical exercise and education he is fit for—what will develop, what retard his health and growth. He can then fill up the appended form for the boy's master, who will thus possess an efficient guide in the supervision of the exercise of his pupils.

SCHOOL GAMES

In which may join.

Cricket	...	...	...	...	O
Football	...	...	...	...	X
Boating	...	...	...	...	X X
Swimming	...	...	...	...
House Runs	...	...	...	...
Paper Chases	...	...	...	...
Athletics	..	...	...	...
Gymnasium	...	...	...	...
Racquets	...	...	...	...
Fives	...	...	..	...
Tennis	...	..	...	...
Rifle Corps	...	...	...	...
Natural History Excursions				...	
Walking Exercise only	...			...
Cycling	...	...	...	...
Workshops	...	...	...	...
Gardening	...	..	...	...

O Not to play. X May play. X X Ought to be made to play.

Signed.....

Medical Officer.

MEDICAL EXAMINATION OF PUPIL ON ENTERING SCHOOL, AND HIS MEDICAL HISTORY.

Date of Examination.....

Name..... | Age.....

Height.	Weight.	Chest Measurement.

General Appearance.	{	Aspect
		Colour of Hair
		Carriage
		Vaccination Marks

Muscular System. {

Nervous System. { Hearing
Sight

Circulatory System. { Heart.....
Bloodvessels..... Pulse.....

Respiratory System.	{	Throat.....	Respiration
		Percussion	Right
			Left.....
		Auscultation	Right
			Left.....

Digestive System.	{	Tongue.....
		Stomach
		Liver.....
		Spleen.....
		Intestines

Hernia.....

Urinary System.	Character of Urine	Incontinence.....
	Specific Gravity. Albumen.	Sugar.

State of Health while at School. } *(To be filled up on leaving)*

Illnesses and Accidents while at School. } *(To be filled in on leaving)*

Signed.....

Medical Officer.

In the preceding medical statement the weight and height are recorded, in order that it may be seen whether the boy has grown properly before he enters school. This record also should be continued every year, so as to observe whether he is growing and weighing as much as he should : a failure in either of these respects being the surest sign that the boy is not thriving, or that illness is about to occur. But in taking these records it must be remembered that most children grow by fits and starts : rapid growth requiring great care, more rest, and little work : with loss of weight, all work should cease. Whether children have been brought up in town or country also is shown in this record : thus Dr. Roberts has stated that between 10—20 years of age children living in the country exceed in *growth* those living in towns by an inch in height, and in many cases by 7lbs. in weight.

Dr. Squire has furnished the following scale as a good average height and weight for the following years :—
A child 8 years of age should measure a height of 4 feet, and weigh 4 stone ; at 12 years of age, a height of 5 feet, and a weight of 5 stone. At the school age of adolescence

A child of 5 ft. 6 inches height should weigh 8 stone.

„	5	„	8	„	„	9	„
„	5	„	10	„	„	10	„
„	5	„	11	„	„	11	„
„	6	„	0	„	„	12	„

Girls should show a higher rate of growth at the age of 11 to 12 years, or healthy development is being hindered.

MEDICAL REPORT.

The medical officer should be further aided, in his work for the welfare of the boy, by as much information as can be given of his past life and family history ; whereas, as a rule, a boy is deposited at school by his parent without any particulars whatever being furnished on these points, and so the medical officer is deficient in essential information during the medical treatment of the boy. Now, this is not fair to the boy or to his medical attendant. Reticence on the part of a parent in a matter of such moment is most unjustifiable. For example, many a boy is sent to school with a decided history of consumption (of which perhaps a parent has died), and yet the fact is not communicated. And, moreover, it has happened that, in the report completed by the parent, the inquiry relating to consumption has remained unanswered, when a candid confession of the possibility of inherent weakness would have been of unspeakable benefit to the boy, by enabling the medical officer to adopt suitable measures.

To induce parents to assist the school doctor as they ought, a *Medical Report*, signed by a parent or guardian, should accompany every boy on leaving home for school, and this should contain a complete personal and family history. The form on page 63 may serve as a guide.

VACCINATION.

The subject of vaccination is one of great moment to every individual, but especially to the young ; for the protection it affords against small-pox is indisputable, and a parent has no right to deny this protection to his

MEDICAL REPORT

To be sent to the House-Master on the Admission of a "New Boy," for the guidance of the Medical Officer.

1. Name
2. Date of birth.....
3. Where born.....
4. Where resided
- (These two latter are sometimes very important to know: *e.g.*, whether a boy has come from a hot or malarial climate.)
5. Has he any ailment rendering "school games," or any of them, undesirable?.....
- (The answer should state every known *personal* defect: *e.g.*, Rupture, Heart Disease.)
6. Is there any peculiarity in health or constitution which should be mentioned?
- (The reply should express every known *family* defect likely to influence the boy: *e.g.*, Consumption, Rheumatism.)
7. When was he last vaccinated?..... Was it successful?
8. Has he had Small-pox?.....
- „ „ Chicken-pox?
- „ „ Measles?
- „ „ Epidemic Roseola?
- (Often called Rose Rash or German Measles.)
- „ „ Scarlatina?
- „ „ Mumps?
- „ „ Whooping-cough?
- (If "Yes," add the date.)
9. What other illnesses has he had?
- (*e.g.*, Pleurisy.)

Signature of Parent or Guardian.....

Date

child, thereby allowing it to die or to be scarred for life by this disease.

Mr. Marson has shown that the proportion of deaths from small-pox amongst those unvaccinated is 35·5 per cent. ; whereas, after successful *primary* vaccination, it is, for those who have *four* good marks, only ·75.

After successful *re-vaccination*, Dr. Herbert Goude showed that, with an unbroken record of forty-eight years at the Small-pox Hospital, where every nurse and servant was re-vaccinated when hired, not one ever contracted small-pox even in a modified form. During this period, however, an assistant gardener was engaged who refused to be re-vaccinated, and he caught small-pox, and died.

That re-vaccination is a necessity in the young between the ages of twelve and sixteen years there can be no doubt whatever. The following table of cases which I have re-vaccinated between those ages during the last thirteen years bears sufficient testimony as to its necessity, with the result that no case of small-pox has occurred, even though a severe epidemic raged in the town for a season.

STATISTICS OF RE-VACCINATION.

Nature of Vesicles produced.	Number of Cases.	Per Cent.
Good vesicles 	646	62·59
Poor vesicles 	334	32·36
No result : all these cases were re-vac- cinated a second time without effect }	52	5·03
Total number of cases 	1032	

Among these cases there were some patients who had such splendid marks from the primary vaccination of

infancy, that I almost thought it absurd to look for any result from re-vaccination; whereas I found that they often produced my finest vesicles. Between the highest in my "good vesicle series" and the lowest in my "poor vesicle series" there was a marked difference—the highest being as good as the finest vesicles in primary vaccination, the lowest being a diffused redness simply, without an actual vesicle, but lasting, and being red and sore, for about ten days. One case had previously had small-pox five years before, and was susceptible when re-vaccinated, producing poor vesicles only.

This shows how important a matter re-vaccination is in schools; therefore, every boy above thirteen years of age should be *vaccinated* immediately prior to his entering school, or immediately afterwards, both for his own protection and the safety of the school. And if a parent object to the vaccination being performed at school, it should be at once carried out at home. It ought to be regarded as a disgrace for any school to ever have a case of small-pox.

The inference from the present progress of medical science is, that infectious diseases other than small-pox will by-and-by be prevented by similar measures. When this period arrives the gain to schools throughout the country will be incalculable, and all will reap the fruits of it; and not only will this advantage be on the side of the boy's permanent health, but other great gains will follow. For the pupil will not waste the time that should be devoted to his work; the masters will not be hampered by having pupils in their forms who have got behind all the others, and so become a hindrance and anxiety to the masters and a drag on the whole form; and parents will be saved from paying highly for a twelve weeks' education, of which half has been wasted through infectious illness.

VI.

THE MASTER'S BOARDING-HOUSE.

IN small schools all boys live together in one house, which is dwelling-house and school-house combined ; but in most large schools—as the public schools—boys live with different masters in separate houses, and meet together at all other times—at chapel, at school, and in the playground ; though in some schools there is a common dining-hall, where the whole school meet at dinner, or even at all meals—neither of which plans is to be recommended.

These boarding-houses accordingly are a distinct element in a large school, and vary much in different schools and even in the same school. A parent, therefore, should not only carefully select the school, but the boarding-house and boarding-house master also, that are likely to be best adapted for his son.

THE MATRON.

When a house-master has succeeded to a house, his first thought should be to set the house in efficient sanitary order in the vacation, before he occupies it for himself, his family, and his pupils.

His next consideration, and one of great importance, should be to find a suitable *matron* ; for on the choice of his matron most of the efficient working of his house will depend, and also much of the happiness and welfare of the boys under his care.

I have known a matron, simply by her personal cha-

racter, and the absence of fear or favour in her conduct, maintain a remarkable control over a large house, and influence the boys individually for good in an extraordinary degree; for boys will open their hearts to the matron when they will refrain from doing so to any other individual—schoolfellow, master, or master's wife—at school.

There are men without number in the world who will confess that they owed much of their happiness at school to the matron, in whom they found a sympathising friend, and to whom they could and would tell their school troubles—trivial, perhaps, to men, but real, and no small burden sometimes, to boys, especially “new boys,” who have been tenderly cared for at home, and who miss the individual attention to which they have been accustomed, and perhaps never before missed.

I have also known matrons appointed to this important post just as unfit. If the masters had sought the world over to find the most unsuitable woman, they could not have been more successful in their endeavours. There are many men in the world who could tell how they missed, as boys at school, the kindness and sympathy of such a suitable matron as I have described.

A comparatively young matron has much more sympathy with, and more hold over, boys, than an older one, who is apt to have crotchets, and be irritable even under slight provocation—though in saying this I am bound to confess that one of the best, if not *the* best, matron I ever knew, was, comparatively, an elderly woman.

STUDIES.

When boys are not in school, or in the playground, it is imperative that there should be some place to which

they can resort, and in all schools arrangements of various kinds are made for this purpose.

In private schools the boys generally have no separate "studies," but live and work together in a common school-room. This is an excellent plan, and, provided the school-room be sufficiently capacious, and well ventilated, a very healthy one. For small boys it is the best arrangement.

In some of our public schools a common-room is provided for the younger boys, while the elder ones have "studies" to themselves, and a room, called the sixth-form or fifth-form room, in which they can meet together. But in most of our public schools the boarding-houses are provided with "studies" in one form or other for all the boys. These are of two kinds:—

The Study
only.

(1) The "study" pure and simple, which a boy has to himself, or shares with a brother or a schoolfellow. These are excellent, cosy little rooms, where a boy can work well, either alone or with his fellow; and if a master be discriminating in choosing the boys who are to occupy the same study, being guided especially by their *characters*, no harm results. They are a great comfort to a boy, for he feels, amidst all the publicity of school life, that he has some small place in the school-world that he can call his own, and where he can be alone sometimes; and they are not too private.

I . They often might be larger, though even the traditional 6 ft. \times 4 ft. study I do not condemn, since a boy is rarely long enough in it to get harm through insufficiency of air; and even if he occupy it for any length of time, the door is usually open all the year round, while in summer the window is often open as well, and in winter a large fire is kept up. In some cases, however, no fire-places are provided, but the studies are warmed by hot-

water pipes, or by hot-air flues, or simply by a fire in the passage. Without exception, they all might be, and should be, better ventilated, and with some reference to sanitary science. If fires in studies were abolished, and the warming were effected by hot-air flues, or by hot-water pipes over which fresh air from the outside continually passed, endless expense would be saved, and a continuous supply of warm fresh air could be supplied to each room.

An objection, however—worthy of some consideration—against the abolition of study fires is, that boys would be thus deprived of much real happiness in their small domestic cooking arrangements—a privation to be avoided as much as possible, especially during the long winter evenings, as any act affording occupation and pleasure at such times should be encouraged in every possible way.

Yet that these studies do occasion harm every now and then under the present system is beyond a doubt; for example, a boy often makes up such a huge fire that the heat prevents his remaining in the room, and he consequently either opens the door and window and sits in a direct draught, or goes out of doors to cool himself. I have known cases in which a severe illness has followed an acute chill caught in this way.

In some schools, while all boys have these studies, the smaller boys are not allowed to use them in the evening, but are assembled together in a common room, to prepare their work for the morning, in the presence of a master. This plan is excellent for the boys, though a tax, perhaps, on the masters, for more and better work is done, and there is less scope for that rowdyism and bullying in the studies and passages during the long winter evenings which used to prevail in days gone by.

It is a question of the first importance whether the *whole* of the work of every boy at school except the seniors should not be prepared under the immediate superintendence of a master, instead of being left to such time and mode of preparation as the boy himself may decide. The former plan alone will ensure honesty in work and the abolition of "cribs," and will directly conduce to mental and moral health and happiness, and that essential in education—*thoroughness*.

The Study
and
Sleeping-
room
combined.

(2) Another arrangement combines the study and sleeping-room in one room, the door of which opens out of a passage which leads to several similar rooms; it is a day and night room. Each boy, usually, has one to himself; sometimes brothers share a larger one between them. Their size varies; but the usual size is about $8 \times 8 \times 10 = 640$ cubic feet.

I have seen them larger, and I have seen them smaller. I have also seen them so dark as to resemble a prisoner's cell far more than the abode of a boy night and day during eight months in the year, in illness and in health, whose parent pays heavily for the privilege of his being confined in it. Here, with inadequate air-space, breathing the same air day and night, with insufficient light and ventilation, and with every facility for secret vice, the boy is expected to thrive mentally, morally, and physically, and is often reproached by his parent, who pays from £100 to £250 for eight months in the year, for defective work, unhealthiness, or immorality, which are really produced or developed by the improper conditions under which he lives.

I regard this arrangement for boys as most unhealthy, unwise, and unjust. I dwell further upon the subject when treating on Cubicles, page 74.

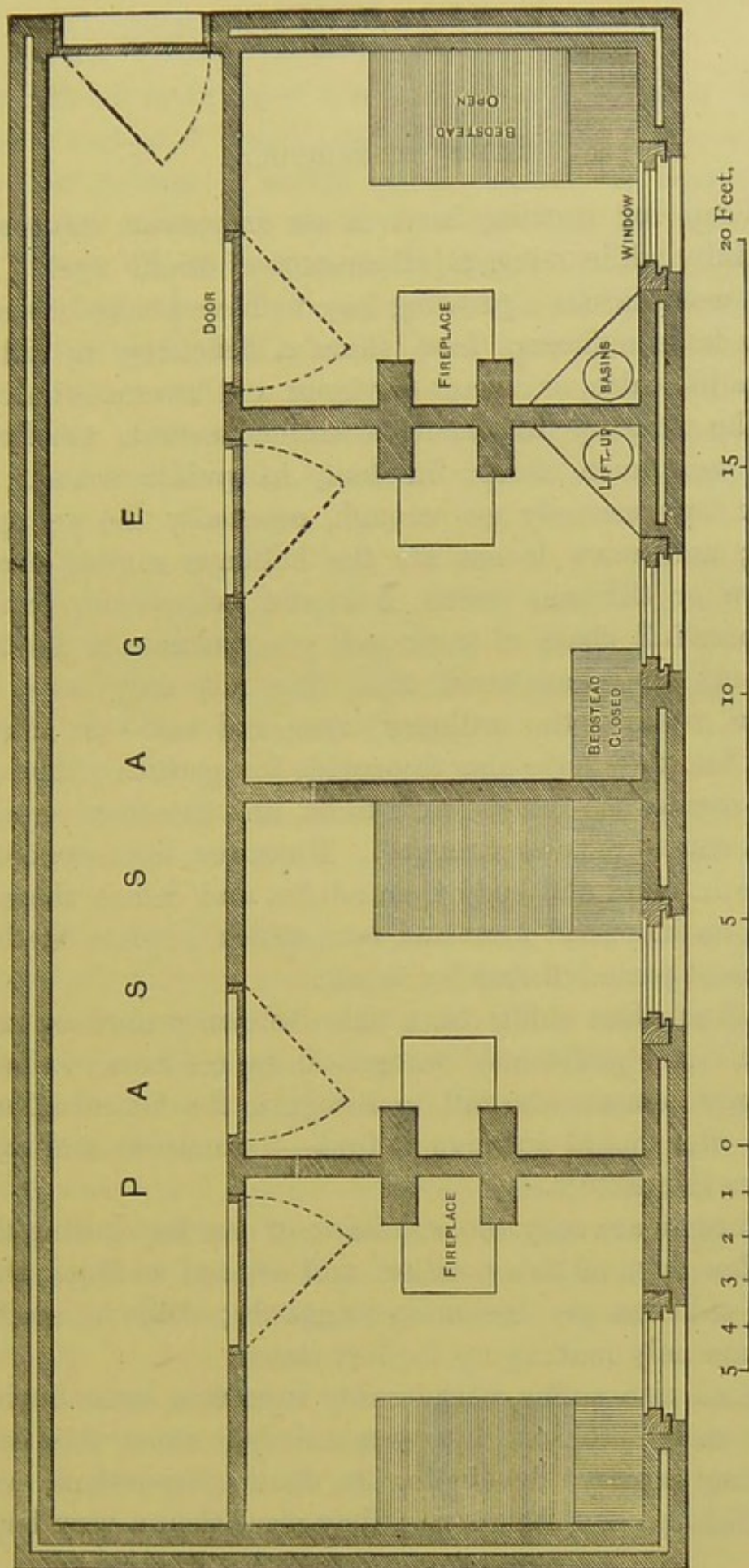


FIG. 1.—THE STUDY AND SLEEPING-ROOM.

SLEEP AT SCHOOL.

Sleep for growing boys is an important matter—especially while doing a full amount of brain work. It is as essential for a growing boy to have plenty of sleep as to have sufficient food, since a deficiency in either causes ill-health, or a want of vigour and lowered vitality.

The tendency in schools is rather towards too little than too much sleep; in fact, in public schools, I think boys scarcely get enough, especially the younger ones; and were it not for the holidays coming every twelve or thirteen weeks, I do not believe they could do their full share of work and yet continue in health. It must be remembered that they not only have to repair waste—the ordinary wear and tear—as adults have, but they have also to provide for growth; thus all their organs have extra work to do, and therefore require extra rest to recover strength. Moreover, boys are more active in mind and body than adults, and hence there is again an increased wear and tear, which needs a further increased period of rest for repair.

All scholars suffer from this deficiency more or less, but it is not sufficiently recognised by teachers; in fact, the only persons who fail to recognise the fact at all are those who should perceive it first—the masters and mistresses themselves.

Parents are only too cognisant of the fact during the first few days of the vacation, and are apt to think that their children are becoming sluggards; while in reality they are only making up for lost time.

Girls also suffer considerably from this cause during their early progress into womanhood, when they are growing rapidly, developing in their proportions, and establishing new functions; they need then a very large

amount of bodily and mental rest and sleep, if strong bodies and good brains are to be produced.

The *amount* of actual sleep required by boys *under ten* years of age is eleven hours; and the best time is, except on the very hottest nights in summer, from 8 p.m. to 7 a.m. For boys *under thirteen* years of age, ten hours and a half should be set apart, from 8.30 p.m. to 7 a.m.; breakfast should follow at 8 a.m., and school at 9 a.m. For boys *above thirteen*, the eight and a half or nine hours usually permitted, but never obtained, are

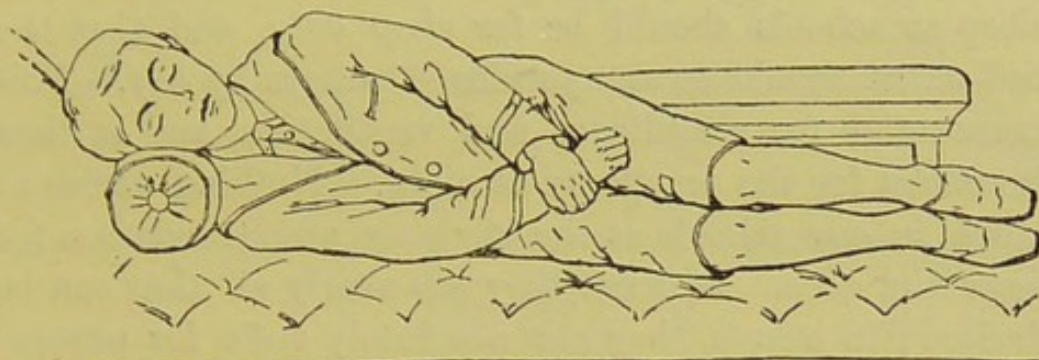


FIG. 2.—THE POSITION OF THE HEAD FOR SLEEP.

not excessive, if enough, considering this active period of growth, and the amount of mental and bodily exercise they undergo. In bed at 10 p.m., which means sleep not much before 11 p.m., and called at 6.30 a.m. for chapel at 7 or 7.30 a.m., is, I believe, the rule in most public schools. With only this amount of sleep some boys seem weary, and appear as if they had not sufficient rest.

I lay great stress on this insufficiency of sleep; for it is impossible that healthy brain tissue should be formed, if rest, adequate for both growth and repair, be not provided.

Another point connected with sleep, especially as concerns the young and growing, is that the head only should be placed on the pillow. (Fig. 2.) Sleep is better obtained when the head lies low, and in a line

with the spine, the pillow fitting, when the sleeper is lying on his side, into the space between the head and shoulder; by this means the shoulders are prevented from being made round through spending a third of every day in an unnatural curved position.

THE PLACE FOR SLEEP AT SCHOOL.

Very strongly indeed do I hold that the place for sleep at schools should be for *sleep only*, and that the bed-rooms should be always closed to boys by day. This is essential for cleanliness and ventilation, and is thus beneficial for the occupants at night. Nothing varies so much in our schools as the sleeping accommodation for boys and girls. In some they are nearly all that can be desired; in others, they are absolutely unfit for occupation. I have no hesitation in saying that in many schools a "first-class fare" is charged for a "third-class accommodation." And yet the physical and moral health of the scholars varies very much according to the sleeping accommodation provided.

Cubicles.

Of all school arrangements cubicles are undoubtedly the worst. However any human being, professing to be an educator of the young, could construct them and uphold their virtues, I fail to understand, and yet they are largely in vogue.

Cubicle and
Study com-
bined.

I have already described the *Cubicle and Study combined* on p. 70.

Cubicles in
large Dor-
mitories.

In *Cubicles in Large Dormitories* we have a very large room, partitioned off into small rooms, or cubicles,

on either side of a passage down the centre of the room, into which the door of every cubicle opens. Fig. 3*b*, p. 77.

The main room itself, about 12 feet high, contains

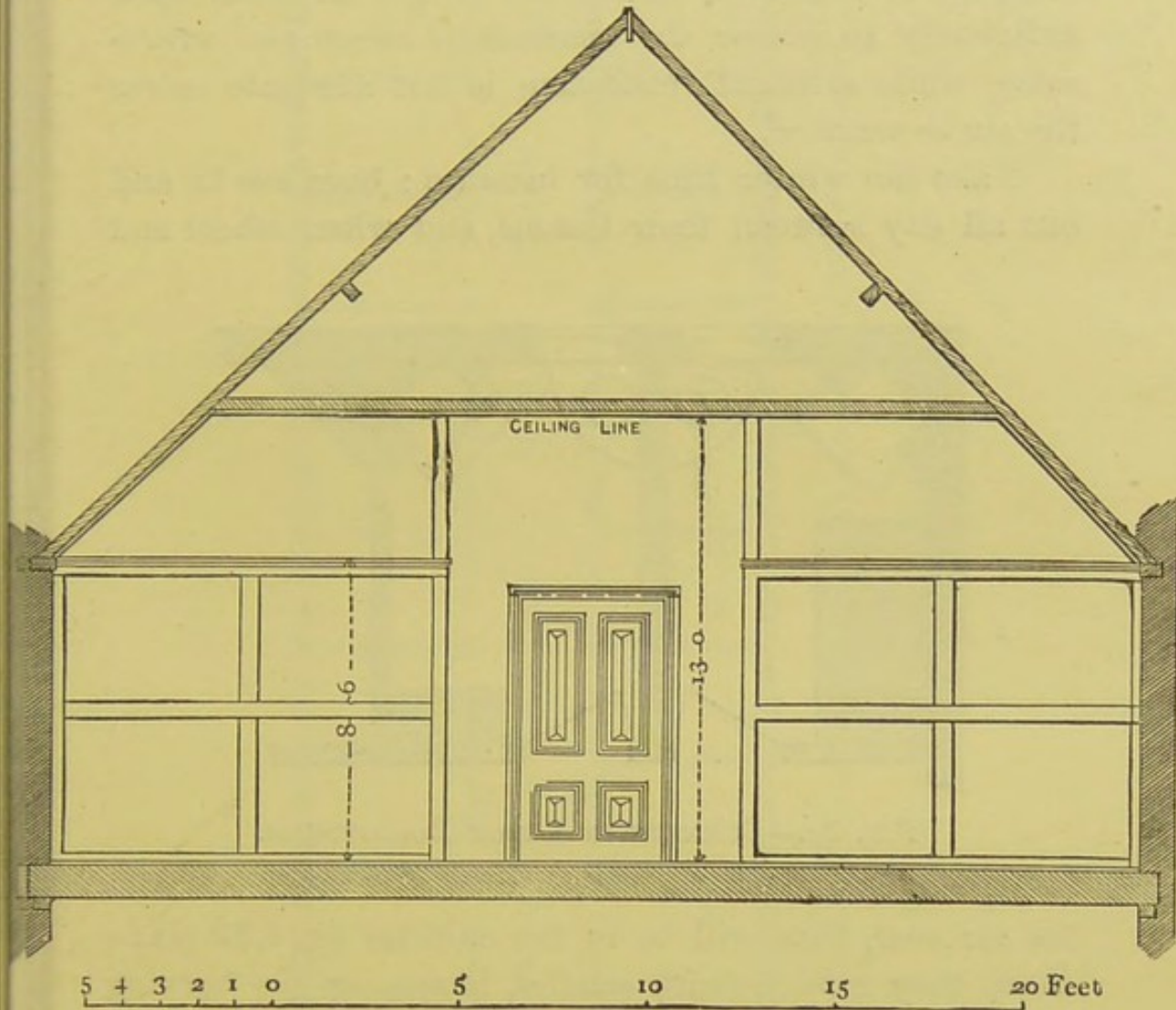


FIG. 3.—CUBICLES IN LARGE DORMITORIES.

from 20 to 40 cubicles, each being about 8 to 9 feet square, and separated from the adjoining one by a wooden partition about 8 feet high, and from the one on the opposite side by the passage.

Above these partitions, and between them and the ceiling, is a height of 4 feet, and this space is common to all the cubicles in the room.

There is, therefore, a good supply of air for the day or the night, but a most insufficient supply for work by day, for candles or gas by night, and for sleep; for being occupied, it is always impossible to get windows open sufficiently to render the apartments sweet and wholesome, while artificial ventilation is not adequate unless the air be warmed.

Take the winter time for instance: boys are in and out all day between their lessons, and when school and

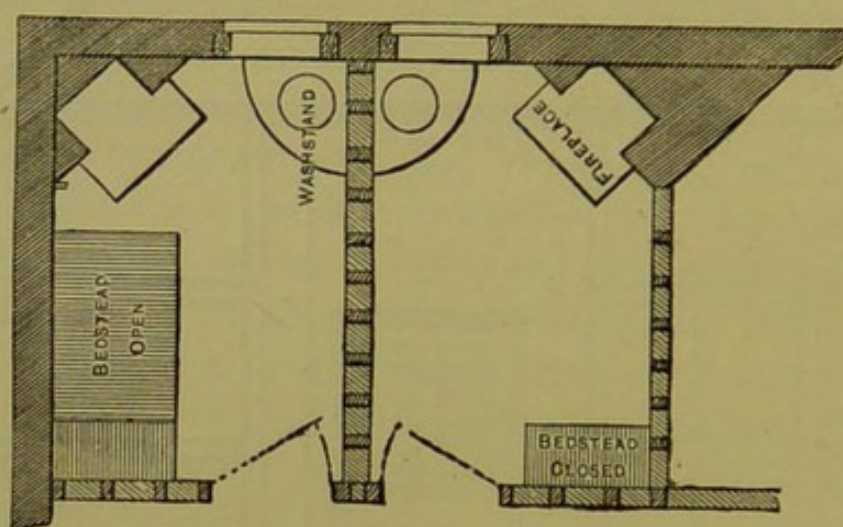


FIG. 3a.—CUBICLES IN LARGE DORMITORIES.

tea are over, they will be in the cubicles by 6.30 p.m.; there they remain (with candles, lamps, or gas burning until 10 p.m.) until 6.30 a.m., the air being very scantily changed throughout the 12 hours.

Moreover, the enclosing the bed and bedding in a wardrobe immediately it is vacated in the morning is filthy in the extreme.

The evil, too, of cubicles is great from a moral point of view. The upholders of them, whose name is legion, deny that they are bad, and assert that boys keep to their own cubicles by night. I know better! and probably those who ought to know this best are the only

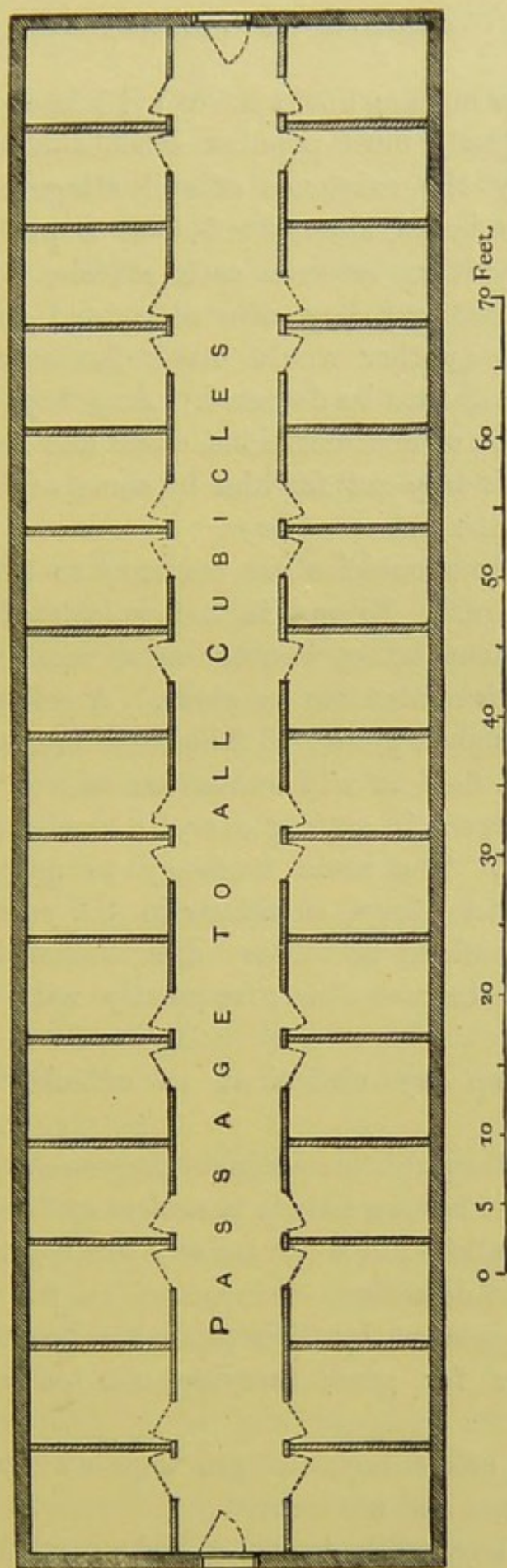


FIG. 36.—CUBICLES IN LARGE DORMITORIES.

ones who know nothing about it. Why, I know one of our largest, and justly most popular schools—which would probably deny the existence of evil altogether—where a large heavy board, about 8×3 feet, is placed on the top of the partition between each cubicle, fastened up by wire, so that any boy who attempted to get from one cubicle to another would break the wire, pull the board down, and thus be detected. Any boy of mettle, from his delight of mischief alone, could and would easily circumvent this trap set for him by some authority who is ignorant of the nature of boys.

Further, these cubicles are contrary to the needs of “human nature.” Except in a few isolated cases, no animal nor human being, whether man, woman, or child, likes to be, or is content to be, alone. A solitary animal confined in its shed pines and fails to thrive, while if set at liberty in a field it will endeavour to overcome, and frequently succeeds in getting over, its barriers, and joins its neighbours. The same tendency to gregariousness exists in human beings, especially in the young. Boys will not be confined in solitary cells, but will, day and night, seek to join each other, frequently with results to be deplored.

To sum up my objections to cubicles, I would state:—

(1.) That they militate against “*human nature*”; and fighting against human nature is useless and injurious.

(2.) They allow full scope for any *bad boy* to do as he pleases without detection.

(3.) They prevent, by their privacy, a boy who would control others for good, carrying out his duties and desires.

(4.) They allow boys to get together for immoral purposes, unseen and undetected. ‡

(5.) Any boy, while in his cubicle, can, though un-

seen, call out any obscene remark he likes, so that the whole room may hear and he remain undetected.

(6.) It is most unhealthy to live and sleep in the same room, as it can never be properly ventilated.

(7.) It is a filthy practice that a bed, immediately it is vacated, should be folded up in a cupboard, saturated with decomposing sweat.

(8.) It is wanting in cleanliness for boys to be in and out of their cubicles all day in muddy boots in wet weather, and then be compelled to sleep in the same room at night.

(9.) And finally, it is a well-known fact that cubicles, by the privacy they afford, encourage a boy in lazy habits in the morning, fostering his lying in bed until the last minute, and so not allowing time for washing himself, which in a large dormitory of many boys public feeling practically insists on, however little it may be relished by the individual.

Against these objections there is not a single favourable point to be urged. It is a matter for parents to decide whether cubicles shall be provided in schools. The law of demand and supply is inexorable: if parents refuse to place boys where they are in vogue, they will be demolished forthwith. It is, therefore, a parents', and not a school question.

But for those parents who are unable to approve of the complete openness of the large dormitory system, such as I am about to advocate and describe, I would recommend such an arrangement as I find already in force at a school in Cambridge, which ensures the openness I desire with the privacy parents seek.

The drawing (Fig. 3A), represents the arrangement of which I speak. Each dormitory contains twenty beds; the space intervening between the side of each bed is 2 feet 6 inches, and between the feet of opposite beds

4 feet 3 inches. Behind the head of each bed is a "recess" without a door, 5 feet wide, 3 feet deep, and 5 feet high, containing a cupboard, shelf, washstand, towel-rail, folding-stool, and looking-glass. The height of the dormitory is 14 feet, length 54 feet, and width 23 feet, thus providing nearly 870 cubic feet per boy. It is heated by hot-water pipes encircling the room, and ventilated by inlets behind the hot-water pipes, and outlets in the ceilings, which communicate with shafts opening outside the roof. It is lighted by gas-burners, over which are ventilators; and a small jet is left burning all night. The walls are match-boarded and varnished half-way up, and the upper part is coloured, which is renewed annually. The bedsteads are furnished with horsehair mattresses and cotton sheets. In a room adjoining each dormitory a master sleeps.

I have been particular in stating carefully all these details, because in nearly all the points that I have advocated in the subsequent pages as essential for healthy dormitories (and which were written years before I saw the plans of this school), I find are already in force in this school; and surely what one school can accomplish in sanitary details others are able to follow.

Dormi-
tories.

I would repeat that dormitories at schools should be used for sleep, and for sleep only. They should consist of large rooms, open to the view of every occupant, and each should contain from ten to sixteen beds.

Where dormitories are too large there is a tendency to roughness and bear-play, and the larger the number of occupants the greater is the power available of a rough set of boys; the best number of occupants is twelve, which is not too few to permit undue privacy, and not too many to render the boys uncontrollable by the præpostors, while at the same time they are also under the

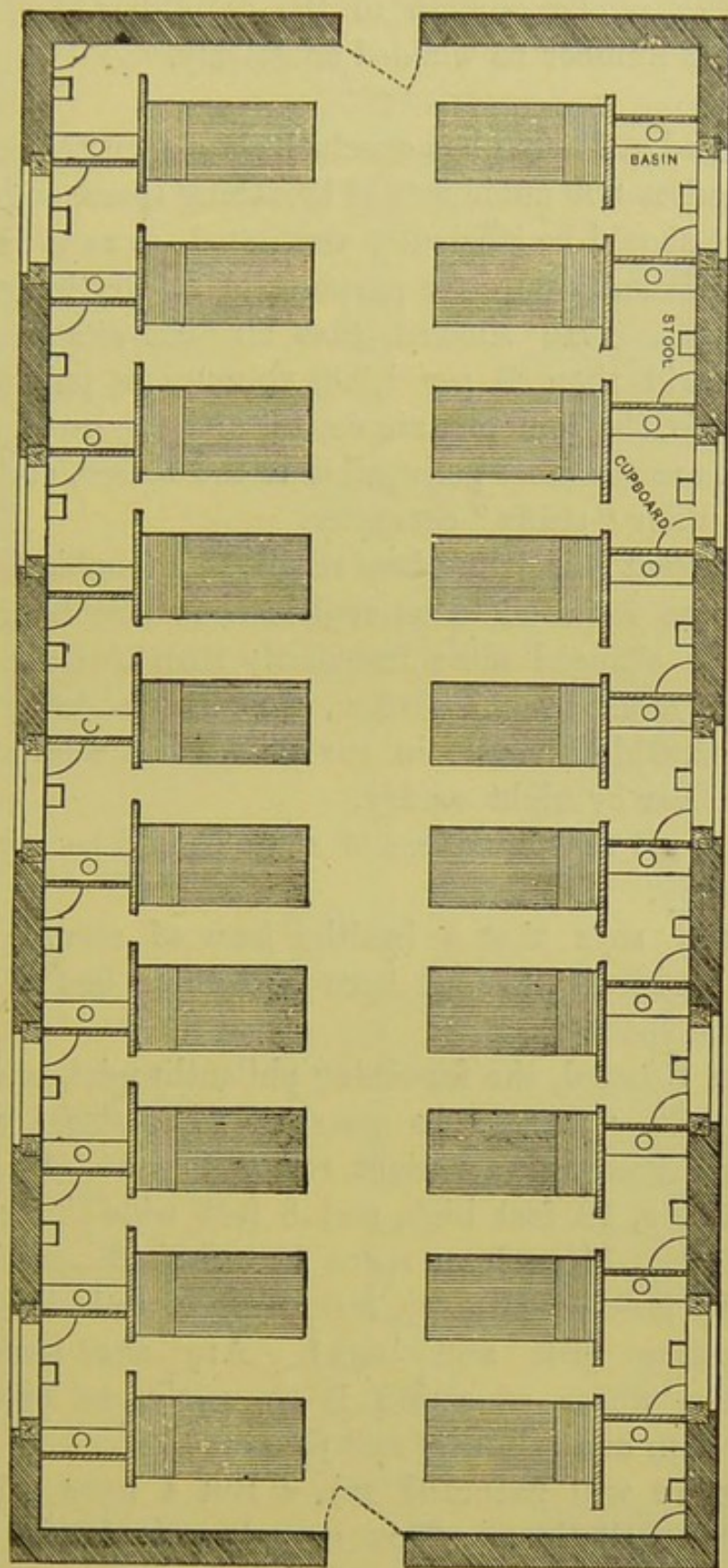


FIG. 3 A.—LEYS SCHOOL, CAMBRIDGE.

influence of public opinion in the dormitory, and can with such a number be wielded effectively.

Size of
Dormi-
tories.

I think Dr. Parkes has conclusively shown that every adult requires 800 cubic feet of breathing space, and that this space should be efficiently ventilated, so as to render the air sufficiently pure for purposes of respiration without draught. He showed that air containing more carbonic acid than .6 per 1,000 volumes is poisonous; though it is the foul organic matter and excess of moisture that are the most perceptible to the senses, and give to rooms their "stuffy" character.

To prevent this deleterious result, 3,000 cubic feet of fresh air are required to be replenished every hour. If this air be changed more frequently than three or four times an hour by ventilation, too much draught is occasioned, which no one in our climate can comfortably endure either by night or day.

Therefore, 800 cubic feet of space should be supplied for each boy.

Huxley says that a healthy man of eleven stone weight ought to have at least 800 cubic feet of well-ventilated space.

John Howard, the far-seeing philanthropist, wrote, a century ago, "It may be asked of what size I would wish prisoners' solitary night rooms to be? I answer 10 feet long, 10 feet high, and 8 feet wide;" *i.e.*, 800 cubic feet. If such a space be requisite—as it undoubtedly is—for prisoners, how much more is it needed for growing girls and boys? Are our sons and daughters, whose education is so costly, to be worse housed than our prisoners and paupers?

Masters will naturally say, "But I have provided efficient ventilation." This may be so; but if cubic space per head be so restricted that to ensure adequate

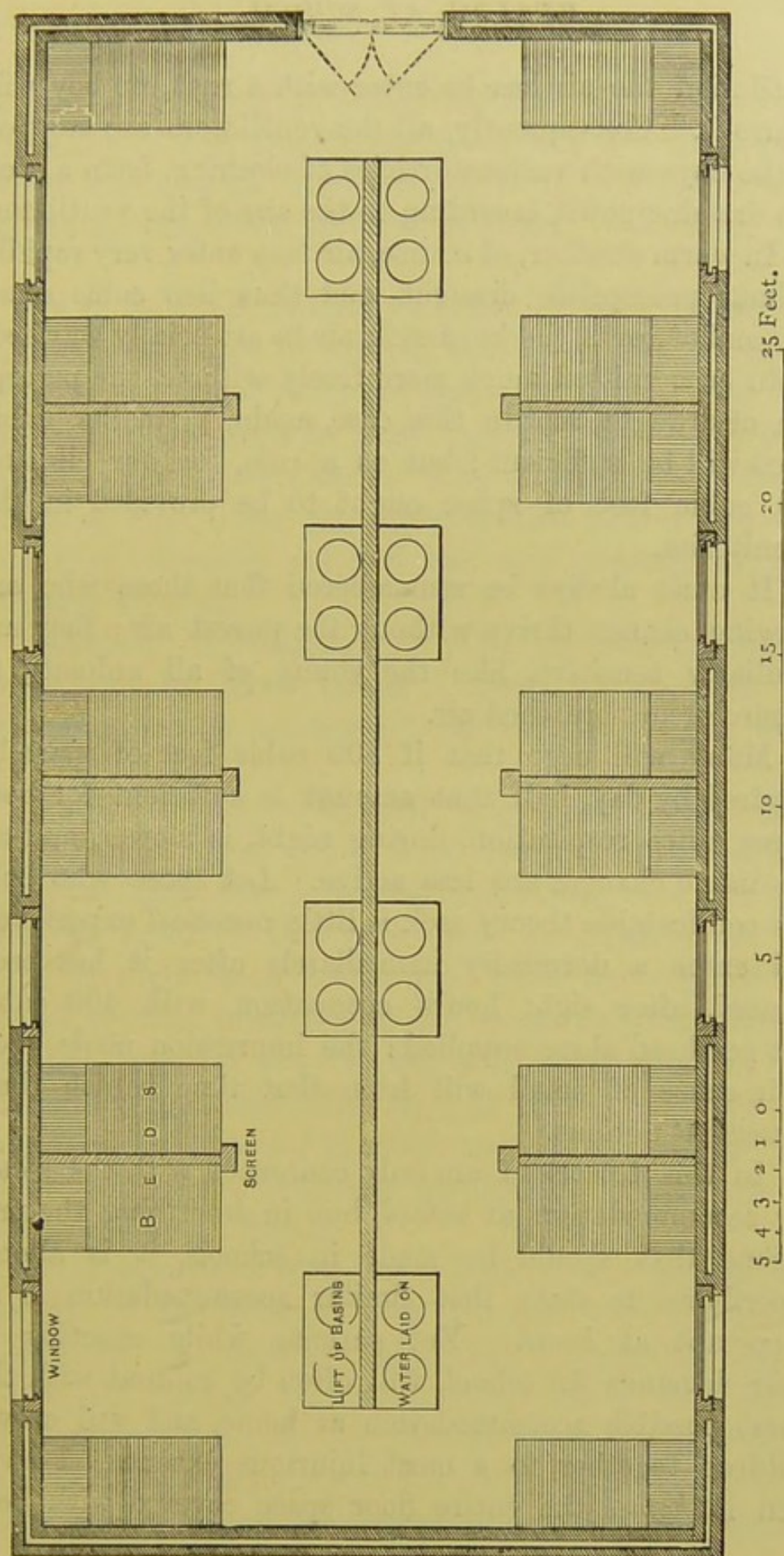


FIG. 4.—A RUGBY DORMITORY.

ventilation the air has to enter with a rush, no boy will endure it. Consequently, all the ventilators are stopped by the boys with various articles of clothing, from a sock to a dressing-gown, according to the size of the ventilator.

In warm weather, of course, air may enter very rapidly without perceptible draught, and thus less cubic space may suffice; or if the in-coming air be artificially warmed, it can be admitted much more freely without the perception of draught, and in this case, again, a smaller cubic space will be sufficient; but as a rule, for our climate, 800 cubic feet of space ought to be provided in the dormitories.

It must always be remembered that those who are growing cannot thrive without the purest air; they are peculiarly sensitive, like the young of all animals, to impure or pre-breathed air.

Many will urge that if 800 cubic feet of space be required by day, half that amount is sufficient for bedrooms, since respiration, during night, is slower, and all the tissue changes are less active. Let those who hold this comfortable theory seek a little *practical* experience, and enter a dormitory immediately after it has been vacated, after eight hours' occupation, with 400 cubic feet per head alone supplied: the impression made upon their sense of smell will from that time banish their *theoretical* notions.

In this treatise I am only concerned with the sleeping accommodation at *school*, but in describing the provisions that should be made in schools, it is almost superfluous to state that similar accommodation is as important at *home*. Yet parents, while exacting in their demands for school, will often be content with the worst possible accommodation at home, and will crowd children together to a most injurious extent. I have seen in *homes* the entire floor space covered with bed-

steads, with barely sufficient room to get to each bed. In many of our schools the dormitory accommodation, while bad enough in others, is happily far in advance of the sleeping-room provided at home.

It is, on many grounds, a point of great importance in the dormitories of schools, that sufficient superficial area should be provided for each scholar, and that beds should not be placed so close together that barely room is left to get between them. I have seen them so nearly touching each other that they formed almost one bed, and thus virtually entailed the evil practice of boys sleeping together.

Superficial
area of
Dormi-
tories.

Another disadvantage of close packing is, that if an infectious illness attack a pupil in one bed, the occupants of the adjoining beds are almost sure to be infected.

Therefore, superficial area is of great consequence; and taking a school bed at 3×6 feet, the superficial area should be quite four times that dimension, or 6×12 feet, and the room 12 feet high (Fig. 5). This gives 864 cubic feet per head, which will allow for the air displaced by the furniture of the room and the body of the boy, and yet provide the full complement of 800 cubic feet per head (Fig. 5). A friend of mine has increased the distance between the *breath* of each boy, so as to minimise infection, by placing the beds in the fashion shown in Fig. 5.

It is sometimes stated that boys do not require this amount of air, because they are not fully grown. I should, on the contrary, say, that a growing boy, in whom all changes are much more active than in an adult, needs even more air than an adult, for his respiration is more energetic, and his expired air, I believe, is more highly charged with carbonic acid gas than that of

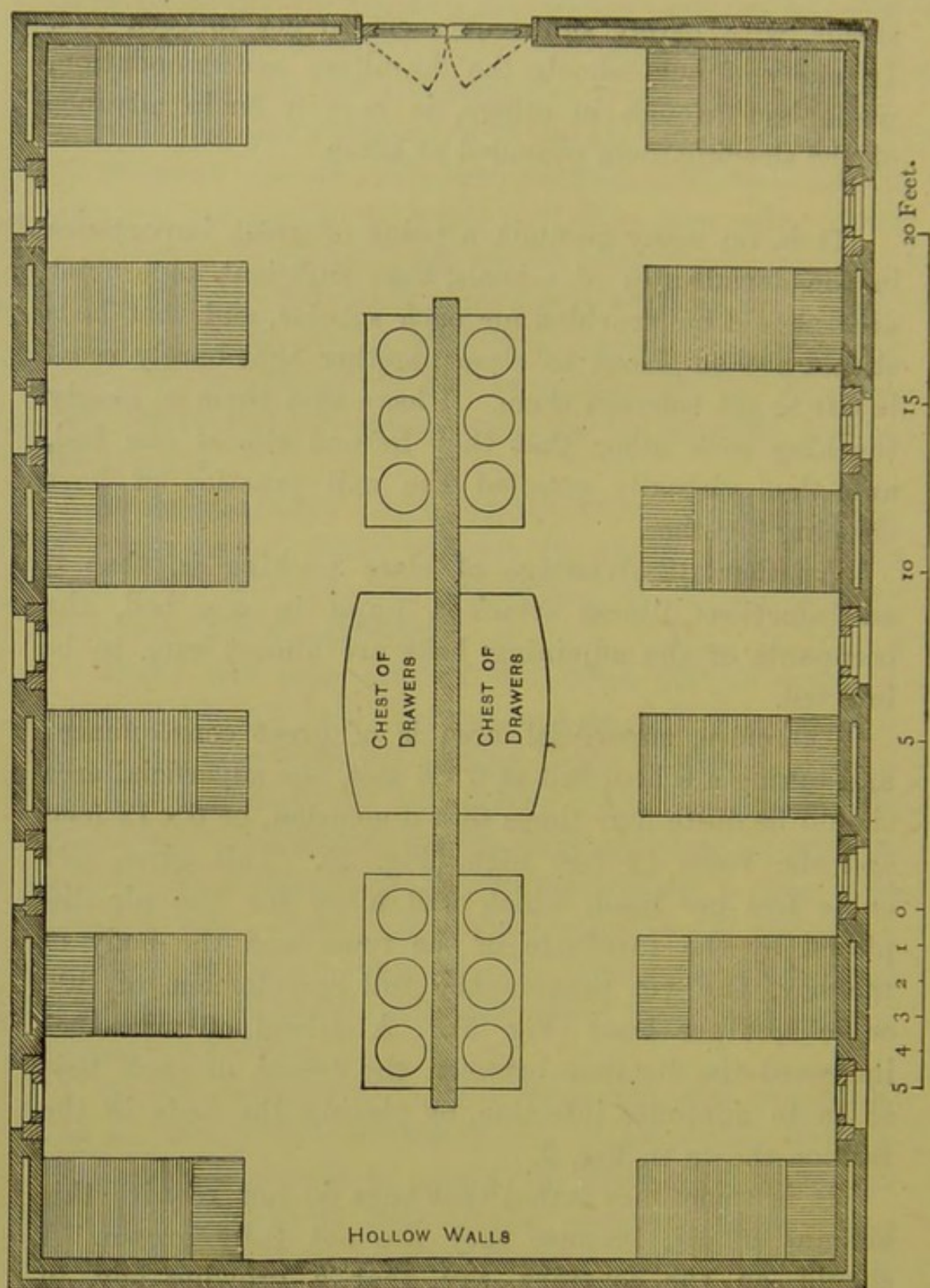


FIG. 5.—A MODEL DORMITORY.

an adult, in consequence of the greater activity of the change of tissue.

In addition to the preceding reasons, I further assert that the young throughout the animal creation are much more sensitive to impure air than adults; and in them, consequently, pre-breathed air is much more poisonous. Moreover, in a large school there are boys of every type of constitution and every degree of stamina, including many boys from a tubercular stock. Who will gainsay the vast difference it will make to an unfortunate boy of the latter class during his years of development, whether he have plenty of fresh and pure air, or whether he be compelled to breathe the same air over again? It may make this difference to him—whether he become a tubercular or non-tubercular individual, whether he die early or live to maturity.

With respect to the construction of dormitories, I would advise :—

Construc-
tion of
Dormi-
tories.

(1) That the *walls* should be what are termed “hollow walls” (Fig. 5). These are warmer in winter, and cooler in summer than walls built in the ordinary way; and if ventilating bricks be placed in the outside wall below, and in the inside wall near the upper part of the dormitory, there will be a continual current of fresh air entering the dormitory indirectly, and therefore without a rush.

The walls should be either lined on the inside with varnished match-boarding, or plastered, and the surface of the plaster coloured with “silicate,” or with paint, which should be washed annually, or, still better, every holidays.

(2) That the *floor* should be so laid as to obtain a level and smooth surface, with an absence of cracks and bad joints; the joints should all be tongued; and the skirting-boards should be let into a groove in the boards of the floor, in order to prevent an accumulation of dirt.

The whole floor should be stained and varnished, so that it may be bees'-waxed from time to time instead of being washed.

Parquet flooring and the prepared paraffined flooring are excellent ; but carpets should never be used.

(3) That the ceiling may be of plaster, whitewashed, or, better still, of match-boards stained and varnished, which can be annually washed.

Sanitary
Condition
of Dormi-
tories.

In speaking of the sanitary conditions of dormitories, the following considerations must be studied :—

(1) *Aspect*.—For the young and growing the sun is always most invaluable, even in dormitories which may be unoccupied during the time the sun is on them.

The southern aspect is the best of all. A dormitory thus facing is far more healthy than one devoid of sun, for it is warmer and drier ; the air is purer ; the organic matter given off from the inmates is burnt up more completely ; and mildew is unable to exist.

(2) *Light*.—*Natural* light is obtained by means of windows, which should be ample in size, and at least one-tenth of the floor area. They should reach the ceiling, so that when open at the top they may clear the upper stratum of air ; but should not reach too low down, so as to be well clear of the heads of the beds, and thus avoid draught there. They should be well opened by day, and in winter closed before sunset. Where possible, they should be placed on opposite sides of the dormitories. (Fig. 5.)

Artificial light should be obtained by the "sun-light ventilators," or Benham's "ventilating globe" light ; and if a light be slightly maintained all night, the rooms will be more healthy in consequence of a better ventilation, and a check upon any evil practices meditated by bad boys will be secured.

(3) *Ventilation* for dormitories should be obtained

from the open chimney ; or by means of ventilators over doors into passages, which in their turn should be well ventilated without draught by the Universal Perfect Ventilator, or by "conical brick" ventilators fitted into an outer wall ; or by Tobin's system ; or by Bird's method, which consists of a two-inch piece of wood inserted under the lower edge of the window-frame to prevent it from quite closing, and allowing the admission of fresh air between the two sashes in the middle of the window ; of Bird's plan I cannot speak too highly, for it is efficient in action, cheap in cost, and within the reach of every one ; or, further, by Boyle's air-pump ventilator ; or Sherringham's and Arnott's valves.

(4) *Warming*.—Warmth for dormitories can be supplied by the open fire, or, still better, by hot-water pipes.

Warming and ventilation combined can be provided for dormitories by hot-air flues, or by one of the patent grates ; and if *warmth* should ever be supplied to the dormitories of schools—an arrangement which I should not myself generally advocate, as tending to render boys unnecessarily sensitive—it should be warmth produced by the means above mentioned, but combined with ventilation. If the school be placed in a cold and damp situation, the provision of this warmth in the dormitories may be a necessity ; but no school should be built in such a situation.

At a school with which I am acquainted, when the nights are very cold, a fire is lighted in each dormitory at 5 p.m., and so regulated as to be just burning itself out when the boys go to bed. By this means the rooms are made comfortable.

The plan of warming dormitories by freely lighting the gas for an hour or two in the evening before going to bed should never be followed ; it is bad in the extreme ;

better have no warming than such warming, which burns up all the fresh air, and poisons the rest with deleterious gases; but this plan may be rightly used to assist in warming and airing the dormitories for the last few days of the vacation, before the boys return to school, *provided* the windows be left open about an inch at the top.

(5.) *Washing Arrangements.*—These should be carefully arranged, with a view to obtaining the use of plenty of water for washing purposes with as little trouble as possible. I have had Jennings's tip-up basins fixed in a new boarding-house, arranged as represented in Fig. 4; the pipes from them open below into the air-chamber of an Edinburgh trap. Each basin is supplied with a tap, by which means there is always an abundance of water.

Bedsteads.

The bedsteads, which should be made of iron, in most schools are about 3 × 6 ft. in size, and, as I have already stated, there should be allotted to every boy four times this size of floor-space, so that an interval of upwards of three feet will separate each bed from the one adjoining, and between the beds on the opposite sides of the room a space of twelve feet will be interposed. (Fig. 5.)

If, however, partitions be used, as represented in the drawing, Fig. 4, the floor-space between each bed is very much increased, and if the partitions be not too large, good is gained by the plan, for they do not serve as screens; though on the whole, all things being considered, I think dormitories without partitions are better, as shown in the drawing, Fig. 5.

Bedding.

It is always best in schools, whether for boys or girls, that *mattresses* should be used to sleep on, a horse-hair mattress being the best and cheapest in the long run.

The most appropriate *sheets* for those who are growing are cotton ; they are preferable to linen, on account of their greater warmth. Besides being the most suitable generally, they are especially so for those who suffer from cold and moist feet ; while for those who are liable to chilblains they are an essential to their comfort.

It is better for sanitary as well as moral reasons that the warmth in bed should not be very great. All clothing in bed should be short of producing moisture of the skin. This condition is more cleanly and less debilitating, and conduces to a more vigorous feeling on rising in the morning. All the coverings to the bed should be freely pervious to air, and act as good absorbers of moisture, the insensible moisture exuding always from the skin ; accordingly *blankets* are the proper bed coverings, better far than eider-down *quilts*.

The requisite number of blankets must of course depend upon the situation of the school, the season of the year, and each individual boy, for some require much more than others. During cold weather at least four plies of blankets and a quilt may be required ; and I think the school authorities should supply sufficient coverings for the night, and not allow boys to resort to their own overcoats and rugs.

The bedding, blankets, pillows, and other coverings, should be allowed time to air and dry, in order that the moisture and organic matter with which they are saturated from their daily use may be entirely removed. Yet, even in dormitories which are used for sleep only—still more in cubicles, where the room must be ready for use immediately after first lesson—it is rarely the practice to allow any ventilation whatever of the beds and bedding, for as soon as the occupants have vacated them the beds are re-made ; whereas, instead of the beds being made up as soon as they are empty, the proper plan is to leave

them open, so that the mattress, blankets, and other coverings, can be ventilated *all day*, the beds being only re-made when the windows are closed in the evening.

Moreover, the same plan should be followed in the vacation, and all beds and bedding should be well spread out on the day the scholars leave school, and so remain until their return; as a matter of practice they are usually packed in a heap, which thus becomes a mass of decomposing organic matter.

There are few schools of which the well-known advertisement, which occurs in our homely country inns—"well-air'd beds"—could be asserted with truth.

Unaired beds are a frequent source of ill-health; beds generally become damp when not in use, and it is consequently requisite that, before the re-assembling of the school at the commencement of each term, every mattress, and other bed covering, should be carefully aired. This should be systematically carried out under the superintendence of a responsible person.

Dormitory Morality.

I do not propose to discuss the question of dormitory morality in its entirety, though it is one of such moment. I cannot, however, pass it over in silence.*

In boys' schools, at the head of the *Dormitories* should be placed the best senior boys, or præpostors, that the house possesses.

Each of these boys should be responsible for the conduct of the dormitory under his supervision. He should be the trusted friend of the master, and of every upright and pure boy; but the enemy of every boy capable of any impure hint, word, or act. By his personal influence

* In a Prize Essay on "The Preservation of Health as it is affected by Personal Habits, such as Cleanliness, Temperance, &c.," I have fully and freely discussed it, and shall now make only a few essential remarks. (Rivington, Waterloo Place, London. Price 5s.)

alone, he may, as I have known, keep the whole tone of a house, especially of a dormitory, pure and healthy.

If in a school small dormitories of two or three beds be already in existence, and must be used, the responsibility of the master in the choice of the boys to be placed in them is serious ; and so serious, that it furnishes a ground for the abolition of such dormitories, for on this choice may depend the whole character and future of a boy.

I must also regard *cubicles*, for sanitary and moral reasons, as the worst invention ever planned for schools. For evils are *possible* in cubicles and small rooms which are unlikely, or almost impossible, in large open dormitories, unless the house or school be corrupt to the core.

Cubicles, in my opinion, are a direct invitation to a boy to practise and teach secret acts, which he dare not, and would not, commit before a whole room ; and it is wrong for any school to put this unnecessary temptation in a boy's way, however good his nature may be.

“ How oft the sight of means to do ill deeds
Makes ill deeds done.”

To the thoughtless parent these cubicles no doubt do look cosy, home-like, and private ; but it is this very privacy that constitutes their evil, for they furnish an opportunity and temptation to the commission of acts which could not be committed in a properly-regulated public dormitory, having at its head a senior boy, or præpostor, chosen for his *character* rather than for his ability.

The system of præpostors should alone be based on this test of character ; and experience has shown that in this form the system has proved a great success.

On parents, therefore, really rests the responsibility of continuing these cubicles or of abolishing them ; and

on their shoulders, consequently—not the master's nor the boy's schoolfellows—must also rest the blame if their sons become corrupt.

Cubicles in themselves may not be objectionable where a healthy tone and conduct exists throughout the entire school; but where there is the least unhealthiness in tone or desire, as there always is amongst a number, cubicles foster its development, and invite to its commission by the privacy they afford.

In the large open dormitory the prefect can see all in the room, and for this purpose sufficient light should be provided; but the secrecy of the cubicle at once increases the power of the bad boy, and takes from the prefect the possibility of supervision.

The argument of those who advocate cubicles is, that the open dormitory tends to vulgarity or coarseness of manners, through its lack of privacy.

Even if this were inevitable, I would yet say, let us have this open coarseness of manners, rather than that secret vice which undermines the whole character and constitution, and is the primary cause of a large proportion of the evil in "Society."

But I would urge that this coarseness of manners is not inevitable; and I maintain that with a properly-constituted prefectorial system, based on *character* as well as on *position* in school, the tone of the dormitory could be, would be, and ought to be, as good as is possible to be obtained amongst human beings.

Parents themselves are mostly at fault in this delicate moral question, for they take no thought whatever for the prevention of evil in the case of their own boy, but leave everything to chance. I would, therefore, urge that every parent should quietly and kindly warn his boy, before he first parts with him at the beginning of his school life, that he will, wherever he goes, meet with

bad companions, who will seek to teach him bad thoughts, bad words, and bad habits; and the parent might well tell his son, as Tom Brown's father did, "never to listen to, or say, anything you wouldn't have your mother or sister hear, and you'll never feel ashamed to come home, or we to see you." By this means most of the evil referred to would fail to be accomplished, for the boy would be on his guard from the outset.

But parents hitherto, with few exceptions, have failed in this important duty, either from thoughtlessness, or because of its unpleasant character, and have trusted to their boy's honour, or to the master or the doctor telling him, with the result that many a boy has unwittingly gone astray. I would, therefore, again insist that, *It is the parent's duty, and his alone.* But if the parent fails in what is his clear duty, then the master must in self-defence watch his opportunity to speak out openly, and not by hints.

The remedy for this wide-spread evil, as far as boys are concerned, involves:—

- (1) A timely word of warning from a parent.
- (2) A more reasonable prefectorial system, in which *character ranks above, but not without, ability.*
- (3) Large open dormitories only.

As I have entered upon the question of immorality in dormitories I cannot conclude without saying that, in my view, it is the imperative duty of the physician to speak plainly of the conditions which foster it; and the question is so interwoven with that of school dormitories that I should have failed in my duty—however much I may regret the necessity of its introduction—had I avoided its discussion. It is a fact, only too true, that many people are much more easily shocked by the mere mention of an evil, than by the existence of the evil itself. The idea of laying themselves out to lessen or

prevent a well-known evil never even enters their head. All they attempt to do is to punish the evildoer when he is found out.

My firm opinion is, that as soon as school authorities will recognise the possibility of the existence of this evil in *their own* schools more seriously than they do; will face it rather than ignore it; will endeavour to prevent it rather than cure it—then, and not till then, will it be successfully met; and to *prevent* it, I can only repeat, that no instrument is more effectual than a carefully-chosen prefectorial authority in large open dormitories, after the boy has been put on his guard by his parent before he leaves home.

At the present moment, literally no trouble is taken to prevent the origin and growth of this evil. Boys are neither warned nor taught by parents or masters to avoid it. The only manner in which it is dealt with at the present time is, to my mind, unwise and unjust, and utterly useless for producing any good to any one concerned. A young boy is turned adrift into the school-world absolutely ignorant that there is an evil to be met, and without a helping hand from any one. He falls! Does he usually find a good Samaritan in a schoolfellow or in his house-master? No! Without sympathy, pity, help, or advice, he is ignominiously returned to his father, and his whole life and prospects blighted. But whose was the chief fault in his fall? Why do parents do nothing to prevent it? Have masters no other resource but to return a boy to his home? The boy has been the victim of an unnatural system of education. If punishment be more due than pity, let some severe punishment be prescribed, so that the boy may at least have a chance of redeeming his own character, and thus helping his schoolfellows also.

Let the words of one of the ablest of schoolmasters

be pondered by every other schoolmaster * :—"A strong house-master knows that he must sometimes get rid of a bad boy, and Dr. Arnold used rightly to weed out very severely. But, on the other hand, the stronger a house-master the more able should he be to work a house as a family, where a father knows that his sons must always be treated as '*necessaries*.' That grand old Roman word conveys a standing rebuke to those who forget that the claims of a boy who has once entered a house are almost infinite on his master. It is a weak man who can only keep his house pure and good by constant rejection of the strong characters." If those connected with the rearing of children, and the training of the young, would but constantly bear in mind how easy it is to do wrong, especially in youth, and how hard to do right, we should get within a measurable distance of preventing this widespread evil. There is no doubt that if a boy, by the influence of a mother's love and advice, be taught, before he leaves home, *to respect himself and his own body*, he will be as *safe* at school as anywhere else in the world. It is the absence of this necessary safeguard—self-respect—which entails a downfall at school. Respecting his own body as the casket of his soul, he will respect those of others, and even the thought of defilement will not enter his mind.

SANITARY ARRANGEMENTS OF THE BOARDING-HOUSE OR SCHOOL.

Next to providing a plentiful supply of fresh *air* in the boarding-house, by means of proper cubic space and sufficient ventilation by day and night without draught

Water
Supply.

* Loc. cit.

a good supply of pure *water* for drinking and cleansing purposes is a most important element in health at school. About twenty-five gallons per head per day is necessary for all purposes, excluding, however, the water required for the swimming-bath.

Schools in *towns* should always be supplied with water from the local water company, and this supply should be constant, and on no account intermittent. No "well" in a town should be allowed to be used, for, with the ramification of drains which always exists, it is utterly impossible to exclude the surface water and prevent the contamination of the well from the usual leaking of drains.

Schools of any size in the *country* should possess, where it is feasible, a private "Artesian well" to supply the whole school. Where this is impracticable, and yet a "well" must be used, the sides and top should be carefully puddled with clay, to keep out as much of the surface water as possible. The "well" should always be on a higher level than the cesspool, and at a distance from it, and clear of all surrounding drains. The reverse of this requirement is usually found, so that when floods or excessive rain occur, or the cesspool is omitted to be emptied, and consequently from either cause overflows, its contents find their way naturally into the well, and thus poison the whole school. I have known diphtheria and typhoid fever to result from this cause. It behoves parents to inquire into these matters before placing a son at school, if they wish to be spared illness, and even death.

Cistern.

Cisterns should always be provided, at the highest convenient part of the house so as to ensure water being readily available all over the house, or otherwise, if the water has to be carried up-stairs by servants the supply

will be sure to be inadequate. The cisterns should be well protected from the entrance of extraneous matter, and should be thoroughly cleansed every vacation before the re-assembling of the school. The overflow pipe should either be carried out of the wall on to a subjacent roof, or simply pierce the wall and be cut off, so that any overflow may be at once visible; it should never communicate directly with a drain.

From the main cistern at the top of the house the water should be conveyed to other small cisterns which should supply the water-closets; and the pipe conveying water from the main cistern which is to be used for drinking purposes should not be attached *directly* to any water-closet. A still better plan is for the drinking water to be laid direct from the main into the filters.

In *towns* the water companies always filter their water before it leaves their premises. This is absolutely necessary; but it is also always desirable that every householder should filter his own potable water; the filtering may have been imperfectly effected by the companies, or the water may have become contaminated in its transit or in the cistern. Filters.

Every school and boarding-house should, therefore, have its own filter, and this should be efficient, and not simply a sponge-filter.

Several excellent household filters have been manufactured. There are—the “Spongy Iron,” which not only arrests suspended matters, but oxidises organic matter; the “Pasteur - Chamberland,” the “Filtre Rapide,” “Carferal,” “Silicated Carbon,” “Dr. Bond’s Aërating,” and the ordinary Block-carbon filter.

But where water is known to be deleterious, no filter is competent to purify it; and the only process which will render it safe for use is boiling, after which it should

be allowed to stand, in order to deposit any matter suspended, or, what is preferable, should be filtered.

Even when this course has been adopted, it is still, unfortunately, a question whether all "bacteria" have been destroyed. This result can only be surely obtained, as Tyndall suggests, by repeated boiling.

Masters do not yet recognise the paramount importance of a good supply of filtered water for the boys under their charge. Not only is it one of the greatest preservatives from illness of all kinds, but it contributes to a moral gain besides. Where an ample supply of pure water is provided, which can always be easily got at, boys will not be imbibing so continually, after every exertion, lemonade, nectar, beer, shandy-gaff—and, I must add, cherry-brandy—which can be obtained at the "tuck-shops." A friend of mine provided a "Spongy Iron Filter," replenished from the main under the control of a "ball-cock," and placed it in a handy situation for the use of the boys in his school; the consequence was, that the boys took to water, and gave up the beer, with great gain to themselves and saving to the master.

Drainage.

In all dwelling-houses, but especially in schools where many young people are congregated for many months in the year, it is important that the solid and fluid excreta from the bowels and kidneys should be removed in such a way that they neither offend the eyes or nose, nor cause illness by their decomposition.

How much disease and death were occasioned in past ages through the neglect of this wholesome rule is well known; but even at the present day we must not boast, for we still have a large mortality produced by *filth* causes—from unprevented preventible diseases. Of towns this statement is perhaps especially true; but, even in the country, and in isolated schools, filth diseases are only

too common, owing to the slovenly and unscientific way in which refuse is removed. In fact, refuse, in a large proportion of cases, is not removed at all, but is allowed to stagnate about the premises, and poison the well water; or, being received into a tank, or cesspool, is carefully covered over, and allowed to decompose and generate gases which return up the conveying pipes to the house. And so this poisonous gas is supplied in a similar way to that in which coal gas is "laid on" to houses, the gasometer being the hermetically-sealed cesspools, and the drain-pipes *from* the house acting as the conveying gas-pipes *to* the house. This sewer gas has been conveyed all over houses from various points, such as the cellar and scullery drains, the water-closets, housemaid's sinks, and cistern overflow, and has even been "laid on" to bed-rooms.

It will thus be seen that, for the preservation of health at school, the provision of means for the removal of *dirty water* is as essential as a constant and plentiful supply of clean water. It is also necessary that the solid and fluid *excreta* from the body should be quickly and safely removed.

In schools situated in the *country*, the cesspool should, if *practicable*, be constructed at as great a distance as possible from the house; it should also be placed on a lower level than that of the "well," and removed from its neighbourhood, with free ventilation, and an effectual disconnection from the soil-pipe, just *as though it were a town sewer*, so that no generated gas can by any possibility enter the house. Cesspools.

If this plan be *impracticable*, no cesspool should be provided at all, but *earth-closets* alone should be used, each being separated from the other by a partition, and well ventilated above and below. Earth-closets.

House
Sewers.

In schools situated in *towns* the sewers in existence should be employed; but all house-sewers should be disconnected absolutely from the street-sewer. There are several excellent traps which effect this, and one or other of them should always be employed; most of them answer their purpose with effect.

The trap in use at my own residence is an absolute

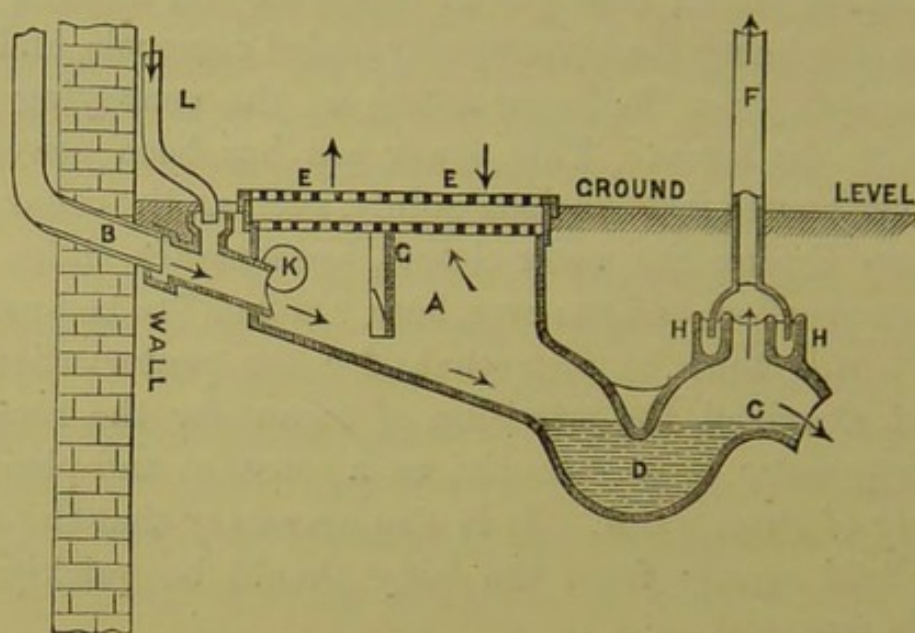


FIG. 6.—THE "EDINBURGH" TRAP.

K junction for one or more closets, &c.; E & E, iron grids for ventilation. A socket, H, is provided for ventilating-pipe, F, to be carried above the windows; next is a syphon or water-trap, D; then an air-chamber, A, to carry off any residue of sewer gases (if any) escaping through the trap. B, soil-pipe; L, rain-water, sink, or other house waste water-pipes.

preventive against sewer gas, arising from a cesspool or sewer, entering the house, and works admirably, on account of its simplicity. It was invented by an intimate friend of mine, a schoolmaster, who, having had the misfortune to lose a child from diphtheria, which spread also among his pupils, set to work to try and keep foul gas out of his premises; and he devised this ingenious trap, which is now called the "Edinburgh Air-chambered Sewer Trap." Every pipe for drainage

purposes in and about the house should open into this air-chamber, and should never be attached directly to the sewer pipes.

I am not an advocate for any particular trap, so long as it be right in principle and simple in action. I merely mention this one as a satisfactory type, which has also been approved by experience.

In some towns, especially where sewage-farms exist, two sets of drains are in use; the one to carry off the excreta; the other to remove the dirty water, rain water, and the whole of the surface drainage of the town, in fulfilment of the famous saying of Ward, "the rain to the river, the sewage to the soil." This *surface* scheme, wherever it has been provided, as at Eton, Rugby, and other places, has worked efficiently. This arrangement also renders the sewage of greater value; for under systems previously in use the sewage was so dilute as to contain only from two to three pounds of solid matter per ton.

All the water-closets in schools that are in use by day should be placed out of doors and occupy a detached building, but they may be so contrived as to be readily available in the evening by opening another door, locked by day, without the necessity of going into the open air after dark. Each closet should be separate and distinct, well ventilated above at the highest point, and below, level with the floor, so as to prevent all accumulation of foul air; the floor should be of brick, stone, or tile, which can be flushed every day, and on no account of wood or earth. The water supply should be copious; moreover, since boys are careless and the closet is in constant use, it is preferable that the closets should be always self-acting, or so contrived that a single pull of a handle should empty, from its own cistern, the requisite

Water-closets.

quantity of water—about three gallons—each time the closet is used.

There are so many excellent arrangements constructed for *closet-basins* that there is an endless choice. It should, however, be a *sine quâ non*, that the basin should be so contrived that no opportunity is given for the accumulation of refuse on the sides of the basin, or beneath it: such a one, for instance, as the “National,” or the

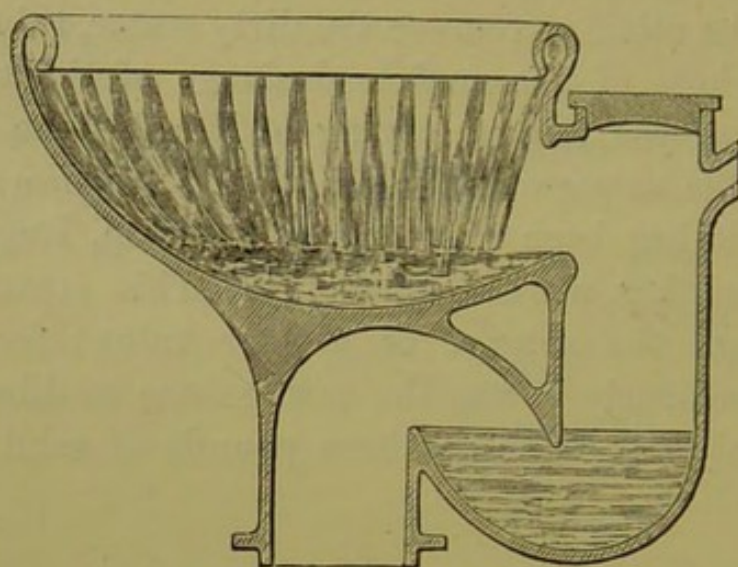


FIG. 7.—THE WASH-OUT BASIN.

“Wash-out.” There is another system, however, called the “Trough system,” an excellent arrangement for schools, where boys visit the closet quickly one after another, and are always careless about allowing sufficient water to run. And seeing that the closet is, *or should be*, used daily by every boy immediately after breakfast, one flushing of the trough after use, under the control of the boys’ butler, would suffice for the day, and with another immediately after “locking up,” there need be no accumulation in the trough, and no waste of water; or it can be so arranged as to flush itself automatically as is shown in the drawing.

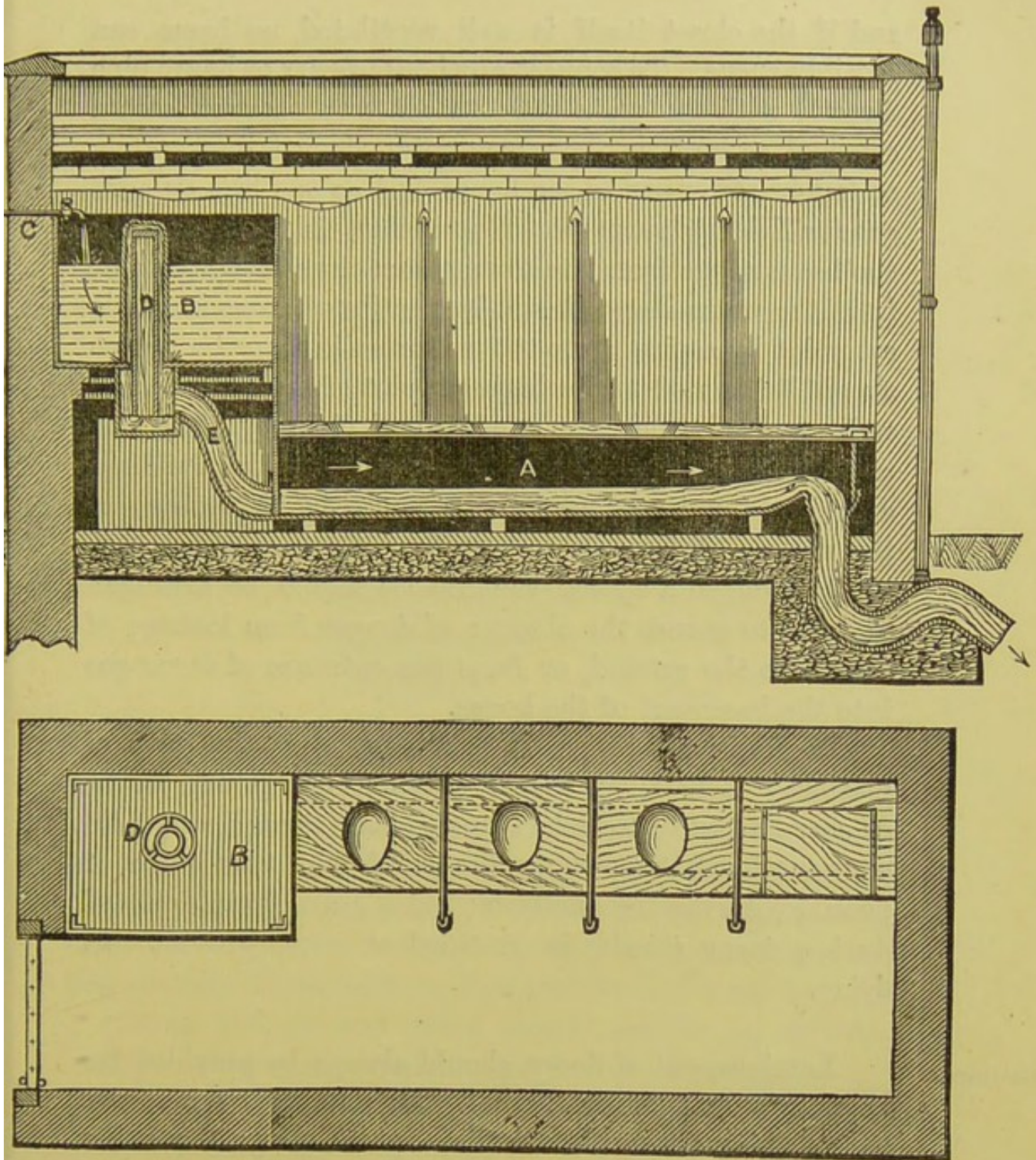


FIG. 8.—THE TROUGH SYSTEM.

A good *water-closet* also should be within easy reach of the dormitories, for use in the night if required ; and if the sewer or cesspool has been cut off from the house (as it should be in every case) by an open air-chamber,

and if the closet itself is well ventilated, no harm can possibly ensue. To connect any house-sewer or house-pipe directly with the main sewer of a town, or even with a cesspool, as is often—nay, generally—done, is deliberately to lay on sewer-gas to the house just as one lays on coal-gas for lighting purposes. But besides this severance of the house-sewer from the town-sewer, the soil-pipe coming from the water-closet should be ventilated from its highest point by a pipe three to four inches in diameter, which should be carried to the highest point of the roof, and be well removed from any window and chimney. The soil-pipe should always be outside the wall of the building, and should not pass under the house in its passage to the sewer. Where its passage beneath the building cannot be avoided a special contrivance should be arranged in order to ensure the absence of danger from leakage of fluid into the ground, or from the entrance of sewer-gas into the basement of the house.

In addition to these precautions, it is the duty of masters to constantly inspect water-closets at odd times, or servants will rarely be found to keep them clean. All constructive attention to drains should take place, if possible, during the vacation; but a grave fault detected during term should be rectified at once, without this delay.

Latrines.

Latrines, out of doors, should always be provided for boys' schools. The only really satisfactory latrines are those which are made of thick plate glass; the urine should fall into a glass trough, 9 inches wide, and 6 inches deep, kept full of water, and fitted with self-acting outlet. The back, sides, and the ground on which the user stands, should be of plate glass, and should be cleaned every morning and evening. Such a latrine—and specimens are now in existence—is devoid of smell.

The next best are those which have white china or glazed earthenware pans, as these are cleaner than the ordinary latrine, and in them no sediment can be deposited, or if there be, the sediment is so slight, and so little adherent that it can be removed without difficulty. The slate slab urinals may be used where there is a constant free flushing by water; but they always possess the disadvantage that the somewhat rough surface will allow

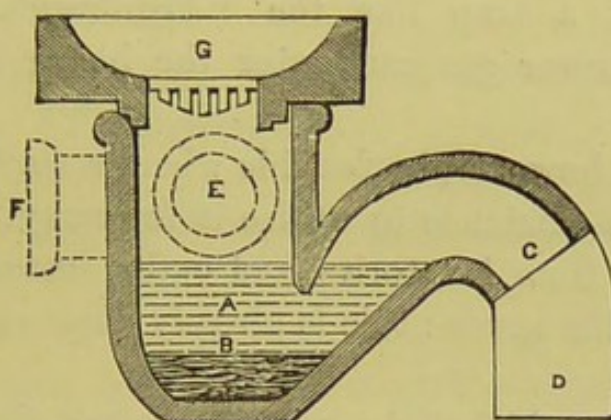


FIG. 9.—GULLY TRAP.

a deposit of sediment, which in warm weather is neither wholesome nor agreeable to smell; where they are employed, this sediment should never be allowed to accumulate, but whenever it makes its appearance, should be immediately scraped off, or dissolved by a mineral acid.

Stone and cement slabs should not be permitted, owing to their exceedingly rough surface causing a constant deposit of sediment, which it is almost impossible to remove. The pipe carrying off the fluid from all latrines, whatever their construction, should open into an air-chamber, instead of being directly attached to the drain leading to the sewer.

Lavatories should always be provided in schools for Lavatories. washing by day, in order that the dormitories may not

be visited except for sleep at night. The basins should have under-troughs of white enamel pipes to carry off the dirty water, and the pipes should not directly communicate with the soil-pipe or sewer, but should discharge either into the air-chamber of a suitable trap or on to an open iron grating outside the house, placed over either the ordinary syphon gully-trap, or over a ventilating trap, the pipe from which again should not be attached directly to the sewer, but open into the air-chamber of a trap like the "Edinburgh." By this means no sewer gas can enter the house through this channel.

It may, however, be feasible where a *surface drainage* scheme is in existence to utilise it for carrying away the dirty water from lavatories and baths, instead of emptying it into the sewer : this is already done at Eton.

House-
maids'
Sink.

A Housemaids' Sink, or slop-receiver, should, for the convenience of the servants, be provided up-stairs in all schools where many slops have to be emptied. It is best made of white china, glazed earthenware, or glass, which latter is cleaner and sweeter than any other material, and not liable to the accumulation of deposits ; in this respect it is far superior to lead or stone sinks. The hole through it should be at least three inches in diameter, and be protected by a wire cradle or sieve, with meshes not too close together. The pipe from the sink should be syphoned immediately beneath it, in order to prevent an inflow of air ; below, the pipe should terminate in the manner described for Lavatories.

There has recently been adopted an excellent arrangement, called the "*Unitas*," combining a closet-basin, urinal, and slop-sink in one ; it is cleanly and efficacious, and slops may be emptied without causing a deposit of filth under the seat, and with gain to the soil-pipe.

It is equally important that the kitchen should be protected from sewer gas, which may not only contaminate the food, but spread throughout the house. The pipe, therefore, from the kitchen sink should open on to an iron grating outside the house, and this should cover a good grease trap, to collect the grease from the kitchen, and thus save the drain from obstruction; the pipe from the drain should be arranged as described under "Lavatories."

Kitchen Sink.

Butlers' Pantry-sink should be also drained as described under "Lavatories."

Butlers' Sinks.

Boys' Butlers' Pantry-sink should be arranged in the same way.

Cellar drains, being among the most certain causes of sewer gas entering the house, should also open into a chamber like that of the "Edinburgh" trap, and on no account be attached directly to the sewer; but cellar drains may safely be connected with a surface-drainage scheme.

Basement Drain.

Baths, with hot and cold water laid on, should be provided in every school, where a boy can wash all over with soap and hot water at least once a week, besides his dip in the swimming-bath every day and his cold bath after games.

Baths.

The waste and overflow pipe from the bath should not communicate directly with the drains, but should be syphoned underneath, and open below on an outside iron grating, as in the case of lavatories. The number of lives lost and illnesses caused in this country as the result of the bath waste being connected directly with the drain is incalculable.

Removal of
Refuse.

The disposal of house dust and kitchen refuse is always a source of difficulty and anxiety in every school, especially in towns.

In the *country*, the refuse heap should be removed as far as possible from the house, and be placed at the remote end of the premises, where the boys do not play; and the stuff can be utilised for fertilising purposes. The "bones" can be "ground" and used as a valuable manure for the garden.

But even with this precaution a refuse heap is often a great source of danger. It should, therefore, be removed and utilised every vacation, when the boys are absent. One of the most extensive epidemics of typhoid fever on record, which occurred at a large orphan asylum, was distinctly traced to the refuse heap on the premises, although it was situated at the distance of one or two fields from the asylum.

In *towns*, no dust-bin or dust-heap should be permitted; but a galvanised iron box, as large as two men can carry, fitted with a wire cinder-sifter on the top, should be provided for every house. It should be placed under cover, close to the house, but not within it, and should be emptied by the sanitary authorities twice a week at least. Vegetable matter should not be thrown into it, but should be burnt.

Laundry.

Wherever it can be arranged, all dirty linen should be washed on the premises, under the inspection and upon the responsibility of the school authorities; the risk of infection being brought into the house from a common laundry is thereby obviated. Where this cannot be carried out, the whole washing of a school should be done in one large laundry in the country, which should wash for the school alone. When every boarding-house arranges for its own washing, the greatest care and super-

vision are necessary, as the laundry is a well-known channel for the entrance of infectious illness into a school.

I repeat a word of warning concerning the importance of *airing linen* before it is worn; this injunction cannot be too strongly impressed, for its neglect—the wearing of damp linen or sleeping on damp sheets—is the cause of much illness every year, and of many deaths. This point is too often considered to be an affair of the laundress, and consequently no trouble is taken at home; the laundress, again, is too much employed, or the weather is too wet, to enable the rule to be observed effectively, and hence it is totally neglected.

The consideration of boarding-house arrangements would not be complete without touching on the question of providing means in case of “Fire.” With households varying in numbers from 50 to 150, and upwards, there are, generally speaking, absolutely no means at present provided in most schools; even where precautions have been taken they are, as a rule, wholly inadequate. In a large number of schools, not only is this the case, but the boys are actually locked in their bed-rooms at night, and have literally no means of escape, except by ringing a bell for some one to unlock them—generally a matron or boys’ butler, who, together with the boys themselves, would be so panic-stricken as to be entirely helpless. Should a “fire” occur under such conditions, the disaster would be appalling; and those responsible for such a state of affairs, and of which they have often been warned, would be heartbroken at neglect which they should have provided against.

Precautions
against
Fire.

An annual sanitary inspection of all great schools should be carried out by a competent inspector, who should not be interested in the school, or in any way

Annual
Sanitary
Inspection.

connected with it. It is essential that he should be a man of practical experience in school construction, arrangements, and requirements, and well versed in sanitary science.

There are some governing bodies which have already instituted a medical inspection of the schools to which they are attached. But, for this to be of service, it is requisite that the medical inspector should be permitted—nay, invited—to inspect the schools whenever he thinks fit, and without sending any prior notice; while his report should be annual, his visits should be casual. For the inspector to have to give notice to the headmaster that he is about to make his annual inspection on a certain day is discreditable. In plain English, it is equivalent to saying, “as I am about to pay my official visit to your school, perhaps you will be kind enough to see that everything is put in order before I arrive.” Such inspection is valueless, a waste of money, and no guarantee to the governing body or the public. Those who trust to it rely on a broken reed.

But even this school inspection is not enough. As was stated by one of the Presidents at the Conferences on School Hygiene, held at the International Health Exhibition in London, in 1884, nothing short of a Government inspection of all great schools would suffice. We should then have proper accommodation at our schools, and should not see those glaring defects which at present exist in high-class and very expensive schools.

I have endeavoured in this section to enforce what should be done, and what should not be done; but parents must themselves attend personally to these matters—at all events until Government inspects schools.

DIET.

In most of our schools, public and private, boys have their meals with the masters with whom they reside ; but, unfortunately, there are still some of our great schools where all the boys, numbering from 400 to 800, assemble in a common dining-hall. I do not like this plan at all ; for boys are unnecessarily assembled *en masse*, and the cooking and serving of the meals cannot be so well attended to as by a master's wife providing for from thirty to fifty boys.

It is a point of great importance in feeding generally that the diet should be as varied as possible in kind and cooking. This is especially true in the case of the young ; for them monotony in feeding, equally as in play and in work, is entirely unsuitable.

Variety in Diet.

Likes and dislikes in the matter of food in the young are very powerful, and while they should not be encouraged, allowance should be wisely made for them. The greatest cruelty is still practised by parents and teachers in forcing on children that to which they have an inveterate dislike, and with which their system cannot agree, and, on the other hand, refusing them what they like, and what their system really requires.

Natural Cravings.

There are some children who mentally cannot digest classics, and physically cannot digest fats or starches ; even the sight of fat, in any form, will prevent them eating. Yet they are forced to partake of both. If they were only allowed to digest science mentally, and sugar physically, those cruel battles would cease. Nature is not allowed a voice in the matter at all, but pettifogging meddling prevents and thwarts her at every

turn. Natural cravings should be watched for and satisfied, so that Nature, in her most reasonable demands, may work at her best. I have even known children steal money in order to purchase sweets, simply to satisfy Nature's demands which had been thwarted by stinting in sugar at the table at home. Thackeray observed that "all people who have natural healthy appetites love sweets." When will it be learnt that in the training of the young Nature's laws must be observed?

Cooki g.

The cooking of food for a large number is always a matter that requires careful attention, and while it may be all as well cooked and served as possible, there is always one point that must raise a comparison in every boy's mind that it is not as well done as it is at home: and this point is the question of *gravy*. When a joint is carved away from the skin to the bone, there cannot be enough natural gravy for every one, and so, if there is to be any supplied at all, it must be a "made" gravy, which is less palatable. This is, therefore, one cause of complaint which cannot be obviated.

There is, however, sometimes a cause for just complaint, both by parents and boys, in the *cooking* of the food, meat and vegetables, but especially the latter, and furnishes a reason why boys so frequently refuse to eat vegetables.

The food may be the best that can be bought, but if it be badly cooked, especially if the meat be so under-done as to be a blue-red, or if the green vegetables be imperfectly washed, and contain grit, insects, or slugs, or, from insufficient straining, be swimming in the water in which they have been boiled, no one, however hungry, can eat with satisfaction. It is, no doubt, difficult to cook efficiently for a large number, but the difficulty can be, and is, overcome by a careful master, or, still better, his

more watchful wife, seeing to it themselves, and, by dining with their boys, making sure that the food is well and nicely cooked and properly served on hot plates. The master should also encourage just and reasonable complaints being made by the boys to himself, instead of leaving them to complain to their parents, as this practice tends to make servants do their duty.

Besides good food, efficient cooking, and skilful carving, it is essential that boys should be allowed sufficient time for eating, and thus prevent *bolting*. The non-observance of this rule is so frequently the cause of indigestion that the boy gradually acquires a natural dislike to and loathing for what he should eat, because it generally disagrees with him.

Time to
Eat Food.

I consider it most unwise and unhealthy to detain boys in school after the appointed time for work, as it interferes with their meals and they have then either to bolt their food or practically fast. For there are unwritten customs in most schools, which need crushing with a strong hand, which prevent a boy, if he wish to avoid opprobrious names from his schoolfellows, remaining in the dining-hall after others have finished. Yet if a master do not conscientiously see that the boy has time to eat his meals, he must rely on the pastry-cook, or his parents' hamper, to the serious detriment of his health. The practice of detaining boys in school—either because the master is ambitious, or because he is slow, or because his boys misconduct themselves—during part of breakfast-time or dinner-time is exceedingly rife, and is absolutely indefensible. The parent pays for what his son does not receive: the pupil is defrauded of the material which is necessary for carrying out the work the master requires of him—in fact, it is the old Egyptian story of being compelled to make bricks without straw.

Meal
Times.

The question of the hours for eating in schools is one of the first importance to all scholars, but especially for growing girls. One would have thought that this important matter was, in this nineteenth century, arranged as nearly perfectly as it could be. Yet in many of our schools these hours could not be more unwisely apportioned. For instance, for school authorities to make the evening meal—supper—a meat meal with beer, for growing boys with ardent passions, is more than unwise—it is cruel and unjust : yet it is largely in force in some of our high-class public schools.

In one of the largest schools in this country one of the chief meals of the day is eaten at 9 p.m., when boys are supplied with meat, tarts, cheese, and beer. Could any system be more indefensible? Under such inconsiderate conditions can any boy, of a certain age, keep himself pure? Is it a wonder that immorality is so rife? Is not every boy by such a practice too heavily handicapped by *physical conditions*, over which, however well-intentioned, he has absolutely no control?

How any master under this arrangement *dare* punish a boy—as is often done for *life*—for immorality, is beyond my comprehension ; for in many boys at the school age the physical conditions engendered by such means almost necessitate that “the evil that I would not, that I do.”

If school authorities would only recognise that the major part of the immorality in schools is really caused by themselves, rather than by their pupils—is owing to the abominable physical conditions existing in bed-rooms, to the unwise arrangements in meals, and, above all, to ignorance produced by parental neglect in warning their sons of the evil, there would be less sermonising about it on Sundays, less heart-rending at home, and a little more real endeavour to remove it, instead of talking about it in a whisper. Evils, like enemies, to be con-

quered must be faced with courage ; and the more daylight that is cast upon them the less opportunity is afforded for their baneful success.

In other schools boys breakfast at 7 a.m., have another breakfast at 11.30 a.m., and dine at 2.15 p.m., which is followed by tea and supper in the evening. Could any arrangement be more preposterous for a school ?

I am a very strong advocate for early "first lesson" at 7 or 7.30 a.m., before breakfast, for public-school boys, except during the first few mornings on the reassembling of the school in January, when this change from home life would be too abrupt ; but for private schools, where the boys are younger, I should insist, in order to allow more time for sleep, on breakfast first, at 8 a.m., to be followed by school at 9 a.m.

While, however, I am an advocate for early first lesson, as it teaches boys to get up early, allows more time for work, and an extra hour for play, I am a great opponent to first lesson at 7 a.m. on an empty stomach, not only for growing boys, but for masters also, especially during the worst time of the year ; and I would therefore very strongly urge the importance not only of every master providing, but also of every matron seeing, that every boy takes hot milk or hot coffee, with a piece of bread, before he goes into school at all. For the very strong boy, perhaps, the point is not so important, but for the delicate boy, and even for the average boy, it is a trial to his strength, and an unnecessary and wrong exposure that he should commence work without some prior sustenance. It should never be forgotten that school arrangements should regard not the exceptionally hardy boy, but essentially the average boy.

(1) I would advise hot coffee, with plenty of milk, at 6.45 or 7.15, before chapel and first lesson, as being a

gentle stimulant to the nervous system, invigorating without depressing.

(2) After first lesson, breakfast—which is the most important and health-giving meal of the day—can be taken at leisure, and with appetite, at 8.30 a.m. This should be a good hearty meat meal, provided by the school authorities, the heartiest meal of the day, with plenty of time to masticate and enjoy it, without let or hindrance from the boy's butler, or his schoolfellows, and without being prevented getting to it by the master until it is too late and too cold. If porridge could be added to the breakfast it would be a great gain. I would further urge that it is time the school authorities provided all the meals to boys at school: such relics of the past as purchasing their own breakfasts and teas, and their own tea, sugar, and other necessities, should be absolutely prevented. After breakfast as much time as possible should be spared for every boy to be able to get his "natural relief" without hurry and scurry; and masters should see to this matter themselves, for on its regular performance the health and temper of the pupils greatly depend.

(3) Dinner should be a good meat and pudding meal, varied as much as possible, at 1.30 p.m. School should never cease later than 1.15, so as to allow every boy to have a few moments' breathing time, to obtain a wash, and to be in his place at the dinner-table as the bell rings at 1.30 p.m.

(4) Tea, which is sometimes a movable feast, should be provided from 5 to 6 p.m. It should consist of bread-and-butter, with an egg, or marmalade, jam, or potted meat.

(5) Supper—none at all, in most instances, so that the boy may go to bed without food in the stomach. If any be requisite, it should consist of bread-and-butter,

bread-and-milk, a glass of milk, or a glass of water ; never cheese, beer, meat, or pastry.

It will thus be seen that I advocate that, after mid-day dinner, all the food taken should be light and easily digestible, in order that the boy may do the maximum of work, sleep most easily at night, and rise at 6.30 a.m. with vigour and pleasure.

In discussing the question of food at school I propose to consider briefly the various types of diet, as required for adolescents. Food.

Growing boys would be greatly benefited if masters would use their influence to try to induce them to eat "whole-meal" bread ; I mean "whole-meal" and not simply bran bread. But I have doubts whether this will ever be carried out at school, unless the taste has been already formed during the early years at home. Bread.

As much bread as a boy can eat should always be provided by the house-master. The crust is twenty-five per cent. more nourishing than the crumb ; and butter should be given with it when eaten alone, for the purpose of making it a staple food, as bread contains little fat of itself. I would also urge on all masters who have pupils to feed the constant necessity of seeing that the bread be wholesome, for while one batch may be sound in every respect, the next may be either sour or musty, and not only uneatable—except under the stern necessity of hunger—but positively harmful.

No growing boy should be stinted in sugar, or sugar-forming food such as starch ; it is essential to him, being his chief heat-forming food, and preferable to and more digestible than fat, though he cannot live in health without some fat in his diet. Sugar.

Those concerned in the proper rearing of the young too often lose sight of the natural requirements of those who are growing.

Food is used for two purposes—to supply wear and tear of body, and, in the young, to provide for growth also.

As wear and tear takes place in daily life, so fresh material has to be supplied to, and assimilated by, the digestive organs, while the detritus has to be removed by the excreting organs, which act as scavengers. The amount of food required therefore depends not only upon the waste that occurs in the daily working of the several functions, but also upon the growth and development that are going on.

It is often astonishing to see the vast amount of nourishment required by the young to cover their wear and tear and growth. And yet only too often are they stinted in one or other essential ingredient, such as sugar or meat, or even in all substances, so that they know what the pangs of hunger are. This need of appropriate and sufficient nourishment is still more marked in the case of girls, who, from the age of eleven to fifteen, or even sixteen, grow and thicken out to an astonishing extent, passing boys in the race by several inches for a year or two; here the stinting of food amounts to cruelty, and many girls suffer all their lives through this. They are told it is *unladylike* to eat so much. Schoolmistresses should instil into their pupils that it is not only ladylike, but their imperative duty, to eat as much, and as varied, wholesome food as they possibly can, so that they may develop as Nature intended them; it is hard work, with insufficient or improper food, which tends to the deterioration of the individual as well as the race.

Milk

Milk is the grand type of all diets, consisting as it

does of albuminous, oily, saccharine, saline, and watery principles. A standard diet contains some or all of these constituents in various proportions.

Milk should always be bountifully supplied for all adolescents, as an essential part of their staple diet.

As milk has been shown to be a fertile cause and communicator of disease in all communities, the greatest care should be exercised in the selection of the supply for all great schools; and while one scarcely likes to advise anything that may seem to interfere with the freedom of the master in the choice of his purveyors, yet I cannot but think that greater safety would be found in obtaining the supply of milk from the school's private dairy, or from one large farmer, whose farm-yard, cattle, and dairy, should be under the supervision of the medical adviser of the school; in this way greater care would be exercised by the farmer, not only by reason of the medical supervision, which would be a marked check, but also on the ground that the propagation of disease from his dairy would mean, at all events, temporary financial ruin, thus making him scrupulously careful to reduce the risk to a minimum. I am aware of the argument, that where the milk supply is obtained from several sources, only part of the school would be affected in case of milk poisoning, instead of the whole; nevertheless, I maintain that the risk is more than proportionately increased where there are several possible centres of poison.

It has been repeatedly proved that between the cow's udder and the human stomach the milk may be so poisoned as to cause death to the recipient. Not only so, but it is a question, recently all but proved, whether disease in the cow itself is not propagated directly to the consumer.

So great a mortality has been produced from this

cause, that it seems to me the imperative duty of Government to carefully and systematically inspect the cattle, their byres, and the dairies, and to visit criminal neglect and fraud with severity.

Mr. Ernest Hart, in a paper read before the Social Science Congress in the autumn of 1883, furnished a record of eighty-three milk *epidemics*, representing 5,000 *cases of disease*, and 580 *deaths*, in about ten *years*.

In unhealthy seasons, and whenever infectious illness is epidemic, milk should always be boiled before being consumed. So frequent is the illness arising from the consumption of milk, that strong grounds exist for urging that no milk should be drunk without first being boiled.

Meat.

There are some masters, physicians, and moralists, who hold that a boy should be allowed meat only once a day; to this I agree in the case of young boys; but for the average public-school boy I do not think it is sufficient. He requires meat twice a day during his actively-growing years, or, in other words, during the time he lives at a public school. It will be admitted that to produce the highest state of health in the adult, meat once a day is at all events essential to cover his wear and tear. If that be true, then I maintain that a boy needs meat *once* a day also to provide for *his* wear and tear, which is far more active even than in the adult; and, I would add, he requires meat a *second* time to supply his means for growth besides. The meat should be given at breakfast and at mid-day dinner, and on no account in the after part of the day.

If we will only observe Nature, we shall see that she provides in milk—which is the natural food for rapid growth—an excess of nitrogenous matter, which is, consequently, unsuitable, as a staple diet, for the adult. But

the young animal cannot do without this excess, for he has also to provide for growing, which means that he must pile up the excess of nitrogenous matter in the form of a daily addition to the body. In fact, the growing boy needs a large income in the shape of food, part of which he expends as "current cash," but a large proportion he lays by as "capital," to invest in growing, whereas the adult can spend all his income as "current cash." The latter may, perhaps, wisely keep a small reserve on "deposit" in case of a sudden demand for increased expenditure of force ; but, after making this prudent provision, he should on no account capitalise a further sum in the form of corpulence or gout.

By meat, I do not mean butcher's meat only, but I include all that class of nitrogenous food—meat food, as distinguished from farinaceous food—which comprises also fish, bacon, sausages, eggs, etc., etc., with which a boy's breakfast is sometimes varied.

The *quantity* of meat or nitrogenous food supplied in the twenty-four hours at this breakfast and dinner should be one pound of uncooked meat, including fat, which involves 20 per cent. of weight of bone, and 20 per cent. of weight which is lost in cooking, giving, therefore, 60 per cent. of fat and lean cooked meat, or 9·6 oz.

I have allowed the full amount of meat food that is wholesome for the strongest and biggest boys, or those who are growing rapidly. I have done this purposely, though I am aware that younger and less robust boys could not get through the amount I have specified ; for them, three-quarters of a pound of uncooked meat is the usual amount required.

There are, however, some highly-bred delicate boys, who, with their very spare appetites, are unable to take sufficient nitrogenous food at breakfast and dinner to provide for their daily growth and daily wear and

tear; such boys, few in number, should be allowed an egg or a little fish at tea-time, or some beef-tea at lunch-time, if their school-life is to be a life of health and progressive growth, and of effective preparation for work in the world after school years are over.

Fish.

If ever we islanders remove our national disgrace, and are able to obtain our fish at a fair price—it could not be much dearer were we without a coast line—I trust our schools will make it much more an article of diet for adolescents than is at present feasible, for it is an excellent food, containing about 95 per cent. of fibrine and 5 per cent. of fat, that is to say, it contains more fibrine and less fat than meat itself, with the exception of salmon, which contains 78 per cent. of fibrine to 22 per cent. of fat, and of eels, where the percentages are respectively 44 and 56.

Vegetables.

Vegetables, especially green vegetables, are a necessity in ensuring health, but, as a rule, boys will not eat them in the autumn and winter, when cabbage is the prevailing green vegetable; consequently, every autumn and winter plenty of eczema is seen.

On one occasion, when some boys were allowed as much meat as they could possibly eat, I saw a serious amount of eczema, so that I had to check the supply, and thus got rid of the ailment; while in other houses, where this custom had not been allowed, the meat being carved for the boys, and the quantity being therefore limited, the eczema did not appear. I do not believe the complaint arose so much from the animal food being excessive as from the ratio between the animal and vegetable food being too great: the cause was the relative excess. The boys did not, and would not, eat enough vegetable food to counteract the excess; and

thus, on a large scale, I saw what I see every winter when boys refuse to eat vegetables. Vegetable *salts* are essential to health; they are absent from none of the tissues. They occur in the form of carbonates, lactates, phosphates, etc., of lime, magnesia, potash, soda, iron, etc. Without them, malnutrition arises in the form of general ill-health and scurvy.

To obviate this result, plenty of soup, with vegetables, should be given in the winter once or twice a week; beetroot, too, can generally be obtained, is liked, and is wholesome.

I often hear and read of complaints about the food at schools, especially dinner, being bad. At our public schools, and at our best private schools, I believe this charge is wholly untrue, for the masters buy, and see that it is supplied, the same quality of food for the boys as for themselves. In the average school, too, I believe the feeding is vastly better than it was even a few years ago. Pastry.

Some boys—generally those who have most money—complain of the quality of their dinner, and fail to eat it; the real reason being want of appetite, for they go to the pastry-cook's not long before the dinner-hour, and there regale themselves, so that when they should eat their staple meal they cannot, and complain about the food provided for them by their master. Is there any reasonable being—even a boy—in the world who thinks it possible that after enjoying all the tit-bits at a pastry-cook's he could come away and sit down to a meal of meat and potatoes without finding fault? This practice ought to be stopped, as it interferes with the boy's health. Masters should try to induce the boys to keep their pocket-money until after dinner, and spend it then if they will. Failing to induce the boys to

do this, masters should go a step further, and request the pastry-cook not to serve boys before dinner-time at all. I think the shops might well be out of bounds—say between 10 a.m. and 2 p.m.—so that the boys should be enabled to eat their staple diet of meat and vegetables before the delicacies—by no means to be despised or forbidden—furnished by the pastry-cook are allowed.

But if school authorities would supply, or even encourage the use of, *jam* or marmalade at tea-time, instead of trying to check the boys' visits to the pastry-cook's, I believe the desire for the pastry-cook's delicacies between meals would be less acute: much to the gain of the boys' health. It seems to me, on this subject, as on many others, that most of those in authority fail to understand the very first principles of government. They strive too often to thwart movements and practices which are absolutely uncontrollable, instead of recognising the inevitable imposed by Nature, and endeavouring to guide aright what they cannot control. The good horseman, having lost such control over his horse that he cannot stop him, tries only so to guide him that he shall not hurt himself or others. Many are the appetites and passions, many the communities, many the individuals, who, treated thus, might be kept under perfect control.

Hampers.

Hampers from home, generally injudicious in their contents, are a constant source of illness. It is very nice, no doubt, for a boy to receive a present from home while at school; but parents should take care to send nothing that, either from quantity or quality, can make the boy ill.

In some schools hampers are already forbidden on this ground; and this will require to become the general rule, unless parents show a little more wisdom. But, on the other hand, masters must see that their boys are not

detained in school at meal-times, so that either the meal is cold, or insufficient time is allowed for eating.

The subject of alcohol in any form being allowed, or supplied, at schools, is one that demands most earnest thought in considering the training, from all aspects, of the young. Alcohol.

Beer I believe to be unnecessary for a boy, and I should like to see it, as is gradually coming to pass, less and less used by the boys as an ordinary article of diet.

The animal propensities of boys are quite active enough without the *stimulant* effect of alcohol, and they are always ready enough for sleep without its *sedative* action. There is, roughly, only one other property of alcohol: that is, its *heat-producing* power in the supply of animal heat; but for adolescents the best heat-producer is sugar, which far exceeds in efficacy fat or alcohol.

To enable boys to give up this needless drink it is essential that parents and physicians should co-operate with masters.

Beer is usually provided for boys at school, and, if drunk at all by them, should be taken at dinner only. It is, happily, less used than formerly, and the milk, which is generally substituted, is, on the other hand, a very important item in a growing boy's diet.

But while one parent informs a master that "the doctor says my boy will never be reared unless he has two glasses of port wine a day," and another, "my doctor says the boy requires a bottle of Guinness's stout every day," all efforts to teach and persuade boys that alcohol is not a necessity are seriously foiled.

I fear there are many members of my own profession, who, when parents state, "I want my boy to have wine, or stout, at school, instead of small beer," immediately give a certificate to that effect, and thus unhappily

confirm parents in the belief that "the boy will not thrive, and cannot be reared without it." When such cases are referred to me, as they continually are, though I have always carefully considered each one on its merits, I have never yet found cause to sanction it as an article of diet for boys in health: the boys, without it, manage, not only to exist, but to thrive, improve in condition, and leave school far better in health than when they entered. I sincerely wish, as far as the health and morality of schools is concerned, we had more physicians like an eminent Scotch physician, not long since deceased. A certain parent insisted, on placing his boy at a very large private school, that his son should habitually have beer, this the master did not approve of, and resisted. But both being inexorable, the master said, "If you bring me a certificate from Dr. ——— to say that it is a real necessity for your boy, I will not further resist." The parent, appeased, went to the physician to try and get him to give the required certificate, with this effect; that instead of granting his request, "he prohibited alcohol both for father and son, to the enormous benefit of the father."

As a remedy in sickness I use alcohol whenever I deem it requisite; and this, in my opinion, is the only mode in which it should be used in schools.

By some boys, and parents too, drinking is lightly regarded. They should, therefore, be made clearly to understand that *drinking, and smoking also* (usually begun at home), *are injurious for growing boys, owing to their effect upon the nervous system*, quite apart from the moral reasons for abstaining, and the prohibitory rules of the school. The master's position in enforcing such salutary rules should be strengthened by both the parent and the physician.

Neither parents nor masters could for one moment

sanction smoking or drinking. Even on the grounds of expediency the practice should be forbidden. Besides which, parents surely see that it must be always carried out *sub rosa*, so, by this very fact, it teaches dissimulation, and prevents that openness of character which is so much to be desired, not only in the young, but throughout life. It is a repetition of acts, whether covert or open, that leads to habits : and habits make character.

VII.

SCHOOL.

HAVING now fully discussed all matters relating to boarding at school, it naturally follows for us to consider the occupation at school, and under this we shall discuss Work, Play, and Illness, in their order.

CHAPEL.

Some private schools have a chapel of their own; others use the parish church. Most public schools have their own private chapel, which is used either once a week, or every day of the week for morning prayers at 7 or 7.30 a.m.

Warming.

For some time during the year these chapels need artificial *warming*. There are two ways of warming them: the *right* way is to light the fire on Monday morning, and let it out—if at all—on Saturday night; the *wrong* way is to light it on Saturday night, and let it out on Sunday night.

It would be bad enough to use a chapel once a week without any warming, but even in such a case the walls, floor, and seats would alone be cold; the case is infinitely worse, I think, when the fire is not lighted until Saturday night, for the moisture from the warmed air simply condenses on the cold walls, floor, and seats, and makes them reeking wet, producing far more colds and discom-

fort than would result from the absence of a fire, besides causing mildew, which is so deleterious to health. In all cases, whether the chapel be used only once a week or every day of the week, the warming should be continuous; sending boys to chapel once a week with reeking walls, and to chapel every morning at 7 a.m. when the chapel is not thoroughly warm, is both a disagreeable and a dangerous practice. But while the warming should be efficient, it should not be excessive; the chapel should not be converted into a hothouse. Under the arrangements that generally prevail, and even in the absence of this excessive heat, colds are caught, and serious chills occasioned, in consequence of imperfect *ventilation* not allowing the air, which has become injurious on account of the large numbers present, and the exhaustion of oxygen by the gas, to be sufficiently purified; the system consequently becomes depressed, and much more susceptible to a chill on leaving the chapel.

The ventilation of chapels should engage greater attention than it does. By aid of the constant circulation of the warm air with which they are usually warmed, a scheme of ventilation should not be difficult; in fact, Boyle's air-pump ventilators in the roof of all churches and chapels would effectually provide it.

Ventila-
tion.

A very large proportion of colds are distinctly traceable to chapels and churches, not so much, I think, from imperfect warming—though this is defective enough—as from the depression caused by the respiration of pre-breathed air, and the poisoning occasioned by the respiration of the burnt fumes of gas. As evidence of the fact I would also point to the number of boys who leave chapel during service on account of faintness or bleeding of the nose, and to the general somnolence of

those who remain. Were more attention paid to the ventilation of churches and chapels the clergy would find more attentive audiences, and their hearers would not so often give the preacher the credit of possessing soporific powers. But, at present, architects scarcely deign to consider that, in the exercise of their art, the question of ventilation, or even the science of acoustics, is within the range of their department in the construction of religious edifices.

SCHOOL ARRANGEMENTS.

In previous sections I have dwelt only upon the arrangements for *living* at boarding schools. I now propose to discuss the arrangements necessary for *work* at school, with reference both to day and boarding schools.

Our first question must naturally relate to where the school work is to be done. This usually takes place in what are termed "class-rooms," the best form for which we shall now proceed to describe.

CLASS-ROOMS.

Situation. On this subject the section should be consulted in which I have described the conditions required in selecting the *situation* for a school.

Construction. All school-rooms should be *built* with at least 14-inch walls; these walls should be hollow, and ventilated below on the outside, and above on the inside, in order to provide a continuous current of air passing between the inner and outer walls, and thus prevent damp

and mildewed walls. There should further be a damp course above the level of the ground, which prevents damp being carried up the bricks from the soil on which the wall stands. All class-rooms on the ground-floor ought to be properly under-ventilated; by this means a dry basement is ensured, and the continual rising of damp air between the boards, charged not only with moisture, but also with the noxious effluvia from "dry-rot" and other fungoid growths, is avoided. This condition would be still more completely ensured if the whole of the ground within the building were covered with six inches of concrete. The floor should always be of wood, and not quarries, except in passages. Many of the class-rooms in some of our highest schools in this country require *razing* to the ground, while others need *raising* to the ground, for some of our boys are still educated in underground dark cellars. It is, unfortunately, still necessary to insist that all school-rooms should be built above the level of the ground, and those at present in existence which are below ground should at once be abandoned.

Class-rooms should be constructed to hold thirty boys Size. and their master. They should never hold more, for this number is as many as any one master can control and teach properly. Under the head of "Dormitories" I have strenuously insisted that each pupil should be allowed at least 800 cubic feet, together with efficient ventilation. I have urged this on the ground that a boy occupies his room continuously for eight or nine hours.

But in a class-room, where a boy is never more Air space. than one hour continuously—or, at all events, should not be—this full extent of space is not of such great

importance. I therefore, suggest as a *minimum* that in all class-rooms 500 cubic feet of space should be allotted for each boy. If this 500 cubic feet of air space is all that can be provided, it is essential to remember that the air needs changing six times per head per hour, in order to allow the requisite 3,000 cubic feet per hour, and thus prevent the room smelling "stuffy." But, as I have already stated, it is difficult in our climate to change the air more frequently than three or four times an hour without causing draught, unless the incoming air be warmed; but this amount of change can be effected with more or less ease in every case.

In addition to providing this cubic space it is a salutary rule that all class-rooms should be vacated every hour or every hour and a half, if even for five minutes only, in order to secure a thorough flushing by fresh air, besides the constant current during their occupation.

No master, therefore, should vacate his form without first opening the windows, so that the next comers may find a sweet instead of a foul room.

A typical room, therefore, which would supply the requisite cubic space named above for thirty boys and one master, would measure—

40 feet in length,

25 feet in width,

16 feet in height,

with a floor area of 1,000 superficial feet, or thirty-two square feet of floor space.

The Committee of the Council of Education advise that the height should be twelve feet when the superficial area is under 360 square feet, thirteen feet when under 600 square feet, fourteen feet when above this, and so on.

There should be a window area of 225 superficial feet, or three windows of about 10 ft. 6 in. \times 7 ft. 6 in., on the right-hand side of the master where he stands. Thus:—

Light:
Natural.

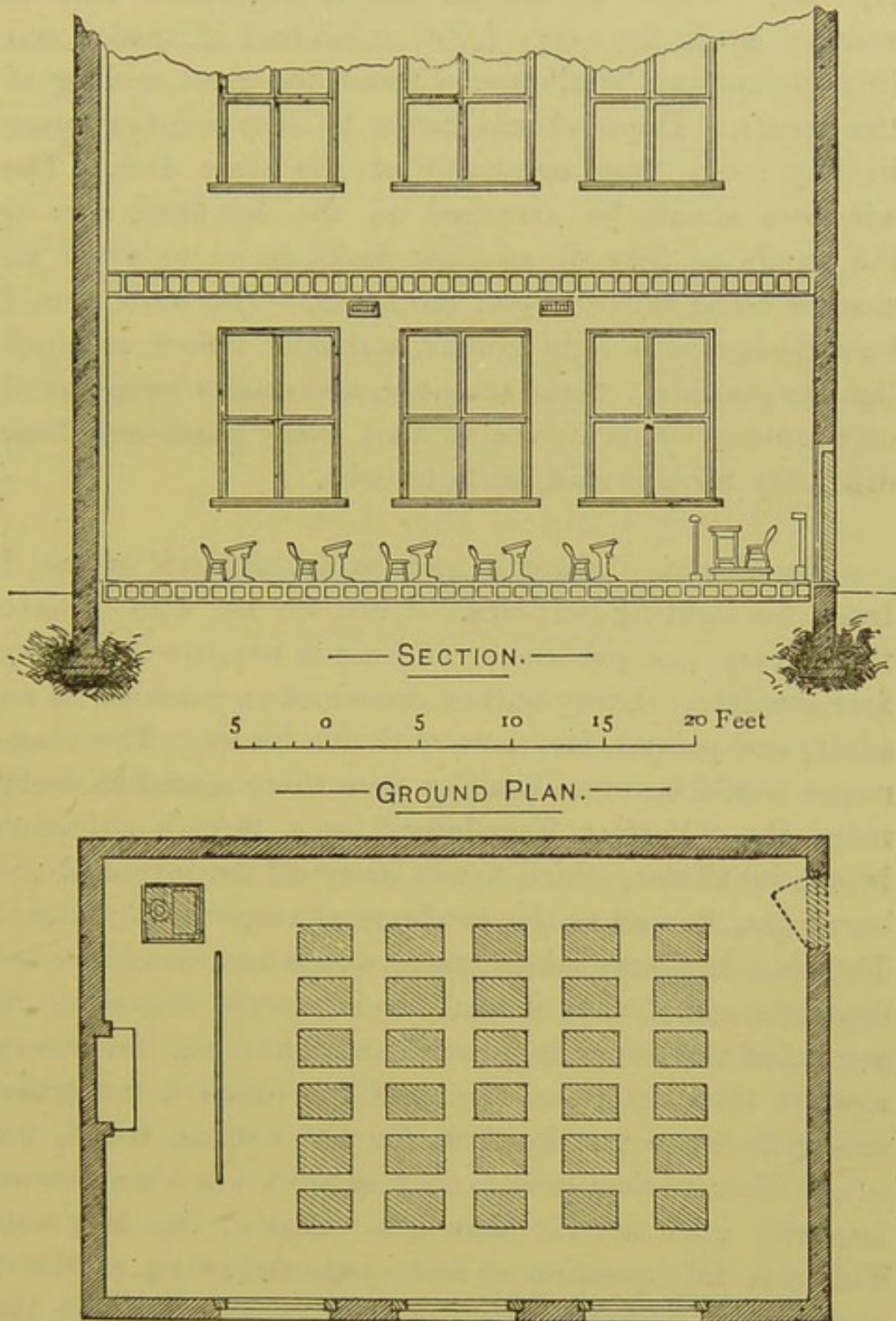


FIG. 10. THE MODEL CLASS-ROOM.

The sills of the windows should be at least four feet above the floor,* so that the light may enter above the pupils' heads, and the boys may not be continually looking out. There should be fifteen superficial feet of window space for every 1,000 cubic feet of space; and this amount can be allowed without too great cooling of the rooms. There should never be less window space in any room than one-tenth of the floor area. The windows should be arranged on the left-hand side of the pupils as they sit at their desks, so as to avoid all shadow being thrown upon the books. The walls should be distempered a light colour, and thus reflect as much light as possible. Some attention also should be bestowed on acoustics by architects, so that every pupil may hear distinctly what is said, without echo.

Light:
Artificial.

The electric light will soon banish the evil of gas, I trust, for lighting purposes. Until we are able to have this luxury, one gas-burner at least is requisite for every four scholars. Every burner consumes as much air as an adult, and poisons far more with its fumes. The classrooms would be more healthy were there placed in every room the "Perfect Ventilator," or a Boyle's chimney-breast ventilator, which would carry off the fumes of the burnt gas, as well as the products of respiration; and if Tobin's inlets were added, there would be a much needed continual circulation of air. It is always important to get rid of the fumes from artificial light; but the outcry against the deleterious effects of gas fumes is, nevertheless, not borne out by fact, for Dr. Odling found, for equal illuminating power, that candles introduced more impurity into the air than gas. Again, Dr. Meymott Tidy sets this question at rest by the following excellent and convincing table, showing the oxygen consumed, the

* "Healthy Schools," by Mr. C. E. Paget.

carbonic acid produced, and the air vitiated, by the combustion of certain bodies so burnt as to give the light of twelve standard sperm candles, each candle burning at the rate of 120 grains per hour :—

Burnt to give light of 12 candles, equal to 120 grains per hour.	Cubic feet of oxygen consumed.	Cubic feet of air consumed.	Cubic feet of carbonic acid produced.	Cubic feet of air vitiated.	Heat produced in lbs. of water raised to 10° Fahr.
Cannel gas ...	3.30	16.50	2.01	217.50	195.0
Common gas ...	5.45	17.25	3.21	348.25	278.6
Sperm oil ...	4.75	23.75	3.33	356.75	233.5
Benzole... ...	4.46	22.30	3.54	376.30	232.6
Paraffin... ...	6.81	34.05	4.50	484.05	361.9
Camphine ...	6.65	33.25	4.77	510.25	325.1
Sperm candles ...	7.57	37.85	5.77	614.85	351.7
Wax ...	8.41	42.05	5.90	632.25	383.1
Stearic ...	8.82	44.10	6.25	669.10	374.7
Tallow ...	12.00	60.00	8.73	933.00	505.4
Electric light (Hammond) }	None.	None.	None.	None.	13.8

The preceding figures prove the necessity of resorting to the electric light for our class-rooms and sleeping-rooms as soon as it can be utilised at a reasonable cost.

This subject of ventilation has been so fully treated in preceding pages that a few words now will suffice. Ventilation.

Each class-room requires treatment in its own way by an intelligent master, according to its size, the number of occupants, the aspect, and according to the direction and force of the wind.

It is clear that there is only one mode in which the external air should enter ; for as cold air is specifically heavier than warm air, if it enter a room near the floor, it will remain there, and exist as a stratum of air many degrees colder than that above it. It should, therefore, enter at the upper part of the room, so that as it naturally

descends—being heavier—it may mix with the warm upper air of the room, and thus be warmed somewhat in its descent. This action, however, often causes a draught, the fault being not with the principle, but with the method used in carrying it out. For instance, if much air be required in a room, which is well-warmed inside and the air very impure, it is palpable that with only one ventilator provided, 9 in. \times 3 in., as is so frequently the case, the rate of entrance will be exceedingly rapid, and the stream of cold air consequently pour down in a rushing continuous current, resembling a ray of light through a small hole; a sufficient number of inlets should accordingly be established.

It must always be borne in mind that the smaller the inlets and outlets provided for ventilation the greater the “draught”—a draught being caused by the rapid passage of air through too small an opening.

The principle in question may be effectively carried out by means of Sherringham’s ventilators, or Ellison’s conical bricks inserted a slight distance from the ceiling, or by Tobin’s inlets; but every class-room should be supplied with Hinckes Bird’s inlets between the two sashes of the window, by means of which the air enters with a rush, about half-way up the height of the room, and gradually falls warmed by the upper stratum of air in the room.

Warmth.

It is imperative that class-rooms should be artificially warmed in cold weather, whether the cold occur in summer or winter, if growing children are not to sit and shiver, and if any work is to be obtained from them.

No class-room should have a temperature below 55° Fahr., nor above 60° Fahr., when it can be avoided.

The best warmth we can have in a class-room is that which combines warmth and ventilation. Almost any

arrangement is better than "close stoves" which do not ventilate, or gas-stoves which discharge their burnt fumes into the room.

Under the subject of ventilation I spoke of the provision of means of inlet for fresh air near the top of the room. This is undoubtedly the best plan, where the fresh air is obtained from outside and is cold; but if the fresh air enters warm, the place of entrance should be below, and not above, since it then rises, after entrance, to the upper part of the room; whereas, if it enter above, little circulation will take place, as the warmed air, being specifically lighter, will remain near the ceiling.

The open fireplace is an excellent arrangement for warmth and ventilation combined—in small rooms especially. For larger rooms, hot-water pipes form an admirable system, especially if means be provided for passing fresh air over them, which becomes warmed in the transit. Hot-air flues also will sufficiently warm a large room, or a whole house, when the entering air is carefully obtained, when the flues are large enough to be properly cleaned out, and when the air is not heated above 70° to 75° Fahr., since at such a temperature it retains sufficient moisture, is not burnt, and thus is never oppressive.

Besides the preceding arrangements, there are Galton's Grate, George's Calorigen, and Bond's Euthermic—all admirable plans for warmth and ventilation.

It is scarcely to be believed that "traditions" in some of our older public schools only allow fires to commence and terminate on a certain day in a certain month, quite irrespective of the weather and of the discomfort and illness thus occasioned to masters and boys. Is it necessary to state that fires should be lighted and put out according to the weather alone? Moreover, it is essential to health and comfort for masters to insist

that class-rooms should be opened, aired, and warmed before the commencement of each term, so that boys are not placed in rooms little better than ice-houses.

Drying-room.

In all day-schools arrangements are requisite for drying overcoats and boots in wet weather. Without this precaution much unnecessary ill-health must be occasioned, which may even cause the pupil life-long suffering, or possibly a fatal illness. Mr. Murgatroyd, in his excellent paper on school construction, says :—"The cloak-room should be large, provided with stands or horses and hook rails, umbrella stands, lockers for shoes, etc., and at one side should be a drying chamber, fitted up with galvanised iron drying-horses, well ventilated, and capable of being quickly heated whenever the day is, or is likely to be, wet. This drying chamber is under charge of an attendant, who sees to the drying of wet clothing during the school hours. An adjoining chamber, also heated and fitted with perforated metal shelves, serves for drying boots." *

A still better plan for a drying apparatus was shown at the International Health Exhibition, arranged by the Rev. E. F. M. McCarthy, and in use at King Edward's School, Birmingham.†

Arranged round the room are a series of partitions, each boy having his own separate compartment, which is numbered. In each compartment are two hooks, one in the centre for hanging up outdoor clothes, and another at the side for the umbrella. Below is a narrow ledge for gaiters, etc., and underneath this are the hot-water pipes, running round the room ; while on the floor, to catch the drippings from the umbrellas, is a drainage-trough in connection with the drain outside. A current of

* International Health Exhibition Conferences.

† *British Medical Journal*, Nov., 1884

air enters through the lower perforated panels of the door, and passes out by the window at the top; the damp and disagreeable vapours arising from the clothes, etc., while drying, are thus effectually removed. The accompanying sketch will give an idea of the arrangements, the following being the detailed dimensions:— Height of partition, 5 ft. 4 in.; width, 1 ft. 2 in.; depth,

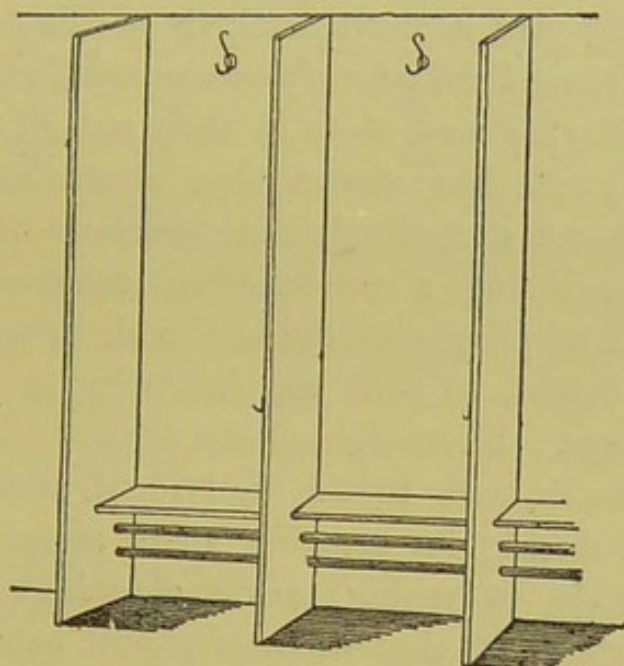


FIG. 11.—THE DRYING-ROOM FOR DAY SCHOOLS.

8 in.; height of ledge, 1 ft.; height of hook for umbrellas, 2 ft. 6 in.; width of drainage-trough, 3 in.; length of hot-water pipes for 120 partitions, 142 feet.

The question of seats in class-rooms is a matter of great moment, both as to their arrangement with regard to the light, and their height for the comfort and health of the pupil. It is important for the boy, but trebly important for the girl.

Seats and
Desks.

In most schools the desks are inappropriately arranged; the light should fall on the left of the boy, by which means alone the best light is obtained without shadow.

Moreover, in many of the older schools the light is insufficient, so that boys are compelled to stoop and damage their sight through this serious defect, which could so often and so easily be remedied.

This subject has been treated in so masterly a way by that able man, Dr. Liebreich, in his lectures on "School Life, in its Influence on Sight and Figure," that scarcely anything further remains to be said. I shall, therefore, only give a short analysis of his lectures. I would at the same time strongly recommend every master, parent, and boy, to read them in their entirety.

Dr. Liebreich has shown that short-sightedness is developed almost exclusively during school life, in many cases by developing a pre-existing tendency, but in others, where no predisposition is found, by actually producing the defect, so that the infirmity is continually on the increase. Short-sightedness is not only in itself a direct inconvenience to the individual, but the efforts of the child during its growing years to assume a posture favourable to seeing, cause stooping and curvature of the spine, so that deformity and consequent ill-health are the frequent results. Besides this, by insufficient light and an inappropriate placing of the light, a diminution of acuteness and of endurance of vision is produced, and work in consequence has to be given up or diminished.

The right form of school-room is oblong, of which I have already furnished a description and sketch, with the windows high up on one of its long sides; the forms, which should have properly-regulated backs, with desks close to them, should be arranged parallel with the short sides, having the windows on the left as the boys sit, while the master, on a raised seat, should be at the end facing the class. No boy should read with the book nearer than 10 to 12 inches; and the desk should

be raised as an inclined plane, 20° for writing, 40° for reading.

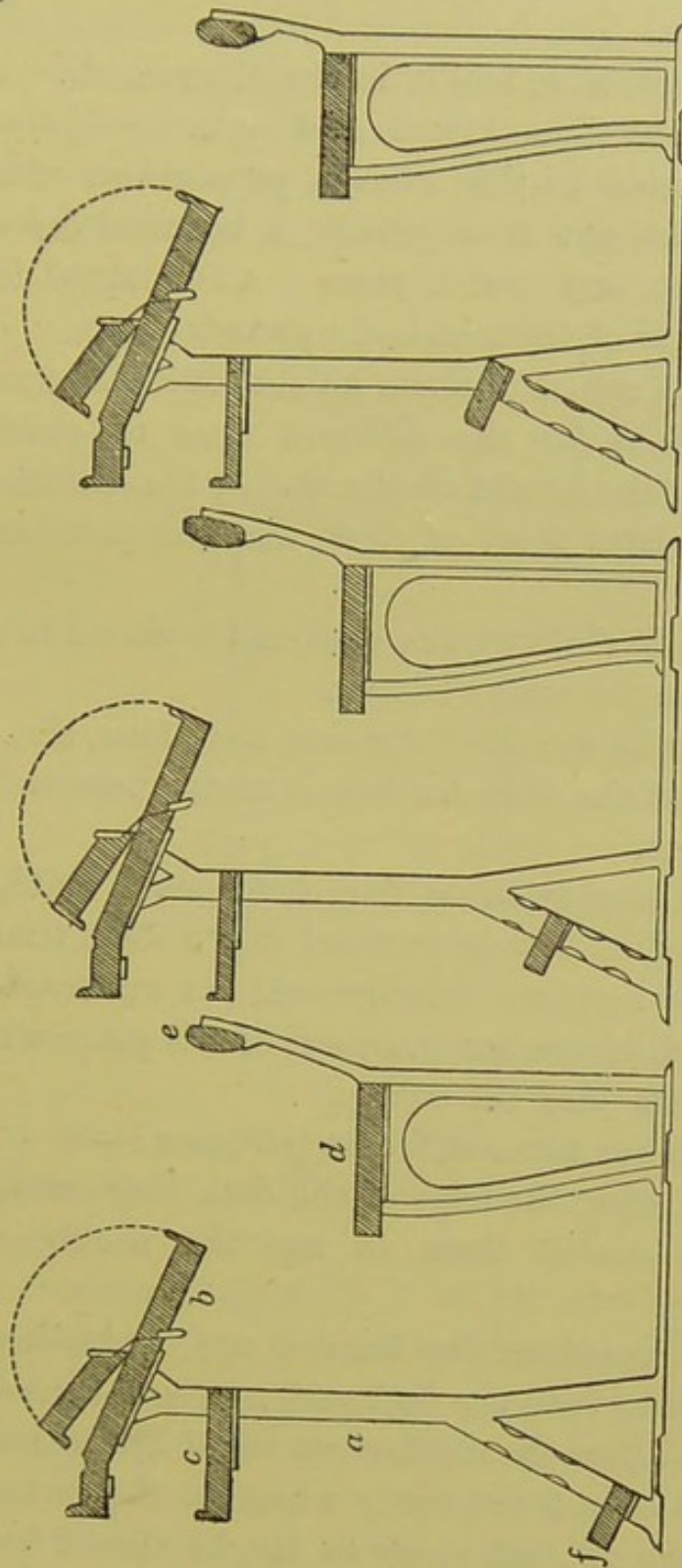


FIG. 12.—FURNITURE FOR PUBLIC SCHOOLS (*Liebreich*).

The edge of the desk or table should be in the same perpendicular line with that of the seat, and the top of

the back of the seat should be one inch lower than the edge of the table for boys, and one inch higher than the edge for girls.

The figures, A, B, and C, in the diagram show sections of the different sizes of desks and seats.

C is adapted to the average proportions of children of seven, eight, and nine years. B is suited for children of ten, eleven, and twelve years. A is adapted for children of the ages of thirteen and upwards.

The desks are of uniform height from the ground, and the proportions for the different sizes of children are regulated by the height of the seat *d*, the distance of the backboard *e* from front of desk, and the position of the footboard *f*.

For female children the back-rail is placed in a higher position than for male children.

These desks are fitted for one, two, four, six, or more children: but the desk for four is most recommended by Dr. Liebreich.

They have a separate flap, *b*, for each child, so that different studies may be pursued at the same time at one desk, and by a special arrangement (an interrupted back-rail), each child can get in or out of his place without in the least disturbing the others.

The flap has three different purposes :—

(1). To bring the edge of the desk near enough to the children to enable them to use the backboard when writing.

(2). To transform (by turning up) the inclination proper for writing into the inclination proper for reading.

(3). To allow the children to stand up in their places, and to pass in and out easily when the flap is turned up.

Two feet of desk space in length should be allowed to each pupil: the depth of the desks should be 15 to 24 inches, and the seats themselves 12 inches deep.

There was an excellent arrangement, shown at the Health Exhibition, for seats and desks, invented by Dr. M. Roth, and called the "Modern Adjustable Desk."

Liebreich urges that the lighting of the rooms in the evening ought to be as similar as possible to that by day—with the light on the left of the pupil.

Gas-lights should be protected by a glass cylinder, to

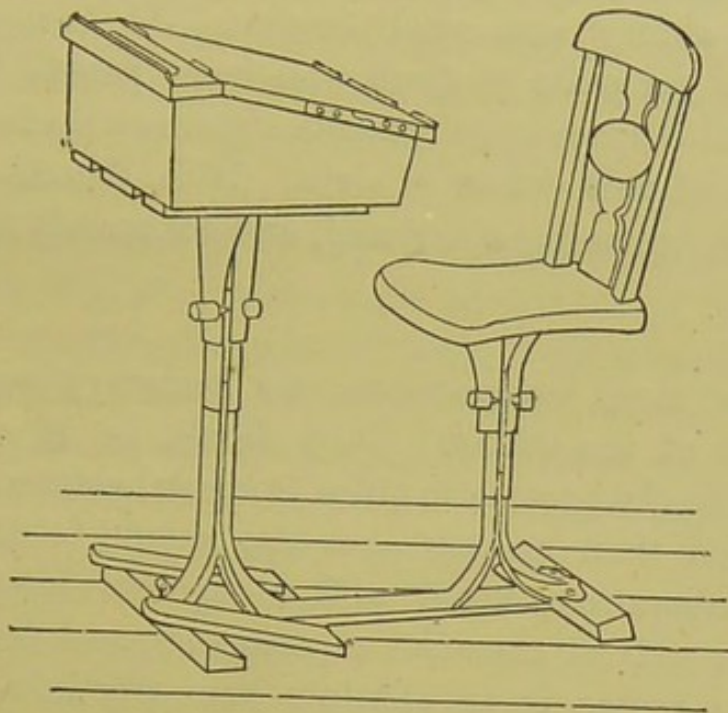


FIG. 13.—THE "MODERN ADJUSTABLE" DESK.

produce a steady light, but should not be covered by ground glass shades, which obstruct so much light; and reflectors should be used.

The question of *eyesight* is so intimately concerned with the construction of class-rooms, and their arrangements of lighting, together with appropriate desks and seats, that the subject must be referred to. The question of eyesight, as affected by education, is becoming a very serious national one. It is a fact, that boys working under unfavourable conditions, and with insufficient light during their school-life, are sustaining serious

injury to their eyesight by the production of short-sight. Sooner or later this result must frustrate our desires of appointing only the best men to all posts in the "services," government offices, and professions. For the eyes are tested for most appointments, cases of short-sight being weeded out, so that when all applicants with this defect are refused, appointments will have to be allotted to those whose sight is good, and not according to mental ability and acquirements. At the present moment 10 per cent. of those who have passed for the Indian Civil Service appointments alone are inadmissible on account of this defect of sight. It is, therefore, as I have stated, becoming a national, and not merely a school question.

Lecture-
rooms

One or more lecture-rooms are necessary according to the size of the school. They should be of a larger size than the class-rooms in order to accommodate a larger number, and their arrangement also should be different. A good laboratory, fitted with every convenience for physical as well as chemical experiments, and connected with these rooms, is an absolute necessity in a modern education.

With reference to the construction of lecture-rooms, Mr. Murgatroyd, from whose paper I have already quoted, says—

"A physical science lecture-room will also probably be required to hold two classes; it must have its lecturer's table and an apparatus-room, in which a small gas-engine may be placed to work a dynamo machine for magnetic electricity."

"I prefer to set out the seats in these lecture theatres, rather than to assume that a certain area will accommodate a certain number of pupils, though, as a general rule, six square feet each should provide the necessary accommoda-

tion, including space for the lecturer and his apparatus. The pupils require bench seats, and a narrow ledge in front of them on which to write memoranda ; and I have found it best to adopt the Isacoustic curve for arranging the setting-up of the rows of seats, *i.e.*, to draw a line (on the vertical section of the room) from the lecturer's table over the head of one pupil, seated, to give the place of the eye of the pupil next behind him. We thus get steps gradually increasing in height as they recede from the lecturer, and the advantage is that every one can see."

A room sufficiently large to accommodate the whole school is also a requisite ; for at times the school must meet in a body, and such a room is also needed for examinations, speeches, and evening lectures and entertainments. It should be thoroughly warmed, and ventilated irrespective of open windows. This, as a rule, is wholly neglected.

The Great Hall.

WORK.

In discussing the question of work at school, it must be understood that I refer to the intellectual education which takes place during school-hours, and the hours occupied in preparation. I do not include the important education of the senses which is continually going on, especially during the hours occupied by play and freedom from restraint, which is often the most valuable education of all, and should be encouraged by every legitimate means.

The *amount of work* is a matter of paramount importance to the growing boy, if his brain is to be developed instead of being stunted from early over-work ; for it

Amount of Work.

is one of the most obvious physical laws of nature, which holds throughout the whole animal creation, that immature organs are incapacitated and deteriorated by excessive work, while they are developed, and rendered vigorous and active for adult life, by sufficient healthy and progressive exercise. But the exercise should be progressive, not stationary; for mental and physical exercise fit for a child is not sufficient for a boy, and exercise suitable for a boy is not adequate for a man; and the converse is also true: that the exercise which is fit for a man is too severe for a boy, and that which is suitable for a boy is too much for a child.

Not long since I saw a child who was suffering intolerably from neuralgia in various parts of the body, caused by unsuitable work: the child, a boy, was seven years old, and passed five hours a day in school—from 9.30 a.m. to 1 p.m., with a quarter of an hour's freedom at 11 a.m. and then again at work from 2.30 p.m. to 4 p.m. This is slave-driving. Had the child been assigned a moderate period of work, and then an interval of play, much more and better work would have been done, and his health would not have failed. A great master has said, concerning the education of little boys, "Great care is taken that no boy shall, at any moment of the day, be obliged to sit in idleness, under any pretext whatever; when the stated quantity of labour is performed he goes to play; but while he remains in the school-room he has no right to be an instant unemployed. The reward of industry, a short cessation from labour, is immediate; so that a lively boy is not doomed to 'count the slow clock, and *play* at noon.' On the contrary, instead of watching with feverish impatience to see both the hands *culminate*, he employs himself ardently at his task: the instant he has accomplished it, constraint ceases, and he breathes empyreal air."

For elder boys a longer period of work is perhaps expedient, to teach them by degrees the vital lesson of continuous application, which is so essential to men in after life.

This appropriate amount of work varies, of course, with individuals, in proportion to their stamina and mental ability. What is hard work for one is scarcely work at all for another. But whatever subject is being taught, it seems to me that the only way to ensure progress and happiness in the work, and secure an absence of overwork, is, very early in life, to let the pupil frequently taste the pleasure of success. Especially let him learn that which he can learn readily, and then gradually induce him to face that which is distasteful to him; and with each step of success will come an eager desire for progress. Whereas the opposite method to this is, unhappily, only too often attempted. A pupil who has no taste for a certain subject, and makes no progress in it, is urged, driven, and punished for his failure; in fact, just in the same way as the child who cannot eat fat, or rice, for example, is kept for hours until it is eaten, to the serious detriment of his internal organs and his temper. Whereas if he had been first taught that which he could attain, he would then have perceived his own power to attempt unexplored, and even distasteful, ground. The Hills, from whom I have already quoted, said:—"The only effect of showing some indulgence to the predilection of youth will be, that, in place of uniform listlessness, every task will be performed with spirit, and every branch of learning will be, in its turn, the object of intense avidity. There is always a natural facility for making one acquirement rather than another, and with that the pupil's ardour will commence; but, except in a few instances, the difference of capacity for one study in preference to another is but slight, and

will gradually waste away before the influence of circumstances. Nor, on the other hand, should it be forgotten by those who, in their eagerness for one acquisition despise every other, that in the web of knowledge no thread can be traced without pointing out something of the course of others."

When the individuality of each pupil is more considered by parents and teachers, our boys and girls will be better educated, and thus rendered more fit for their work in the world after school life is over.

The question which teachers naturally ask, and expect to have answered in a practical way for their guidance in the management of their pupils, is, "What is the amount of work that should be done?" The only answer is one of *scale*, for what is suitable for the age of nineteen is most unsuitable and detrimental to the age of seven. The following is the best scale I can furnish as indicating the ordinary amount of work for the average boy, including Sundays but exclusive of the perfect mental rest during the periodical holidays, which, as a rule, comprise about four months in the year:—

From 7— 8 years old, 12 hours per week.			
„ 8—10	„	18	„ „
„ 10—13	„	24	„ „
„ 13—15	„	30	„ „
„ 15—17	„	36	„ „
„ 17—19	„	42	„ „

It may be said that this amount of work is insufficient ; but it must not be forgotten, as is sometimes the case, that boys have to provide for their growth and development while at school, and this, if we follow Nature, must necessarily limit the quantity of work to be required of them ; and when a boy is growing very rapidly, exceeding the normal $2\frac{1}{2}$ inches annually—as he often does from the

age of thirteen to sixteen, but especially during his sixteenth year, the corresponding rapidity of growth of the girl occurring between eleven and thirteen, though especially during the thirteenth year—his work should be still further reduced, for his brain power is then simply insufficient for its performance. All the nourishment he takes goes at this period to make quantity, not quality, and all his tissues, the nervous tissues included, are like the rapidly-growing immature green stick, not the mature and sturdy oak.

In giving this limited scale of work I do not wish to imply that a boy should never exceed it; far from it. There are times when boys may, and must, do more work, even double this scale, as in working for scholarships, exhibitions, and in competitive examinations. Moreover, they may work thus hard for a season with impunity, provided they work where there are sufficient light and air, provided they do not live in the same air day and night, and provided they do not neglect their exercise daily. Where harm and death have resulted, the cause has been that these first principles of sanitary science have been wholly neglected. Nature's laws are inexorable, their infringement entailing certain punishment; and unfortunately, in these instances, the punishment falls on the innocent victim who is compelled to work under such abnormal conditions.

But, as a guide to the average daily work of the average schoolboy, the above scale is what should be in force. Some teachers say this is impossible while the present system of examinations prevails, for the work cannot be got through. This objection only brings us back to my former contention, that the quantity of subjects should be diminished, and quality of work in a few subjects substituted. In this way we should strive after *thoroughness* for all boys, and not for one or two,

as is at present the case ; and we should see less "slop-work" and "shoddy."

In some of our schools, however, were the whole holidays and half-holidays counted, I doubt whether this moderate scale of work is accomplished.

In our public schools, from twenty-four to twenty-eight hours a week in school is about the average—not including time spent in the preparation of work ; while in our private schools they average—and more frequently exceed—about thirty-six hours per week, including preparation of work, but excluding Sunday work. This for boys from nine to fourteen years of age is excessive.

Over-work. This leads me to say a word on *over-work*, which term is relative, and not absolute. It is seldom seen at public schools, but, unfortunately, it is occasionally. The brightest and most promising boy is most likely to work at too high a pressure ; and if he be not checked in time, his life or his health may be the forfeit.

It is important for the schoolmaster to remember that in intellectual education he has to endeavour to cultivate and bring to its prime the nervous tissue of the brain, just as much as the gymnast seeks to develop and bring to its prime the muscular tissue. And just as the gymnast knows how far he may go, and how far he may not go, to produce the most healthy tissue, so it should be the schoolmaster's aim and duty to learn in respect to each pupil the extent to which he may proceed in order to produce the highest development of the nervous tissue of the brain. It is, unfortunately, too often forgotten by the schoolmaster that intellect is simply brain-function, and must be treated as such. It should, therefore, be the master's aim to produce *quality* of brain substance, and this can only be effected by rendering all the tissues

of the body healthy, and then carefully teaching a few subjects thoroughly.

But schools and schoolmasters are unable to carry out this obvious system while examinations for which they have to prepare their pupils continue encyclopædic in character.

The schoolmaster's material is thus brain substance ; all his power over the pupil depends on quality and growth of brain ; growth of brain is dependent on growth of body ; and growth of body depends on a suitable and sufficient supply of good food, fresh air, and exercise.

Those engaged in education should strive to elicit the natural good hereditary tendencies of each pupil, and develop them ; and endeavour to evoke and encourage new faculties, with a view to completeness of education.

Over-work in the young mainly is an indication of immature brain-tissue, and of deficient food or fresh air, rather than of excess of work. Adults do sometimes actually over-work themselves.

And it must be borne steadily in mind, especially under a system of compulsory education, that underfed children cannot sustain hard mental work.

It is cruel, too, for even well-fed children of seven years of age to be kept in school for five hours daily. They must become absolutely dazed and stupid, apart from the permanent damage inflicted on the brain tissue itself.

Not only are children overworked, but I have noticed many teachers and pupil-teachers in the primary schools, and teachers in private families, utterly broken down, due in the one case to payment by results, in the other to sheer hard work in having too many pupils to superintend.

At Bradford, Dr. Rabagliati stated that the Registrar-

General's returns showed that since the Education Act came into force, the deaths from "water on the brain" amongst children of school age had increased by 20 per cent. ; and from inflammation of the brain by 50 per cent., the latter, however, not solely amongst children.

It must be remembered that of all causes of insanity and neuroses, those connected with excessive brain function in the young are the most prolific.

In our *high-class*-schools, "payment by results"—represented in the form of Scholarships—induces the clever boys to strain their brains ; whereas in *elementary schools*, "payment by results" compels the teacher to overpress the dull and stupid children, and in the effort the teacher frequently suffers most of all.

Mr. Cotterill quotes the following extract from a weekly journal for June, 1885 * :—

"SCHOLARSHIP FOR SMALL BOYS.—Mr. — offers for competition at the end of July, a scholarship for five years—*i.e.*, he will take a pupil who shows decided ability, and is between the ages of seven and nine, for half his usual terms (£100 a year). Preparation for the Public Schools."

Can anything be more disastrous than such an advertisement to the poor unfortunate boy—no, child—who obtains the scholarship? Is such an advertiser fit to be a schoolmaster at all? He cares nothing for his pupil, but only for his own reputation, and his pocket. He would be much better employed forcing cucumbers than thus forcing children's brains.

Generally speaking, it is the boy that is growing too rapidly who suffers from over-work. The boy who takes no exercise may be said to suffer from relative, rather than from absolute, over-work ; with proper exercise he would make healthy blood, and with healthy blood he

* "Suggested Reforms in Public Schools,"

would possess a vigorous brain, able and ready to do the work required of it.

Headaches, restlessness, irritability, inability to fix attention, are the finger-posts which usually point to the commencement of the symptoms of over-work ; their warning should be heeded in time, and the work stopped or reduced.

Over-work, however, is so frequently asserted where none exists, that great caution and much judgment require to be exercised by all concerned, lest an error be committed, and a boy spoilt and made lazy by a reduction of his work where there is no necessity—really nothing in the shape of over-work. Thus, headaches are sometimes caused by working or sleeping in impure or pre-breathed air ; often through a failure in sight, which could be, and should be, rectified at once by appropriate spectacles ; and most frequently of all these headaches are toxæmic, from imperfect action of some of the secretions, such as constipation, but especially would I mention albuminuria.

On several occasions I have seen boys who had all the symptoms of over-work, and from whom no further work could be obtained, cured of all head symptoms, as soon as the cause was discovered, by an aperient and a milk diet only for twenty-four hours.

There are some parents who say—I have heard them myself—"I don't want my boy to work ; and I don't care if he never does a stroke of work more than is necessary for him to remain at the school : I only want him to get the *tone* of the place." I need scarcely say that, in a large proportion of cases, a boy so situated is nearly sure to obtain all the bad tone of the school, and miss all that is of such great value to a boy, and which his father desired for him, but went the wrong way to

Under-
work.

obtain ; such a boy getting no good himself, soon becomes a source of harm to others. For, having learnt the art of doing a minimum of work, with the least possible trouble to himself, he ends by losing his self-respect and his straightforwardness of character.

Arrange-
ment of
Work.

The *arrangement of work* is only a little less important than the quantity of work, if the greatest amount of good work is to be obtained, with benefit, instead of detriment, to the boy. An hour or an hour and a half at a time is ample ; more is never endured easily ; even a few moments' respite will enable another hour's work to be satisfactorily done.

In private schools, where the boys are mostly young—from nine to fourteen years of age—and in most public schools which are conducted as day-schools, the long school hours—9 a.m. to 1 p.m., and 2.30 p.m. to 5 p.m., and then "preparation" of work at home in the evening—are still adopted. No system could be more unwise and deleterious ; it is not only harmful alike to masters and boys, but forms a severe trial to their temper and patience.

Even an adult is over-strained who sits for three hours at a time at work without rest ; how much more unreasonable is it to expect a young active boy or girl to undergo the same trial, as is so often required.

I append here a "time table" of the daily occupation at one of the best private schools in existence in this country. I think the hours too long, but the master, a wise and experienced man, states that the work required for examinations cannot be got through in less time. His arrangements otherwise require no alteration ; arrangements for play and the sanitary arrangements leave absolutely nothing to be desired ; he is, compared with most other schools, at least fifty years in advance of his time.

TABLE A.]

TIME-TABLE OF A PRIVATE SCHOOL.

[AGES 9-14.]

Day.	7.0	7.30	7.45	8.15	8.50	9.45	9.50	10.50	11.5	12.0	12.5	12.35	1.5	1.20	2.0	4.0	4.15	4.45	5.45	5.50	6.10	6.15	6.45	7.0	7.30	8.15	8.30							
Monday.	Out of bed.	Prayers.	Breakfast.	Play.	School.	School.	Play, and Lunch of butter.	School.	School.	Play.	School.	School.	Play and Wash.	Dinner.	Play.	Bread-and-butter and Milk.	School.	School.	School.	Play.	School.	Play and Wash.	Tea.	Play.	Prayers.	Bed.								
Tu.	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"								
Wed.	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"								
Th.	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"								
Fri.	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"								
Sat.	"	"	"	"	"	"	"	"	"	"	"	"	"	"	2.0 8.15 Play	"	"	"	"	"	"	"	"	"	"	"								
Sunday.	Out of bed.	Prayers.	Breakfast.	Freedom	Start for Church.	Dinner.	Freedom	Lecture.	Hymn Practice.	Tea.	Reading.	Evening Service.	Bed.	Half-holiday.											h. m. Work . . . 6 10 Play . . . 4 30 Sleep . . . 10 30 Ages, 9-14. per day; 33 40 " " 28 45 " " " "									

There is no Evening Work. The boys have frequent intervals for Play, so that the rooms are often ventilated. With each change of hour there is change of lesson. Care is thus taken to prevent monotony of work, and equal care is taken to provide against monotony of food.

An hour in and out of school alternately is an excellent plan, and is that in force in our public schools, especially if every other day be one of work all day, alternating with a half day of work and a half day of freedom; this custom is better for a boy than doing less work each day with a slight daily increase of leisure. Nothing is so salutary as the half day of freedom every other day, with good hard work on the intervening day, for all young people—except, perhaps, very young boys, who cannot amuse themselves for long together—require and revel in a long time of freedom.

I append here a “time-table” of the work and play in our public schools; with some minor alterations, the daily work in all these schools is roughly represented by the table:—

I append a “time-table” of the work as it is arranged in our “*Day Public Schools*”:—

Prepara-
tion of
Work.

As the evening preparation of lessons is at present the rule at nearly all schools, with a few excellent exceptions such as the one whose time-table I have given (p. 157), I purpose first discussing this question, and I will then adduce objections to the large amount of work that is given to be prepared in the evening after school hours are over.

I hold very strongly that the preparation of all school-work, except among the elder boys, should take place under the personal superintendence of a master, instead of being left to the boy's discretion as to the method in which it should be prepared, or whether it should be prepared at all. By this means alone shall we ever see the abolition of “cribs.” At the present time they are freely used, and under the present system of preparation of work nothing can abolish them. This dishonesty in work, mostly undetected, undermines the whole character

TABLE B.]

TIME-TABLE OF PUBLIC SCHOOLS.

[AGES 14-19.]

Sunday.	Out of bed.	8.0	Litany.	8.30	9.0	Breakfast.	9.0	Bible Lesson.	10.30 11.15	Chapel.	11.30 12.30	Dinner.	1.0 1.30	Freedom.	4.0 5.0	Chapel with Sermon.	5.15 5.45	Tea.	5.15 5.45	Freedom.	5.45 7.30	Lecture in Winter.	7.30 8.0	Freedom.	8.0 9.30	Prayers.	9.30	Bed.	9.45 6.30													
Tuesday. Thursday. Saturday.	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"													
Monday. Wednesday. Friday.	Out of bed.	6.30	Chapel.	7.0 7.15	School. 1st Lesson.	8.15 8.45	Breakfast.	8.15 8.45	Preparation 2nd Lesson.	8.45 9.15	School 2nd Lesson.	9.15 10.15	Preparation 3rd Lesson.	10.15 11.15	School 3rd Lesson.	11.15 12.15	Play, or Preparation 4th Lesson.	1.15 1.30	Wash.	1.15 1.30	Dinner.	1.30 2.0	Drawing, Music, or Play.	2.15 3.0	Play, or Preparation 4th Lesson.	3.0 4.0	School 4th Lesson.	4.0 5.0	School. [Never Prepared Work.]	5.0] 6.0	Tea.	6.0 6.30	Freedom.	6.30 7.30	Preparation 1st Lesson.	7.30 9.0	Freedom.	9.0 9.30	Prayers.	9.30	Bed.	9.45 6.30

This is the kind of arrangement of work—an hour's preparation for an hour's work; and this varies every hour, every day, and in every form. The average work is from 24 to 28 hours per week, and every other day is a half-holiday.

The scheme might be greatly improved by having Prayers at 9 p.m., and Bed at 9.15 p.m.

TABLE C.]

TIME-TABLE OF DAY PUBLIC SCHOOLS.

[AGES 13-19.]

Day.	9.30 to 11.15	11.15 11.30	11.30 1.0	1.0 2.0	2 to 4 or 3 to 5	Evening.
Monday. Tuesday. Wednesday. Thursday. Friday.	1st Lesson.	Freedom for Play.	2nd Lesson.	Time for Lunch and Play.	3rd Lesson.	Home Lessons take from 2 to 4 hours to prepare.
Saturday.	Whole Holiday.					
Sunday.	No School.					

It will be seen that the "Home Lessons," the hardest work of all, occupy from 2 to 4 hours in the evening, when the pupil is most unfit to learn them.

It will also be noticed that when the time for "Travelling" to and fro is deducted, the balance left for "School Games" is most insufficient.

Were the whole holiday on Saturday abolished, and from 2 to 4 p.m. allotted every day to games, when the whole school is assembled, a distinct advantage would be gained.

of a boy, and is apt to cling to him through life. The punishment of an occasional detected instance is not the way to eradicate the evil. The practice must be prevented; and it can only be done by an alteration of the present system. Many a dull boy in a form who will not use the "crib" is thus left behind his schoolfellows who are not so scrupulous. Not long ago I heard of a boy who was twenty-sixth in his form work; but at "unseen" lessons mounted to the third place. This was strong evidence that he honestly prepared his work without "cribs," but was beaten "in form" by his schoolfellows who availed themselves of them freely.

I know the use of "cribs" in schools is often all but impossible to do away with, however eager a master may be. But parents themselves can do much towards banishing "cribs" from schools if they would only instil into their sons, before they ever part with them, that it is better to be at the bottom of the form with honest work than at the top by dishonest work. It should be remembered that honest work at school, by engendering a conscientious habit, tends to ensure honest work through life, while dishonesty in work at school leads to dishonesty in the world—nay, renders honesty in work and honesty of character well-nigh impossible. It seems too often to be forgotten that the boy is father to the man.

The reasons why "cribs" are used are many and various. Thus, a boy is too lazy to give sufficient time and attention to prepare his work; or too much and too hard work is set; another reason exists to a degree not sufficiently estimated at present, namely, the house-master being a mathematical or modern-language master, and the boy, in difficult passages, not having his form and classical master near at hand to appeal to; it either takes too long a time, or involves too much trouble, to search for his classical tutor, to whom he

could appeal ; and hence the only easy way out of the difficulty is the "crib." This could easily be obviated by such work being prepared in the day-time, as well as in the evening, in the common-room, with the tutor present and superintending the work, but helping as little as possible—a hint or a question being often sufficient. By this means the present and only fair arrangement, which is in force in most public schools, of senior masters, whether classical or mathematical, taking the houses that become vacant, in rotation according to seniority, might be continued. It would even be wise for mathematical and modern-language masters to insist, in their self-defence, on some alteration, even though the one I have suggested should not be adopted. The preceding remarks apply to the *day* preparation of work.

For the *evening* preparation of work, it is customary in private schools that the boys should prepare their work together, under the superintendence of the master, in their class-rooms. These boys are usually young, and require gentle handling. What I feel about "*Preparation*" for young boys is so well expressed by a friend in a note to me upon the subject, that I cannot do better than quote him. He writes :—"I do not find it good to put the hardest work (the preparation of 'new work') at the end of the day, when boys are tired ; nor do I think it good to let boys go to bed straight from exhausting or exciting work. We have no evening work after 6.45 p.m. In summer they go out of doors until 8.45 or 9 p.m. ; in winter, the last hour is devoted to reading, writing letters, small carpentering, cutting out, or games, which, from bagatelle to boxes of bricks, are provided in the dining-hall, kept for that purpose. I don't remember a single case of disturbed night's rest or sleep-walking since we did away with evening preparation." This is the statement of a most successful master of a large pri-

vate school, and whose school is a model from a sanitary point of view, and is morally all that can be desired.

In public schools the best plan is for senior boys to prepare their work in their own studies: the younger boys should not be allowed this liberty, but should assemble together in the evening in a common room, and there do their work, with a master superintending but not helping too much. Where this plan has been tried it has worked admirably, and should be made general. It gets more work out of a boy, gives him plenty of fresh air during evening working hours in a large room in place of the vitiated air of a small study, and allows the elders quiet for their work. It is a very great gain to the boys at the expense of the freedom of the masters.

This question of the preparation of work in the evening demands immediate and adequate attention from masters and governing bodies of our great schools. Sir Crichton Browne has truly said:—"The most arduous mental work required of a child ought to be imposed on it when its mind and body are in their prime vigour, between 9 a.m. and noon, and nothing but the lightest work should devolve upon it after 5 p.m. To the medical eye, 'preparation' seems to be peculiarly the work which should be carried on in school, with the constant assistance of the master, whose special mission it is to explain difficulties, to remove obstacles, evoke interest, and stimulate endeavour. It is, perhaps, because some masters do not take this view of their office, but fancy that their duty is performed when they prescribe tasks, listen to the repetition of them, scatter over them a few critical remarks, and diffuse around them that magnificent moral influence—which is not, after all, a good substitute for hard work—that tutors and evening governesses have so often to help boys and girls with their preparation, and that parents have to take upon

themselves the real drudgery of teaching." This great flaw in our school system was never better or more truly described. He further adds:—"Is any argument required to prove that that part of the day's work which involves most brain effort and brain exhaustion should not fall on these evening hours, when the nervous system is already fatigued, and when by the laws of its constitution it is least capable of exertion? This question is now ripe for alteration, and it is to be hoped, especially in our day public schools, that the solution of it may be forthcoming."

SCHOOL DISCIPLINE.

This question, which has been discussed in connection with the evening preparation of work by all but the elder boys in public schools under a master's eye, presents an additional good feature.

Bullying.

It takes charge of the younger boys during the evenings, and prevents much of that rowdyism and *bullying* which has always been most rife during the long winter evenings, and which, I suppose, will always exist to some extent so long as there are boys in the world; but it is a great thing if a master can by any means reduce it, whether his mode be by occupying every spare moment of the boys' time, by his own personal influence and kindness of heart, or by showing his contempt for the bully. The forward insolent boy is not hurt by bullying, sometimes even benefited, while many a gentle and retiring boy, while he remains at school, is made seriously ill in consequence; his growth is arrested, his health undermined, and his spirit often crushed for the rest of his life. It is this boy who needs, what he does not now

obtain, the protection of his master and of his elder schoolfellows. It is said that bullying is all but extinct in our schools. I would it were. Probably those who know least about it are masters themselves, as it is most carefully concealed from them. The case of bullying at a day-school where the unfortunate victim lost his life is not an isolated one. The same bullying had been going on at that school probably for years and years, and had it not been for the boy's death the baneful practice would have proceeded unchecked because unknown, masters believing that they have fulfilled all that was required of them with the termination of their class. I have heard of equally flagrant cases, fortunately not resulting in death, where the præpostors were neither flogged nor dismissed from school. Bullying of all kinds is unhappily still exceedingly rife in all schools, and must remain so until masters take more care of boys out of school, and until the præpostor system is remodelled.

As to the actual treatment of the bully there is nothing to compare with corporal punishment. The boy who is brute and coward enough to inflict pain on a smaller schoolfellow, is only sensible to such a punishment from some one bigger than himself.

This leads me to refer to the subject of *præpostors* and *fagging*, in so far as they affect the health of individuals or schools. That the health—indeed, the whole life—of a boy is thus affected is beyond all question; and it forms therefore, to my mind, a subject for very grave consideration. I am aware of the danger of saying a word about old institutions—and this prefectorial system has endured for upwards of five hundred years—but I think the subject should be resolutely faced, and not shirked, in order that the maximum of good

Præpostors

which the system is capable of may be secured with the minimum of evil

There can be no shadow of a doubt that "sixth power" is an excellent element for good in a school when held by the right boy, with the right master over him. It is really a protection of the little boy from the bully (who is often one about his own size), over whom no one but the sixth form boy has any authority or power. It teaches the owner of the power manliness, self-reliance, responsibility, kindness of heart, and that mercy which "blesseth him that gives and him that takes." But when this power is possessed by a bad boy—and is there a master who has not had at one time or another such a sixth-form bully in his house, and yet has not deprived him of his power?—it is a great power of evil, and can be, I believe, the worst instrument of oppression that can be devised.

The power, if it exist—as *I think it should*—ought to be the reward of *character* rather than of ability and strength, and not of ability or place alone. By this means the muscular brute would not only be prevented from exercising tyranny over his physically weaker schoolfellow, thus marring the happiness of his school-life—which should be the happiest and healthiest of all—but would also be hindered from creating the misery and ill-health which the depression of spirits resulting from tyranny inevitably produces.

I trust that the present system of "sixth power" may soon be abolished, and that a power so great for good or evil may only be given to "sixth fellows" whose character and ability deserve it. By this means, too, we should get rid of the *weak* sixth fellows, who are often worse than *bad* fellows, since they become simply the tools of the bad boys, and are often made to do what the bad boys would not venture to do themselves.

At present the prefectorial system, or "sixth form power" includes—

(1) Boys who use their power simply for their own comfort and convenience, who do no good, and comparatively little direct, though a large amount of indirect, harm.

(2) Boys who while trying to do good, yet, in their administration are unreasonable and tyrannical.

(3) Boys who possess no qualification but brute strength and their position in the school, and are the terror of all boys less strong than themselves.

(4) Boys who on account of high character are a real guarantee for resistance of immorality, disorder, and tyranny, and who are thoughtful for others.

Many will ask why should præpostors' power exist at all? Præpostors are appointed to keep order when masters are not present, and where the scheme is properly organised, they constitute the surest guarantee for the good government of a school. For there are times when masters are and must be absent from the boys; and it is during these hours that the worst offences are committed and the greatest bullying prevails.

Where the elder boys support the masters, and the masters support the elder boys, this evil is minimised. But under the present system these benefits are not secured as they should be. It should be an axiom, that school government, like all other governments, should defend the weak against the strong, and exalt *right* above *might*. But until the present system is reorganised this principle will not be reduced to practice, but will remain inoperative. There is another valid reason why the institution of præpostors' power is excellent, not only in relation to the good of the school, but also in respect of the individual who is selected to exercise it. For he is called upon to exercise power while still under the

guidance and control of others, and this is an invaluable lesson to learn while young. A great schoolmaster has said:—"Præpostors are appointed not only for keeping order amongst the smaller boys, but to promote manliness, thoughtfulness, and a sense of responsibility among the elder." Arnold thought that the system would benefit the rulers even more than the ruled. And this happy effect would be produced were the system properly organised and the grant of the power determined by the character of the recipient.

No doubt, the reason why "sixth power" is not taken from a boy who is unfit to wield it is that the stamp it would inflict upon the boy would be so serious that it would practically necessitate his removal from the school, and this is a penalty too indivious to be enforced; but this is where the essence of the evil lies. "Sixth power," as the reward for being in the sixth, should not exist—the rule is wrong in principle, and is occasionally the cause of untold evil where it is in force—but the prefect or præpostor system should be substituted, and the power should be the reward of character in the first place, and of ability as a secondary consideration. The position should be tenable only from term to term, or during efficiency and good behaviour. At the end of each term the boy should give an account of his stewardship. If he has shown himself weak, incapable, or unfit to have the power, his tenure of office should naturally terminate, without the invidiousness of dismissal; whereas, if he has done his duty, he should receive his office again next term.

Such a prefectorial system would render the power a really beneficial influence, and would prove an incalculable blessing to a school, by putting the right boys only in power; the reward, too, would be as great as it would be well deserved, and would produce splendid fellows.

It is said by some very able masters that the present system of sixth power præpostors is the best ; for so few men are sufficient judges of character, or are so unbiassed as to select only the most competent fellows—out of the sixth only—as præpostors. And that to select them on account of fitness for the post would be to return to the old days when selection of candidates took the place of competitive examinations, and was so greatly abused. In answer to this I would say, Let a council be formed each term, consisting of the head-master and house-masters, for the purpose of selecting the præpostors for the *term*, and let no master select the præpostors in his own house. Let the council be judge and jury, and let the house-master be the barrister who pleads for those of his own boys whom he thinks entitled to the power. Let him state their good points, and let every one in the council press the objections which show that he is unfit either from vice, or weakness of character. This plan would avoid the possibility of favouritism. Further, let no boy have præpostor's power unless he be in the "sixth form," but because he is in the "sixth form" do not let him have præpostor's power unless he is really capable. If it be doubtful whether he is fit, let him have a term to try his best, and if he do not prove a success, let him not be re-elected the following term. By this means some of the muscular Christians, who are heads of "elevens," or of the "fifteens," or of "the boats," would strive to become intellectual Christians as well. At the present time præpostor's power is far too cheap to be valued as it ought to be.

Circumstances, however, may arise in which it may be prudent to give præpostor's power to one or more senior boys who have a high character, and have also sufficient physical strength to carry weight with it, in order to prevent or put down immorality and bullying, or

to maintain the high tone of a boarding-house or school during a term when the "sixth form" are insufficient in number, in character, or in strength.

But while the present system of "sixth power" is in force, I think an additional protection to the boy should be instituted. For example, where an offence against the properly-constituted authority of one of the sixth occurs, instead of this præpostor having the power to punish the offender forthwith, there should be a consultation with his colleagues in his house, not only to investigate the misdemeanour, but to punish it, and "minute" the punishment, and thus get rid of personal spleen and reduce petty tyranny.

This petty tyranny, and gross tyranny too, I know are denied by the upholders of the present system. But I maintain that a system which allows a small boy, when convalescent after an illness, to implore his medical attendant not to send him into the same sitting-room with a certain member of the "sixth," must be radically bad.

I would recommend to the perusal of every lover of schools and scholars the "Life of Sir Rowland Hill." There, or in their work on Public Education,* will be found what the Hill family did for their own school, and for education generally. Then followed Dr. Arnold, always regarded as the pioneer of the "sixth system:" really, but not literally, true. Could he see now what he so ably organised, he would be sorely disappointed in, and heartily ashamed of, his system; which, instead of undergoing progressive development, is fifty per cent. less efficacious, and less to be desired, than it was when he left it in embryo half a century ago.

Fagging.

At the present time the work of *fagging* is more nominal than real. The old days of boot-cleaning and

* Published by Whittaker, 1822.

other menial services are over ; and fagging chiefly consists now in running errands, fetching articles from the "tuck-shop," toasting, carrying hot water, cleaning out study, and fagging at games, especially cricket. I look upon it as a wholesome system, as it is at present practised, for it teaches well-to-do little boys, who are often upstarts, to be subservient to others, and may make them more considerate to those beneath them in position. It prevents little boys being at the mercy of every boy taller or stronger than himself, since no one has a right to fag him but a præpostor.

There is one point in which fagging may be simply intolerable, and may be a cause of ill-health in schools, and that occurs when the fag is kept employed at meal-times—for example, at breakfast, toasting—and is either prevented from getting his own breakfast, or is obliged to bolt it, on account of the allotted time for the meal having almost elapsed. This should be guarded against by the supervision of the master.

It is a fundamental law of Nature that wrongdoing of whatever kind is met by punishment ; sometimes it is immediate, sometimes remote, but always appropriate. Punish-ments.

The proper education of the young for their position in the world is a serious matter ; but I would state with all the force of which I am capable, that the appropriate punishment of the young for their offences is a still more serious matter ; for by the right exercise of punishment a whole character may be made or marred. Further, I would also urge, that for a wrong, especially the first wrong, to go unpunished at the moment is often both unwise and unkind to the wrongdoer.

It is true that if we "train up a child in the way he should go, when he is old he will not depart from it ;" it is also true that if we "spare the rod we spoil

the child." Not that it is always necessary to *use* the rod, provided the child knows that it *will be* used on wrongdoing. In those schools where "discipline is (said to be) maintained without fear of punishment," I am at a loss to know the system by which it is secured; if there be not open wrongdoing, there must, I fear, be secret wrongdoing to a great extent. No boy should ever be sent to such a school.

That the brutal, indiscriminate, and incessant caning of former years—the expression rather of the master's spleen than the measure of the boy's deserts—has practically ceased is beyond question; it was exercised without any regard to the disposition of the boy or to his intellectual capacity, and unseasoned by mercy. It engendered terror and hatred in the sensitive boy, the "don't care" spirit in the average boy, and a dogged determination to do nothing in the bad boy, while at the same time it gave exercise to his love of revenge, and excluded all sympathy between the pupil and the teacher, and tended to degrade the character of both.

The Hills said, "Severity produces fear; an habitual state of fear becomes cowardice; and a coward is a liar."

On the other hand, I do not believe that boys can be controlled without occasional punishment. I do not think it a good thing for boys who need punishment to have a large proportion of their play-time taken from them to write, and spoil their handwriting, or to learn lines, when they should be out of doors getting exercise, and thus seeking and retaining health.

What an easy punishment for a master simply to say to his pupil, for nearly every offence, "Write me out so many hundred lines." Not long since I heard of a master who set 4,000 lines to his pupils before his breakfast. My remarks on hearing it were more forcible than polite. I also know of a case where a boy had lines

given him to write which occupied every moment of his play-time for ten days. For argument's sake, I will admit that this boy richly deserved a severe punishment ; but I am sure every one will admit that, in bestowing such a punishment, the punisher was worse than the offender, and showed himself utterly unfit to be an educator of the young.

I would also urge that it is unwise and impolitic to give boys, already usually overworked, extra work at all as a punishment ; whereas now such work is, as a rule, so given, that he really learns nothing from it whatever, but it only tends to spoil his handwriting.

The present mode of setting "lines" is nothing but giving a boy pure senseless drudgery. In fact, it is just about as sensible as putting prisoners on the treadmill instead of making them work at some useful and profitable occupation. No one can gainsay that such a form of punishment, co-extensive with all our English schools, is utterly unworthy of the able men who resort to it as an aid to school discipline.

If play-hours are really regarded as too long for necessary recreation, let them be legitimately curtailed by extra legitimate work, and not tampered with by unreasonable punishments.

But if "lines" must still be written, then I would recommend that, instead of the present mode of setting 300 lines of Latin or Greek, which are written as hastily, and, consequently, as badly, as they can possibly be done, boys should be set to write copies in such copy-books as "The Public-School Series of Copy Books." Thus :—

This would improve handwriting

By way of further improving the handwriting, I

would suggest that the quantity might be reduced in proportion to the quality of the writing—*e. g.*, if a boy had ten copies to write, and he did them badly, he should write the whole; if moderately well, half might be excused; while if they were carefully done, so as to resemble the copperplate, then one copy might suffice. They would thus learn, with their punishment, the maxim that quality of work is better than quantity in all the affairs of life.

Sometimes, I think, a good *birching*, when really necessary, would do far more good than “lines” to a little boy, while it would allow him legitimate time to take exercise, have his freedom from restraint, and keep himself healthy; for it must be remembered that the naughty boy needs time for recreation just as much as the good boy, if he is to retain health and strength.

A boy often continues being troublesome from day to day, simply because he has had his exercise taken away from him, and so is really out of health. To obviate this, and yet provide a plan of punishment other than the birch, Mr. C. E. Paget says:—“It follows, moreover, on these grounds that the plan of ‘keeping in’ boys for breaches of school discipline is objectionable, and that it is infinitely better to require some loss of recreation-time in more healthy ways. In large schools where the drill-sergeant is an institution there will probably be found no more efficacious mode of dealing with forgetfulness and petty turbulences than by calling in the aid of this functionary; and if experience goes for anything, there is nothing in the whole course of school-life more horrible, detestable, or heart-rending, than the having to give up engagements in school sports, social pursuits, or other school delights, to be, for the period of one hour, in the tender and merciful hands of the sergeant for the purposes of drill. He is the *bête*

noire of unruly school-boys' half holidays, and especially so when he parades his squad in full view of the, so far, virtuous brethren of the school ; but in spite of the mental regrets of his recruits, he at least exercises a wholesome influence over them, and inflicts untold punishments for the infraction of school discipline without impairing their physical condition in any way, while at the same time lending 'tone' to their bodily exercises."

The days of punishing pupils with the *cane* for not knowing their lessons are, I trust, past and gone for ever. If lessons are not learnt at the proper time, it is the master's duty to patiently see that they are learnt, even if it have to be under his own supervision. Surely no one will maintain that the writing of a hundred lines, as at present practised, is a suitable punishment for a boy who does not know his lesson ; it seems almost ludicrous to say that the appropriate punishment is that he should be made to learn it, or even be *taught* it. The boy who plays when he should work must be made to work when he ought to play. When he thoroughly realises that his lesson must be learnt sooner or later, he will generally prefer sooner rather than later ; he is far too shrewd to attempt to play a losing game, although acute enough to try his hand when there is a doubt on the subject. Since I wrote the above, I have read the following words of that able teacher, Dr. Farrar :—"I would say that, in ordinary teaching, the more you punish in any way the worse master you are ; that he is the best master who needs to punish least ; and that, if such a thing should exist as a perfect master, it is probable that, so far as mere teaching is concerned, he would never have to punish at all. 'Impositions,' 'lessons to write out,' 'lines,' 'abstracts,' whatever they are called, are, in the essence of them, confessions of weakness. They are in many respects injurious ; there is very little to be said

for them. 'Write me out five hundred lines of Homer, with all the accents.' I have known masters say that, perhaps in a moment of anger, perhaps for no moral fault; but what a bad punishment! Scarcely ever will the good master have to resort to such a method. When a form sees that he is in earnest, that lessons *must* be learnt, that if they are neglected from idleness they will have to be said again; where the master is endowed with such gifts that he can encourage, help, sympathise, inspire, he will either find punishments all but extinct, or he will measure by their frequency his own incapacity and his own failure."

Punishments are unquestionably required in the management of schools for misbehaviour of all kinds. But it is essential that they should be appropriate, and justly administered, and should affect the offender only, and not fall on his schoolfellows or his parents. The sense of equity of boys is wounded when they are unjustly punished.

Mr. Sidgwick has well said, "It has always seemed to me that the most important principle of school discipline is to keep wholly apart, in two quite distinct classes, what I may call *school offences*, and moral offences. Inattention, talking in school, unpunctuality, and even idleness in work, and, I may add, smoking and bound-breaking, on the one hand; and cheating, lying, dishonesty of any kind—whether in the work or otherwise—objectionable language, drunkenness, or vice of any kind, on the other. The boy should see without possibility of mistake—both by the kind of punishments, the loss of his master's respect, and even the man's tone and manner and look in dealing with the offenders—the vast difference between the two. From experience, I should say that there is a real danger of even a good master

* "General Aims of the Teacher."

making too much of small things, and so blurring this distinction ; and note that, if he does so, he not merely demoralises the average boy by lessening his respect for the school law, but he also lays a heavy burden on the conscientious boy, and tends to make him either morbid or a prig. It is a common mistake for writers, and private individuals who cannot write, to make—namely, to imply that there are no such things as highly conscientious boys. It is not true. You will be sure to find in a form of thirty boys, now and again, the fine-natured boy, with a high standard and an acute sensibility to blame, or, better still, to blameworthiness—a boy to whom not only lying or fraud or vice would be as impossible as stealing or murder, but who feels no temptation to idleness or deliberate law-breaking of any sort, but yet who, from constitution, may be unpunctual ; from high spirits, may be talkative or inattentive ; from accident, may neglect his lessons. Such a boy, if the master is pedantic or solemn about minor offences, will follow his bad lead only too surely, will lose the sense of proportion and become morbid. Therefore, I say, for all sakes, keep strongly before you the common-sense distinction. About the minor things be careful to make no fuss ; even be cheerful and friendly in dealing with them. Don't act the stern lawgiver, but rather the companionable policeman—or, to use a better metaphor, the reluctant instrument of a law of nature."

The plan of quietly sending a boy away from school for some indiscretion, or even for various indiscretions, often wrongs his parents, and injures the boy for life, when he has, perhaps, only shown a boy's waywardness and wilfulness, and should have been admonished by a severe whipping with a birch on [the place provided by Nature for the purpose. Though for grave evils—such as would, away from school, fall under the jurisdiction of

the law—it may be necessary to hand a boy back to his parents as being beyond the scope of school punishment to deal with.

Also the plan of putting a boy down from a higher to a lower form punishes his schoolfellows more than the individual himself. It disgraces the form into which he is placed, and is bad for the boy himself, because it makes him lazy, owing to the easier work, and thus affords him time and opportunity to exert a bad influence on the boys in the form to which he is degraded. Further, it is only an occasional sensitive boy who feels the punishment at all.

When a big boy cannot get on with his work and be managed without constant punishing, there is some gross fault somewhere ; and if a change of masters cannot bring about a better state of affairs, as he is getting and doing no good, he should be removed from the school for the sake of others.

I would further urge, that when the whip or spur is continually required in teaching, there is either something wrong with the system of teaching, or the master has not the power to interest his pupil, or the boy is being taught what he has not, at his present stage, the power to grasp ; whereas, if another system, or another master, be tried, or fresh work be given, there are few pupils who would not reward the master by necessitating the use of the curb rather than of the whip or spur. Is not the constant complaint one hears about the “modern side” of our public schools being a refuge for the idle boys, rather owing to the incapacity of the masters than from any other cause ? Is any trouble taken to really interest them ?

But though I advise the use of the *birch* as the most suitable mode of punishment for some school offences, yet I would urge the importance of its being inflicted

with great judgment and long-suffering, so that in its exercise wrong may not be permanently inflicted on a boy who may be really unaccountable. I can call to mind a boy at school, who, generally, was a fairly good boy, did his work, and gave little trouble; but every now and then a period of insubordination would intervene: he would irritate, annoy, and commit every act of irregularity that he could conceive; and this would last for days, until something prompted him to let off the steam by a long ride on his bicycle, or other energetic means, when he would return at once to his former good habits. During his morbid intervals, the question of whipping him more than once arose—and he richly deserved it, apparently—but I felt it my duty, knowing his freaks, to use my influence to prevent it, since at those periods he was quite unaccountable for his acts; and I maintained that he should be either removed from school as unmanageable amongst a number, or be handed over to my care at the sick-house, to be treated as a diseased, instead of a naughty, boy. For several days he would remain with me, doing everything that was irrational, then return to school in his right mind and do his duty as usual. To thrash such a boy would be utterly wrong. This, no doubt, is an extreme case, but minor cases occur of a similar character, in which great discrimination should be exercised, and conscientious judgment brought to bear before using such punishments, lest a great wrong, never to be forgotten, may be committed. It is *sometimes* wrong so to punish: *often* wrong to withhold the punishment when deserved.

And to ensure such conscientious treatment I would ask, ought not the major school offences—rarely has a law court to consider graver offences than some of these—to be dealt with by a head-master and some of his senior colleagues, and not by the head-master alone? And

ought not a code of rules, such as the Hill brothers devised, to be in force in schools, so that parents might be protected, and boys know that they will be justly and uniformly dealt with for whatever offence committed, and that all possibility of momentary temper or caprice may be removed. Further, ought not every offence, and every punishment, to be entered in a minute book kept by the head-master? We should not then hear of the same offence, committed by different individuals, being punished in diametrically opposite and irrational modes.

In punishing boys at schools it must not be forgotten that the issues at stake are great. They are the keenest critics in the world ; and a whole life may be, and is frequently, blighted by an unjust sentence at school—to say nothing of the wrong done to parents and friends.

I repeat that in the question of offences and punishments at school, a far greater wrong may be committed in the punishment of an offence by unwise and unjust handling than is entailed by the offence itself. And I maintain that punishments should be appropriate to the offences committed ; and if not appropriate, they may be, and often are, grossly unjust to all concerned.

But while I have thus insisted on the importance of not doing away with the birch in the punishment of the offences of the young, I think it should be used with circumspection and discrimination, and not be employed “ wholesale.” Further, I think every delinquent should know clearly beforehand for what offence he is to receive this corporal punishment. Yet this has not always been the case ; for it is on record, how a head-master read out a list of boys who were to “ stay down ” to be whipped. When it came to the turn of one of them, he remonstrated, as he did not know for what wrong he was about to be punished. The answer he received was, “ yes, he

must be whipped as his name was down on the list." After undergoing the ordeal, the boy still pressed to know the reason of his punishment. It eventually transpired, on investigation, that the head-master had picked up the wrong list from his study-table; the list of boys whom he whipped was a list of names furnished to him of boys who wished to be "confirmed." What a preparation for confirmation! What mingled feelings of hatred and malice must have been mixed up with the religious tuition those boys underwent at that important epoch in their lives!

There is another system of controlling boys, involving neither corporal punishment, nor writing and learning lines. I refer to the use of wholesome "*chaff*" by the master, which, when exercised with judgment and true sympathy, is of untold value in keeping them under control. It must, however, be borne in mind that it is the fault which should be ridiculed, not the boy who has committed it. At the same time, it cannot be too carefully remembered, that in unskilful or unsympathetic hands even this method may become an instrument of veritable torture. It should, therefore, never be used by any one who is not quite sure that he is not only entirely in sympathy with his boys, but has also the power of making them feel that he is so. It is capable of proving so sharp a weapon that it should be carefully and tenderly employed: never forgetting that a boy cannot retaliate, but may cringe under it, and it may consequently generate nothing but hatred.

One of the best school disciplinarians I ever knew, and who loved boys and was loved by them, could keep his boys under control almost by this means alone. Where a master is honoured and respected by his boys—as he always should be, otherwise he has mistaken his calling—and they feel that his heart and sympathy are

with them, they will strive to do right rather than incite his ridicule by their wrongdoings.

It may, perhaps, not be amiss to append what I consider a good scale for punishment at school.

(1) *Public expulsion* when the offence should rather come under the law of the land than that of school punishment.

(2) *Private removal* from school when the boy cannot get on with his work, and so does no good for himself, and is thus often a source of evil to others ; sometimes it may even be necessary to remove a "set" of boys to prevent insubordination.

(3) *Birching* for the graver school misdemeanours. This plan should be tried, if possible, even before removal, so as to give the boy every chance of redeeming his character and remaining at school.

(4) *The drill-sergeant* for the lesser misdemeanours, varying the time according to the degree of the evil.

(5) *Copper-plate copies* for still lesser evils, such as unpunctuality, and for manifest laziness. Where lessons are not known the boy should be compelled to learn them until he has succeeded, and this should be the only punishment.

(6) *The wholesome chaff*, which can often be used as a preventive.

As I have advised the proper use of "corporal punishment," I should like to state more explicitly what I approve and what I disapprove in this respect.

(1) *I approve* of the use of such punishment rather than expulsion for some of the graver school offences ; or for the continual repetition of lesser offences, which other punishments have failed to control.

I approve of the use of the "*birch*" only, for it only temporarily stings, and neither damages the skin nor the subjacent structures. It should be used only on the

place provided by Nature; and thus applied I shall continue to advocate it, as one of the kindest and least injurious school punishments.

(2) *I disapprove* of the use of the *cane* wholly and entirely, for it can be, and is, used as an instrument of torture, severely bruising the skin and subjacent tissues for days and weeks.

I disapprove of corporal punishment for elder boys altogether, except for the "bully." The knowledge of the fact that the birch is always ready to be put in force would be quite sufficient to act as a deterrent, and would render its employment necessary but seldom. It required the use of the "cat" a very few times to put an end to "garotting." A similar use of the "cat," for those who excel in the pastime of wife-beating and child-violating, would soon render them things of the past. The brutal bully, be he man or boy, is always a coward, and there is nothing which he dreads so much as to be paid in his own coin. It is astonishing how sensitive his own skin is, although he regards the skin of his fellows as devoid of sensation.

The ears should never be boxed, for this has caused inflammation of the ear, meningitis, and death. The back should never be thumped, nor should a child be held by the shoulders and shaken, which is a very common practice, and I have known it to cause spine disease and death. I need scarcely add that rulers and sticks should never be used.

I have spoken thus strongly about corporal punishment, not because I desire to see it frequently repeated, nor because I think it necessary to be constantly resorted to, but because I see and hear continually of far greater wrongs being inflicted, and in those schools mostly where corporal punishment has practically died out. To illustrate my position—a boy commits a grave fault, and a

good whipping would probably have a beneficial effect upon him as long as he lives: instead of this he is quietly removed from school; no other school will receive him: he is sent to a private tutor to live with other delinquents like himself mostly; all his happy boyhood life is crushed, his whole life blighted, and his father and mother feel disgraced. Now, what I urge is this, that a sound whipping would have been the appropriate punishment, and would have done the boy nothing but good; whereas his removal from school has done him and his friends nothing but harm, with no beneficial result to any one. In fact, the punishment was out of all proportion to the offence committed, and inappropriate in the highest degree; for it has not effected the desired end which all punishment should, at least, aim at securing.

It must not be thought that schools are mainly to blame for such unmerited punishment to their scholars: the practice is almost entirely owing to the popular outcry against corporal punishment in any form. It is well known that no government or body of men, of whatever degree, can long withstand a popular demand, whatever it may be. In years gone by popular feeling was in favour of corporal punishment to wrongful excess; it now favours, and with evil consequences, its total abolition.

In advocating the right and proper use of corporal punishment in schools, I am aware that opposition has been expressed by some of the best schoolmasters. Amongst them I would name Mr. Maurice Hime, of Foyle College, Londonderry, who has said:—

“Persuasion, my experience more and more assures me, ought to be the grand art cultivated by the schoolmaster. To be able to convince his pupils that truth, and purity, and industry, and chivalrous tenderness towards the young, and manliness, are better, far, far

better than impurity, and untruth, and indolence, and bullying and unmanliness and cowardliness—this is the great business of a schoolmaster's life. To perform this business satisfactorily is really not a particularly arduous task. The boys who frequent our schools (I include all schools except reformatories) are, generally speaking, desirous individually to be good, not bad. It is the schoolmaster's province to see that his boys, as a collective body, have a similar desire. To succeed in establishing amongst them a love of right and a hatred of wrong can, I am convinced, only be effected by convincing them, through their reason, that wrong ought to be hated on account of its own evil nature and evil consequences, and that right ought to be loved on account of its amiable nature, and the endless good that flows from it. Corporal punishment, I am satisfied, will never convince a boy of these things."

If boys can be thus restrained from doing evil, corporal punishment should of course be banished. To inflict it for idleness, inattention, unpunctuality, and general troublesomeness, is, I believe, wrong. But to inflict it for gross immoralities, including thieving and lying, for repeated bullying and brutality, for smoking and drinking, and for settled insubordination to all school rules, is, I must still urge, a most wholesome and fitting practice, instead of resorting to the boy's removal from school and the consequent cancelling of his chance of reformation of character.

So heartily do I agree with what Dr. E. A. Abbott, of the City of London school, has said concerning punishments, in his little book on "Home Teaching," that I cannot resist the temptation of extracting what he has said concerning them. And I would this book were in the hands of every parent, for, if his precepts were followed, then personal home training of young children

would all but do away with the necessity of punishing at school, as it is neglect of home training during childhood that leads to so much vice at school, and in the world. He says:—"In the reaction against arbitrary or unapt punishments some people have been led to the conclusion that, as an invariable rule, all punishment should be natural, that is, should follow naturally as the result of the offence. If, for example, a child tells a lie, he is to be punished (so it is maintained) by the distrust which naturally awaits his future statements, till he has regained a character for truthfulness.

"But it seems clear that this rule cannot be always adopted, either with physical or moral errors. If a child plays with fire, a natural and convenient punishment would no doubt be that he should burn his fingers in moderation. But Nature in such cases is not moderate, and may punish the child once for all by leaving no child to punish a second time; or by grievous and permanent crippling or disfigurement. In the same way with moral offences, if a boy who has told a lie is to be treated for a length of time as a liar, his self-respect may be permanently lowered or destroyed, and so he may become a moral cripple.

"The best rule seems to be that parents and teachers, in punishing, should avoid all appearance of vindictiveness, punishing not because *they* are injured or inconvenienced, but because a wrong has been done and right demands correction and amendment. Provided the child feels that the punisher has no pleasure in punishing, it will not always be necessary that he should recognise exactly that the punishment springs by a natural sequence out of the offence. . . . Flogging does not spring naturally out of lying; but in spite of any philosophic dicta to the contrary, there is more hope of curing a boy of lying by flogging him, than by distrusting him

for days together, as a liar. . . . Further, let it be remembered that punishment if fit, is effective in proportion as it is certain and speedy. It ought not, therefore, to be delayed, by one who is conscious of being wholly free from personal irritation, any longer than is necessary to investigate the truth of the charge and select the fittest penalty."

A head-master who is constantly requesting parents to remove their boys from school on account of their offences, instead of looking upon the boys, together with their faults, as "necessaries," should be regarded as a failure, who does more harm even than the misconduct of his boys. Boys are sent to school to be educated completely, and not simply to be mentally taught so many hours a day, and left to themselves for at least eighteen hours a day, and then if they do wrong, to be turned out of the school altogether.

Head-masters are needed who know how to strike hard at boys' offences and yet retain their hearts' respect and love.

There is no doubt whatever that a time of trial, of one kind or another, occurs to all boys at school. Happy the boy who has his first great trial early in life, while he is still pliable, and before he goes out into the world. With some boys the trial is manfully met and overcome, and increased strength of character is the result. With others, often those *only weak* in character, the trial overcomes them and they fall—fall terribly sometimes. I wish I could write deep down in the heart of every master who has boys to educate that it is his office—nay, his solemn duty—to act the good Samaritan by such a boy, and strive by punishment, by management, but especially by love, to win that boy back into the right path, and not prove himself a priest or a Levite and refuse a helping hand, but simply send the boy away

from the school. It is these uninteresting, unmanageable, and morally-neglected boys who should have a master's chief attention ; whereas these unfortunates are only too often turned out of a school, while the interesting and lovable boys are apt to be petted and pampered. So strongly do I feel the power for good that a really capable, conscientious master has over a boy under his care at school, that I would scarcely lose hope of even the worst boy, if only such a master would lay himself out to gain the boy's heart, and let him feel that in spite of his unlovable nature and his personal unworthiness he still possessed the love of his master.

It must not be forgotten that our great Public Schools belong to the nation. They are administered by a governing body for the nation : the governing body appointing a head-master to carry out all detail for their appropriate working. Now, it seems to me, that as they are the schools of the nation, no member of a school should be removed from it—except under that most salutary rule of “superannuation,” which should be compulsory in all our public schools—without the previous sanction of the governing body, or, at all events without the parent having a right of appeal to the governing body before the decree is put into force. Such a rule is only right, for a public-school boy can only enter a public school by bringing a good character with him.

This rule would do away with all personal spleen in the dismissal of boys from school, and would prevent them being quietly got rid of for trivial, though troublesome, offences ; and would make the school authorities at least try to deal with them as they ought in the first instance. Moreover did this rule exist it would probably never have to be put in *force* ; for the very fact of its existence would render its exercise unnecessary, but would completely extinguish the arbitrary exercise of power, which

so few are capable of employing with justice, or with judgment.

Above all punishments required in the management of a large number of boys, I would urge the plan of rewarding good conduct, rather than the converse—of punishing bad conduct. Rewards.

Both plans are required, and answer, but the rewarding good conduct is, I think, the more salutary, and where it can be carried out will tend to promote the health and well-being of boys, and the happiness of masters. A kind word or a kind act, seasonably bestowed, will often win over a boy and make him strive to do right, when no punishment would produce any effect on him whatever, and will make him feel that his master is not a slave-driver, but a kind and sympathising friend. Most boys—but not all, by any means—are like young animals : treat them kindly in breaking them in, and you can do anything with them ; reverse the system, and their share of obstinacy and carefully-planned waywardness is at once revealed.

It should be borne in mind that by rewarding good conduct the commission of evil is prevented ; and this is an enormous gain, since it establishes right-doing as a *habit*, which after a time is not easily broken through. On the other hand, punishing bad conduct has the great defect that it can only be put in action after the evil has been committed ; and thus the habit of wrong-doing is formed, while the perpetrator, even before the evil is committed, will get into the debased habit of weighing in his mind the amount and kind of punishment that is likely to be inflicted.

In our prisons, the system of giving good marks daily for good conduct, is of great value, for it establishes a habit of endeavouring to do right, which probably has

never been put in practice before, and tends to become of permanent value to the prisoner.

In concluding this most important subject of school discipline, I cannot but testify to the feeling of scorn which arises when I hear of a boy unwisely punished for some fault; this feeling, however, is soon followed by sorrow to think of the ill effect it has on the recipient, when it might have had, and ought to have had, nothing but a beneficial effect. No boy ever resents a just punishment; but an inexpressible loathing fills his heart when he is unjustly or wrongly punished. On the other hand, a boy feels contempt for a master when he does not receive a punishment which he has richly deserved. There are some few masters, however, sufficiently strong and magnanimous to withhold a well-merited punishment on an offender who has thoroughly realised and is pained at the evil he has perpetrated. Such magnanimity may sometimes be suitably bestowed, and have far more effect on the boy than the most severe punishment that could have been inflicted, and so prove a turning point in a boy's life.

VIII

P L A Y .

It is just as important for all human beings—especially adolescents—to take *exercise*, as it is for them to live in good air, to eat wholesome food, and to have sufficient sleep.

EXERCISE.

Regular bodily exercise is the greatest preservative of health at school. Without it neither mental, moral, nor physical health is possible. It is by this means that the natural functions of the body are normally performed, disease prevented, and life prolonged.

Advantages of Exercise.

In considering the question of recreation, all sound experience shows that adequate exercise is absolutely necessary to produce the highest state of vitality in the body ; and the brain being part of the body, participates in its increased power. It would be most unreasonable to expect a healthy vigorous brain, without a healthy vigorous body ; and the converse is also true. Further, exercise is of the highest value in relation to *character*, as well as to *health*. All boys' games tend to develop good temper, sometimes under very trying circumstances, with self-reliance, self-control, endurance, and courage under difficulties, pluck, quick action, and rapid judgment. These educate them in a habit which will help to make them also excel in the battle of life. All the time that the boy is not at work, asleep, or feeding,

should be spent in recreation of some kind, both for the purpose of health and the expenditure of superfluous force.

Recreation, or *physical education*, is scarcely second in importance to mental development.

Thus, in *physical exercise* all the functions of the body are involved. The *circulation* of the blood is quickened, the necessary blood changes are more effectually carried out, and the increased action of the diaphragm aids the return of the venous blood : congestions are thus obviated, and the heart is not overtaxed in consequence of the increased exertion.

The effect on the circulation is productive of incalculable benefit to those who have much brain work ; for all organs in full work have a determination of blood to them, and thus brain work relieves muscular weariness, and muscular exercise produces rest to the brain.

The increase in the circulation of the blood from exercise causes a more rapid destruction of tissue ; and thus more detritus has to be got rid of—burnt up ; there results an increase of animal heat, and a slight rise of temperature is found by the thermometer after active exertion.

The *respiration* in addition is quickened, and if the exercise be taken in the open air, more oxygen is inhaled ; by this means the blood impurities are more rapidly oxygenated and destroyed ; and the blood, being thus depurated, becomes more healthy, and thereby causes increased vigour, greater health, and longer life.

The lungs at *rest*, and the lungs when the body is undergoing *exercise*, are quite different ; during the latter, double the air is inhaled, and thus double the changes are effected.

Dr. Edward Smith has shown the *effect of exercise* on the *amount of inspired air*, thus :—

Lying position	...	...	...	...	...	1.00
Sitting position	...	...	...	...	...	1.18
Singing	...	...	...	...	...	1.26
Standing	...	...	...	...	...	1.33
Walking one mile per hour	...	...	...	...	...	1.90
„ two miles	„	...	...	...	...	2.76
„ three	„	„	...	...	...	3.23
„ „	„	„	and carrying 34 lbs.	...	...	3.50
„ „	„	„	„ 63 lbs.	...	...	3.84
Riding and Trotting	...	...	...	...	...	4.05
Swimming	...	...	...	...	...	4.33
Walking three miles per hour, and carrying 118 lbs.	...	...	...	...	...	4.75
„ four	„	...	...	...	...	5.00
Treadmill	...	...	...	...	...	5.50
Walking six miles per hour	...	...	...	...	...	7.00

Parkes, expressing the above in another way, has shown that under ordinary circumstances a man breathes 480 cubic inches per minute.

Walking four miles per hour, he draws in $480 \times 5 = 2,400$ cubic inches per minute.

Walking six miles per hour, he inhales $480 \times 7 = 3,360$ cubic inches per minute.

During exercise, too, the secretion of the skin is increased; and the muscles become hard and strong. There is also a greater appetite, especially for meat and fat. The brain is more eager for active mental exercise; and good exercise tends to diminish the erotic desires in the young, and is therefore of inestimable value to them.

But there is always more or less of a popular outcry against games at school. Even where the sentiment is not apparent, it exists as an under-current, and causes much trouble to school authorities. I trust that those who read this book will cease to regard school games as

Supposed
Ill Effects
of School
Games.

a waste of time, and will realise their importance in securing the well-being of the individual and the welfare of the schools themselves.

Yet the line taken up by many parents with reference to games at school is simply intolerable, and if their boys become vicious every one is blamed by the parents, who are often the sole cause.

If the testimony of many parents were to be taken, many of the rising generation, who are considered fit to be sent to our public schools, are absolutely fit for nothing else but to be kept under glass shades to be looked at.

When the question of *school games* is under discussion, the parent frequently urges the objection that the boy is too delicate to engage in them. But when the same boy is examined for "*Life Assurance*," such a "bill of health" was never heard before—neither in this generation, nor in any other from the date of the Conquest (I am not sure that they would not go back even to the "Garden of Eden,") was any disease ever known in the family.

One of the chief objections against school-games is, that so many *accidents* attend boys' games: this is really incorrect. Boys are always more or less subject to accidents from "the nature of the animal." But, quite as many, if not more, accidents arise from "sky-larking" and by-play, than from really well-organised games. The retort to this will be, Will you venture to assert that there are not numerous, and even severe accidents, resulting from football? I maintain, on the contrary, that *counting the number playing* at football at one time, the percentage of accidents (at *schools* I am referring to) would be little, if any, higher than those occurring during any other game with an *equal* number playing at the time, or, with an equal number sky-larking. It must

never be forgotten, that there will always be accidents wherever boys are congregated together.

“*Cold-catching*” is the cause of another outcry against boys’ games : true, but why ? They are occasioned

(1) By not “*dressing*” in flannel for all games. The remedy is to always “dress” for games.

(2) By standing about after playing, while perspiring freely. The remedy is, to have a warm dry coat always ready to put on as soon as the game is over ; or, to go home at once, have a bath, and change everything, including socks.

(3) But the greatest sufferers of all are the non-players or spectators, who stand in the rain, or in a cold wind, or on wet grass watching football, or athletics, or a rowing match ; or who lie down on the damp grass to watch a cricket match. The remedy for this is, well-organised games for ALL, and no spectators.

COMPULSORY GAMES.

We now come naturally to discuss the first law for all schools—especially public schools, where the boys are older, and more liberty exists—that school-games, which are the physical education of the boy, should be *compulsory*, so that he may be compelled to join in some games whether he will or not, while choice of other occupation during his remaining leisure hours should be left to himself.

It must not be forgotten that the boy is an active animal, and unless he be kept employed at an innocent and healthy occupation during his play-time, which will allow the expenditure of his superfluous spirits and strength, he will not be idle—he is too restless a creature

for that—but he will take up something probably not innocent, and not healthy, and become neither a credit to himself nor his school, but an evil-doer himself, and a teacher and example of evil-doing to others.

But even now, in this nineteenth century, the importance of the question of school games is not sufficiently recognised by parents and teachers: I doubt very much whether 33·3 per cent. of the boys in all our schools would be found taking part in them. Not only should parents and masters see that boys join in the school games; but to do so, schools must provide space in which all can play, and there are few schools which have ever arranged for this. It is so frequently forgotten that every idle hour to the boy is a “bore;” and that every idle boy is, and must be, a vicious boy, and, morally and physically, an unhealthy one.

The bane of every school is the “idle boy”—the boy who won't play: he is a constant worry to his master, being never out of mischief; a source of misery to himself, and very often a bully, having nothing better to do. Until parents see this for themselves the constant outcry against compulsory games will continue; whereas, it is this rule which is one of the chief sources of a healthy tone in schools, especially public schools. When this rule is abolished our schools will become a source of evil in the country. If boys were encouraged to be manly, energetic, and enthusiastic at their games, they would be trained to become healthy and ingenuous throughout their whole school life; failing this course, there will arise an unmanly precocity in self-indulgence, betting, smoking, and drinking; boys will naturally develop into premature “men of the world,” and schools become tainted with an atmosphere of “society,” which no master can purify.

What can be better in schools than the healthy rivalry

of sides at games, and of various houses, or schools, pitted one against another, every boy joining in the contest? The healthy and innocent ambition which makes one boy work to be at the head of his form, and to excel at his work, also makes the same boy, or another, try to be at the head of one or of all his sports, whether football, cricket, or boating.

Some excel in work, others in play; both should join in both, and be made to play as well as work. What is distasteful in work is not excused the boy: it is considered part of his education to do the work that is placed before him. The same rule should exist in his physical education, and then what was distasteful originally may become a pleasure when it has been learnt and practised well.

The boy who does not join in games, but swaggers and lounges about, should, after failing to *make* him take part in them, be weeded out and got rid of, before he has an opportunity of corrupting others through his idleness and the evil it engenders: the only ground on which a boy should be exempted from joining in the games should be physical incapacity or illness.

There are, however, few boys who should be thus excused, and then only after very careful examination and consideration: *e.g.*, boys with a phthisical history, those with mitral disease, those who have suffered from recent serious illness, and those who have grown beyond their strength. For these delicate boys, healthy and constant occupations during play-time can be arranged, such as gardening, carpentry, gymnastic exercises, music, art, drawing, and field excursions in botany, natural history, and geology.

Masters, however, are continually hampered and hindered in carrying out these salutary regulations in consequence of physicians giving certificates to parents,

often on the poorest pretexts, stating that their sons are unfit to join in school games, with resulting harm to the individual and to the school on which the really idle boy is inflicted.

The only way to overcome this difficulty is either for the school authorities to refuse to admit any boy who cannot take part in the school games, or else to accept the certificate of their own medical adviser alone—the parents, of course, having the right to claim a consultation between their own and the school medical adviser. The certificates now presented are frequently ludicrous, often manifestly given to simply satisfy a parent and a patient, and almost invariably show that the certifier knows little, if anything, about school games, and is absolutely ignorant of the necessities of school life and school discipline.

This matter of compulsory games, I repeat, is an essential condition of securing healthy boys in schools of a healthy tone, and the duty of the master is clear. He should permit no “loafer” to remain in his house; the sooner he is removed the better for all concerned. A boy of this tendency is the curse of all schools; he carries his character in his face; at school, and throughout life, his influence is evil.

It is a fact beyond dispute, that a boy who is forbidden by parents to join in school games, and who, at the same time, as is usually the case, is supplied with plenty of money, must be, in a short space of time, inevitably ruined in character, and become a source of detriment to the school.

But many will ask, Is there no way by which this “loafer” can be cured, and yet retained at school, without disadvantage to himself or his school-fellows? Yes, I believe there is, and that he could be absolutely cured of his bad habit. To effect this, a rule should be put in force, that any boy who does not regularly join in the

school games, whether from his own or his parents' desire, should be handed over to the drill-sergeant for two hours exercise a day with him. By this means the loafer would obtain the amount of exercise necessary for health. His round back, flat chest, and slouching gait with his hands in his trousers' pockets, would be cured, and the loafer would henceforth be known by his military bearing, to his great gain. Further, the loafer's pocket-money should be used to pay the drill-sergeant for his trouble ; then he would not have so much money to spend at the tuck-shops, and Disraeli's description in "Coningsby" of the boy with "the pallid countenance, the lack-lustre eye, the hoarse voice clogged with accumulated phlegm, indicated too surely the irreclaimable and hopeless votary of lolly-pop, the opium-eater of schoolboys," would soon have no survivor.

Occupation for play-time, again, should be provided for all weathers, so that the wet as well as the fine day may supply its physical education, play, and pleasure. What a vast amount of mischief wet half holidays at school are accountable for ! School authorities might, and should more completely than they do, keep their pupils at work on the wet regular half-holidays, and restore these abstracted half-holidays back on fine days. This course would, no doubt, entail much inconvenience, but this would be more than counterbalanced by its beneficent effect in preventing evil—such as smoking, drinking, and billiards.

CLOTHING FOR GAMES.

In many of our oldest and largest public schools regulations exist prescribing the clothing that should be worn by the boys both during school and play hours. With

reference to the clothing for school hours I have nothing to add beyond my previous statement as to the proper provision for the boy on entering school, except the remark that no boys should be allowed pockets in their trousers, and that all the boys in a school should, as far as possible, be dressed alike—a simple school uniform would undoubtedly be the best means of evicting competition in dress and high collars, which form one of the characteristics of a “loafer.” At all events, parents should always strive that their sons should on no account be *peculiar* in their outer or under garments. Nor should they allow their sons to be *shabby*, for it leads to teasing, if not bullying, and is apt first to make others look down upon them, and then make the victims look down upon themselves, both of which are unadvisable.

I have, however, much to say upon the proper clothing for games, as it is a main source of health or ill-health, according as it is suitable or unsuitable. Boys should always have special clothing for all their games entailing exertion, not only that they may save their cloth clothes, but also that they may be clothed appropriately for playing, and may then have their dry clothing to put on again after the exertion; the boy who is too lazy to change should be punished, for serious illness and even death are sometimes occasioned through a boy playing in his ordinary clothes—say, at racquets—perspiring freely, and then, without a change of garments, standing about or lying on the grass.

The clothing for games requiring exertion, in summer and winter alike, should be flannel, and flannel only, and white flannel is the most suitable, it is the best non-conductor, and the greatest absorber of moisture. Flannel clothing should be compulsory for all boys. Unfortunately, many injurious rules or customs in respect of clothing—many of them originating before medical

knowledge had deigned to concern itself with such commonplace subjects—still exist in some of our older schools; for example, what can be more reprehensible, in relation to health, than the rule that the younger boys should in winter wear “white ducks” for football, and in summer appear in white linen or cotton shirts at cricket or boating, instead of flannel clothing.

These special flannel garments should be changed immediately after exercise, in order to get rid of the moisture they contain. A neglect of this precaution has cost many a life. A feeling of chilliness after exertion means that the body is cooling too rapidly, and that an extra coat is necessary, or the boy should move about, so as to check its rapidity.

Yet even now the decision of the proper clothing for games is left in the hands of boys themselves, who make the most unreasonable rules against the wearing of flannel garments for all exercise. Is it right for elder boys to regulate such conditions which may, and do, affect the health of their schoolfellows? Are they sufficiently conversant with the laws of health to be empowered with such control? The head-master and the house-masters should obviously, under the guidance of the medical adviser, have this matter in their own hands.

DRESSING-ROOMS.

In order that boys may be induced to “dress” for games, and undress immediately afterwards, dressing-rooms should be handily placed for the purpose. Here boys should have “bath” accommodation, so that a cold bath may be at once available; and there should be hooks on which they can hang their clothes, and seats on which they can sit to change them. The plan of changing

clothes, which are generally wet and muddy in winter, in the dormitories or cubicles, should never be allowed ; by this practice not only do the floors become covered with mud, but the boards get saturated with wet, and the rooms are consequently unfit to sleep in at night. The plan is dirty in the extreme, and has no redeeming feature in it.

OVER-EXERCISE.

Every now and then there is a popular outcry against exercise, and instances are quoted where harm has resulted. Now, this clamour should not be against exercise, but against *over-exercise*, or against ordinary exercise imprudently taken. It is excess of exercise which is deleterious to growing boys : it wears out and stunts ; while exercise in proper measure produces health and strength.

Exercise should always be gradual in its increase ; the highest exercise being attained in the same way as a man climbs a ladder, step by step, or as a trainer "trains" his horse.

When not in constant daily use, all muscles become flabby and wanting in vigour, the heart included. The lungs lose their elasticity, and if over-tried suddenly, something must "give" somewhere.

If we do not wish to hear of the "evils" of rowing and of football, and of the lawn-tennis arm and leg, the muscles necessary to the exercise must be trained by degrees. All muscles may be educated to any strain within reason ; but unused muscles are unable to bear sudden spurts.

Severe brain work precludes much bodily labour ; and severe bodily labour prevents great mental work : both cannot be borne together, it is intemperate to try ; but

the best amount of work is done with a reasonable proportion of each.

Therefore it must be remembered that if these English "school games"—the glory of our country—are to be enjoyed without harm, the exercise must be regular, and if it has been omitted, as at the various seasons, it must be resumed by degrees; no boy must imagine that he can take up the thread where he dropped it months before. Most accidents, in consequence of a neglect of this caution, happen at the beginning of each season.

Syncope, or fainting, in boys is usually attributed to over-exercise; but my experience has shown that, while it may in some cases be occasioned by the physiological condition of the heart and vascular system at puberty, or be due to a temporarily dilated heart resulting from active physical exertion in an unfit state of body, it is nearly always toxæmic—the blood being poisoned by the imperfect action of its excreting organs.

TRAINING.

Boys so often undergo *training* for boating and other athletic sports, and every now and then make themselves so unwell, that this must be my excuse for broaching the subject in this treatise, although at first sight it may seem irrelevant; but I am anxious to omit no condition in a boy's school life which tends to improve or impair his health.

And first, it should be an invariable rule that only strong hearty boys should undergo "training." No delicate boy, nor even a sound boy who comes from delicate parentage, should be allowed to do so: else the delicacy, which might have remained dormant, or missed

the individual altogether, may be developed, and thus remove all chance of good health.

The purpose of training is to place a boy in such a condition as to enable him to perform the hardest physical work rapidly, or for a prolonged period ; it is, in fact, to produce the highest possible state of health for hard physical work, though sometimes at the expense of good mental work. The essence of training is that the heart and lungs should become accustomed to sustained exertion, and this is effected by degrees. The muscles by graduated practice become hard and strong for their work, and by exertion and perspiration the boy gradually loses his fat, and by proper diet prevents a fresh deposit. Boys, generally, know so little about the conditions required for training for active and prolonged exercise, such as athletics and boating, that they often succeed in making themselves seriously unwell, and are compelled to "give in" before the day of the race, which a little proper guidance would have enabled them to win with honour. The chief points to be regarded are :—

(1) *To get rid of all superfluous fat.*—To effect this, steady and prolonged exertion should be undertaken. Walking exercise is good to begin with, and more active exertion should be taken as the system gets accustomed to it and eager for it. This exercise should commence quite twenty-eight days before the advent of the intended exertion, but it should be performed only every other day at first, the intervening day being devoted not to absolute rest, but to reduced exertion. There are some who assert that boys should never go into training at all : from this I most emphatically dissent. For it is a fact that the boys who "train" are the boys who win : this reason alone is strong enough in itself. But, I would add, as even a stronger reason in favour of training, that it is entirely wrong for boys to join in races,

whether "athletics" or "boat races" without careful prior training. Yet boys attempt very severe exertion, in one form or another, without any training at all, leading, frequently, inactive lives for days and weeks beforehand; and these are the boys who "come to grief," and give all English sports a bad name with those who are ignorant of the causes.

(2) *To prevent the fresh deposit of fat.*—It is a most important fact that growing boys not only require, but cannot healthily exist without, a diet that contains plenty of carbonaceous or fat-forming material, especially sugar, and of starch which is converted into sugar; fat itself, too, is equally necessary, though in smaller quantities. If an effort be made to dispense with these constituents for a lengthened period the health suffers, and, as a rule, this improper dieting is the cause of the harmful effects of the training.

It is often stated that boys should never vary their diet in training for severe exercise. In opposition I assert that the boys who diet themselves in training are the "winners." And I have received the strongest testimony from boys themselves—those who have gained the highest rewards—that a training diet, with careful avoidance of the "tuck-shop," is essential to success. Moreover when a boy, who should have succeeded, has failed, it is one of the commonest observations among them, that "he didn't take the trouble to train." Such evidence refutes all theories.

But in men undergoing training a much longer time for dieting may be required and endured without risk, as the changes in the system of the adult are less rapid, and the exertion demanded of them may be more severe.

The *diet* required for boys in training, in order to prevent the fresh deposit of fat, is appended; but, I would again repeat, fourteen days of it is sufficient:—

THE BOY MAY EAT

Mutton.	Haricots.
Beef.	Spinach.
Veal.	Watercress.
Lamb.	Mustard and Cress.
Tongue.	Lettuce.
Kidney.	Asparagus.
Sweetbread.	Celery.
Soups, unthickened.	Radishes.
Beef Tea and Broths.	French Beans.
Poultry.	Green Peas.
Game.	Brussels Sprouts.
Venison.	Cabbage.
Potted Meats.	Cauliflower.
Fish, except Salmon and Eels.	Onion.
Custard.	Broccoli.
Cheese.	Seakale.
Eggs.	Jellies, flavoured but not
Bread, especially Crust, or Brown	sweetened.
Bread, or Toast.	Fresh Fruit in moderation, and
Oatmeal.	without Sugar or Cream.
Lentils.	Pickles.

THE BOY MAY DRINK

Tea.	Light Bitter Beer, but better
Coffee.	without any alcohol at all.
Cocoa, from Nibs.	Apollinaris Water.
Milk, in moderation, especially	Soda Water.
Buttermilk and Skim-milk.	Seltzer Water.

THE BOY MAY NOT EAT

Duck.	Rice.
Goose.	Arrowroot.
Fat Bacon and Ham.	Sago.
Fat of Meat.	Tapioca.
Butter.	Macaroni.
Cream.	Vermicelli.
Sugar.	Semolina.
Potatoes.	Pastry.
Carrots.	Puddings, all kinds.
Parsnips.	Sweet Cakes.
Turnips.	Condiments, all except Salt.
Beetroot.	Marmalade.
Artichokes, Jerusalem.	Jam.

THE BOY MAY NOT DRINK

Cream.
Porter and Stout.
Sweet Ales.

Beer in any quantity; beer
should never be taken by
boys without food.

This diet need not be, and should not be, rigidly followed. The scheme is furnished to show what diet generates fat and prevents good "wind;" and what helps to absorb fat, and to give the greatest strength and the highest "wind." But, as I have already said, those who are growing must not be deprived of fat, sugar, and starch for more than a few days consecutively.

In training, so as to obtain good "wind," it is of the very highest importance to avoid all possibility of indigestion, for nothing prevents it more. Food, therefore, should be eaten slowly, and masticated thoroughly. No food or drink should be taken between meals. Sleep should begin by 10 p.m., and early rising is imperative.

There is a most fallacious theory amongst all trainers, be they boys, men, or horses, that, whilst undergoing training, the smallest quantity of fluid should be allowed; and hence those in training often suffer from actual thirst. It is an undoubted fact, that most people take daily more fluid than is requisite to satisfy thirst; whereas this simple satisfaction is all that the system needs for the healthy performance of its functions.

It should be a rule with every one, in order that the highest condition of health may be attained, to take as little fluid as possible. From two to three pints daily is the amount generally required by an ordinary healthy adult, except in hot weather and under great exertion causing free sweating.

Many will say that they are always so thirsty that they must drink freely to live at all. It will be seen that this is not true, it is a question of habit pure and simple. It would be just as true for the "drayman" to say he

needs five gallons of beer a day ; whereas the truth is, he has simply indulged in this bad habit until his system, with its wonted generosity, has learnt to accommodate itself to the inconvenience by degrees.

The habit of drinking more fluid than is required to supply the actual wants of the system gives more work to all the organs to perform. It is, moreover, a frequent source of indigestion ; the stomach being required to absorb the excess of fluid before the gastric juice is able to act upon the food which it contains.

The right principle to adopt, in training, is :—that water should be freely allowed, but always in small quantities at a time : always sufficient to satisfy thirst, but the trainer should never allow himself to become actually thirsty. For as he perspires an ounce of fluid from his body, another ounce of water should at once be supplied in its place. On no account should he suffer thirst for minutes or hours, and then, when the exercise is over, take, as so many do, an excessive quantity of fluid, which only renders him uncomfortable, takes away his appetite, and causes indigestion and loss of sleep at night. Dry tissues, and unnaturally thickened thirsty blood, are incapable of the highest exercise of their functions.

It is always wiser to eat before drinking.

(3) *The time of exercise for training* should certainly not begin until two hours after a meal, neither should the adolescent continue more than four hours without food, otherwise he will be faint before the exertion is finished, and the exercise will be blamed instead of his own imprudence.

(4) *The period of exercise for training* should be carefully regulated. At first, two hours' ordinary walking exercise should be taken for a week ; then two hours' very fast walking for several days, and, gradually getting to running exercise, a short distance rapidly and a rest ; thus

at last accustoming the muscles, heart, and lungs to the more severe exertion for an hour.

(5) In this way *the circulation and respiration* become used to rapid exertion, and, instead of being over-done and liable to injury, these functions are made more vigorous and strong. Parkes says:—"The trainer establishes a concordant action between the heart and blood-vessels, so that the strong action of the heart during exercise is met by a more perfect dilatation of the vessels, and there is no blockage of the flow of blood; in the lungs, the blood not only passes more freely, but the amount of oxygen is increased; and the gradual improvement in breathing power is well seen when horses are watched during training."

(6) *Under-training*.—I cannot speak too strongly against boys attempting, as is frequently done, very great and prolonged exertion—for instance, hard boating or a run of many miles—without any preliminary training: it is then that great mischief is likely to occur, especially to the heart and lungs; and under-training, I think, is worse than

(7) *Over-training*, which means *over-exercise*, either too quick or too fatiguing; or under inappropriate or prolonged under-dieting.

(8) *Muscular fatigue*.—Those who have much mental work to do—*e.g.*, for prizes—and yet undergo considerable bodily exertion, often lose some hours of mental labour, owing to subsequent muscular weariness; and are thus incapacitated from sustaining the combined exertion of body and mind. This feeling of tired muscles can be avoided by the use of the remedy used by the Peruvians on their hard marches—the *cuca* plant, which removes marvellously all sense of muscular fatigue. It is chewed by the Peruvians; but is now made into a tincture, half an ounce of which, containing sixty grains, taken during

or after the exercise, will, when *occasionally* and *appropriately* used, under the guidance of the medical officer or the house-master, produce the desired effect, without any drawback.

(9) *A great fault in training* amongst boys is to allow the day before the great event to be one of idleness; whereas, without being made one of fatigue, it should be restricted to what is called a "breather," and the day before that should be one of exertion almost, if not quite, as severe as the exertion required on the day of trial.

(10) *The daily cold bath* is simply imperative in training.

By some athletes the bath in any form is deprecated, in the belief that it produces languor and disinclination for exertion: it is only the improper use of the bath which has this effect.

It is when the cold bath is taken in the form of the "swimming bath" in summer, that this prolonged immersion—from fifteen to sixty minutes—occurs. This happens chiefly amongst boys and young men, and the beneficial effect of the bath is thereby converted into a harmful one. For the blood is driven from the skin, which contains about two thousand five hundred superficial square inches, and being kept from it for so long a time, its blood vessels become contracted, owing to the paralysis of their nerves from the cold, and are unable to recover themselves with a rebound when the cold is removed. The blood, which should have occupied this large surface, being driven into the vessels of the internal organs and retained there, over-dilates them, producing congestion, and the various harmful conditions of congestion of the brain ensue with persistent headache, congestion of liver and jaundice, and congested kidneys with albuminuria. There also arises marked nervous depression, which may remain for days, expressed not

only by inertness, but by a torpor of the whole system, mental and physical.

Those who remain too long in the water are undoubtedly liable to experience these sensations; but those who remain only a short time are always invigorated—the bath being really a most important aid to the athlete, engendering muscular vigour, increased nervous power, and preserving health.

By attention to these matters, boys will get through their sports and boat-races more easily, without being made uncomfortable, and without interference with their work and health; training so conducted will, indeed, make them more vigorous and manly.

THE PLAYGROUND.

It is as important in schools, for both sexes, to provide plenty of space for play, as to have sufficient cubic space in which to live, work, and sleep. In some schools there is already room for play; in many, even of our best schools, the area is quite inadequate. There are few schools in which more than a third of the boys will be found at play on any given half-holiday—except on days when football and paper-chases are compulsory. What has become of the others? How many masters know what they are doing? and, what is worse, no trouble, generally, is taken to ascertain the fact. Yet play-time is one of the most important elements in school-life. In most of our great schools the course pursued is absolutely indefensible. No care whatever is taken to see that a boy is legitimately occupied during play-time, but a severe punishment is awarded if he be *caught* doing wrong. Of the two-thirds who are not seen playing, many are well

employed, in a variety of ways, amusing and instructing themselves; while others are occupied in any and every mischief a boy can think of—including smoking, drinking, playing billiards, and strutting about the streets with their hands in their pockets.

The causes producing this unfortunate result are:—

(1) That there is not room for all the boys to play at the same time, even if they wished.

(2) That “loafing” is permitted, and not strenuously discountenanced, as it should be, as an enormous evil in any and every school.

(3) That parents obstruct legitimate games, and thus encourage—indirectly it may be—the “loafer,” with his extended power of doing evil himself and in teaching others also.

Will it ever be sufficiently realised in schools, by parents and masters, that it is the stern duty of both to co-operate to *prevent* evil occurring during unoccupied hours, rather than attempt to eradicate or *cure* it, after it has been committed? It is the paramount duty of the authorities in our great schools—in lesser schools it is already fairly-well recognised—to look after their boys during out-of-school hours, as much as to educate them in school hours.

I hear already the outcry on reading this, from many of our great schools, “Where, then, is their liberty?” Who will venture to gainsay that the liberty of many of our schools should be, as at present exercised, rather named *licence*?

It is an indisputable fact that when boys go wrong at school it is frequently owing to the faulty physical conditions under which they are compelled to live, rather than the result of natural vice: they should often be more pitied than blamed. Temptation has been allowed too much opportunity before strength of character has had

sufficient time to grow : during the development of character, help and guidance are essential. Sydney Smith wrote, "I have always said that the greatest object in education is to accustom the young man gradually to be his own master." Whereas, at present, he is left too much to himself, and becomes his own master long before the appropriate time of responsibility has arrived.

The urgent requirement, consequently, for a playground is, that space should be provided in which all boys *can* play, and means be resorted to for ensuring that all boys *do* play.

The tendency, too, is gaining ground, for a few skilled players to play, while the rest look on. To occasionally watch a good game is beneficial to all ; but it is becoming too common, to the loss of vigorous recreation, and of successors capable of playing such skilled games in after years.

It is necessary in setting out a playground that the ground should be level, for if there be inclines the tripping up is always dangerous. It should also be well drained so as to avoid swampy patches, which are most unhealthy.

THE TIME FOR PLAY.

Every spare moment not already occupied by work, meals, or sleep, should be allotted to play.

There is one important point connected with this—that no very active exertion should take place for at least an hour and a half after eating a full meal, such as dinner.

The time allowed for play varies considerably in different schools.

In the private school arrangements, given in Table A

page 157, it will be seen that two hours are allotted every afternoon, besides odd moments, and a half-holiday every Saturday : this arrangement is excellent.

In Table B, page 159—which, with minor modifications, is the usual arrangement of work in most of our great schools—there is a half-holiday every other day, the intervening day being one of rather full work. This arrangement too is excellent, since it allows of hard work, with plenty of freedom between the hard days. In addition to these half-holidays several “saints’ days” are observed in some schools, and it is time that these whole holidays were abolished, as they seriously and most unnecessarily interfere with work.

In Table C, page 160, I have shown an arrangement which is in work in day public schools ; it practically gives very little daily recreation, but a whole holiday on Saturday. This means that boys at these schools are allowed almost no time for exercise during sunlight, for five days during the week, from November to March. Also I do not think this plan provides sufficient rest for boys during the five working days.

In some schools, not only have the boys a half-holiday every other day, and a whole holiday every saint’s day, but in the middle of the term an “*exeat*” is allowed, and boys are then permitted to go home for one to three days. In old days, when terms were half-yearly, this was perhaps a natural arrangement ; but now that holidays at home occur three times in the year, involving four months’ absence in all, these exeats are most unnecessary and injurious to the boy and his school. They constitute a most serious interruption to his work ; the school too is exposed to the risk of infectious diseases being brought into it in the middle of the term, which should not be incurred ; the risk and anxiety in this respect at the beginning of each term is already more than enough

to contend with. I trust that these exeats may soon be abolished at every school, for they are absolutely indefensible.

GAMES.

In considering the question of exercise, it is important to remember that too much of anything satiates and sickens; change of work, and change of play are as important as variety in diet. It would be as unreasonable to feed a boy always on plum-cake as it would be to keep him always playing at cricket or always learning Greek. While we are constituted as at present this change must be provided for.

The games at present played at our large public schools are, football, cricket, gymnastics, rowing, swimming, racquets, fives, lawn tennis, la crosse, golf, hockey, cycling, wrestling, fencing, boxing, archery, rifle shooting, and camping out. It is beyond my province to discuss the merits of each of these methods of exercise, but I cannot pass them all over in silence.

And first we shall speak of football. With respect to the much-abused and healthy game of football, the chief outcry, periodically raised, is against the game as played according to "Rugby rules." Football

That accidents do happen at football, and when played under "Rugby rules," is beyond question. But to whom do they usually happen? Almost invariably to grown men who have excelled in years gone by, but who have now lost their elasticity, are out of training and flabby, and have increased in weight and lost the old knack of playing. To these players the game may be injurious—that is to say, the good gained may not counterbalance

the risk incurred ; though even of this I am not sure. But I trust the time is far distant when football, as a winter game, is to be removed from our schools, unless some equally active and exciting game is substituted.

The outcry against all games, whether football, rowing, riding, tennis, etc., should not be levelled against the games themselves, but against those who are not in a fit state to play at the moment for each special game or exercise.

The man who is unwise enough to think that, because he has been the best football player at school, he can therefore always play hard, without previous and prolonged training, is sure to meet with accidents. He who, having once been in his university *eight*, assumes in subsequent years that he may, without fresh training, row hard in a scratch race with impunity, is certain to over-try his heart—with a popular clamour against boating, as the result. Who are they who get the rider's and the lawn tennis' sprains? Almost invariably those who ride hard and play hard at the beginning of the seasons, when they are out of training and out of condition.

I maintain that football, as played at our schools, by young, elastic, light boys, highly trained, and always at it, is—where bear-play and the spleen of the bully are kept down by the conscientious reporting, without fear or favour, to head-quarters of all infringement of legitimate play—a great gain to all schools, and attended very rarely by accidents, and those seldom of a serious nature. The way in which accidents most frequently happen when playing football at school is when boys play with men ; and thus the “sides” are not of the same size and weight.

My experience does not enable me to recognise either the justice or prudence of parents in raising an outcry against football, as played at our schools. That it has its

accidents, like, and not worse than, cricket, boating, and the gymnasium, and every other boys' game, no one will gainsay; but its good to boys far outweighs its evil effects, and all who know anything of it from experience, and not from hearsay, will admit this.

Private schools can organise their games to suit the capacity of the smaller boys; but the public schools, especially our great public schools (and this circumstance constitutes one of the great benefits of large schools), should not only provide football, paper-chases, cricket, and boating, but also racquets, fives, and lawn tennis. There should also be a gymnasium to develop the much-needed straight backs and round chests.

A *rifle corps* affords excellent training in exercise and skill as well as in discipline, and teaches boys early the difficult but important lesson of acting together under leaders; and "camping out," is beneficial in every way when the corps is officered, as it should be, by conscientious masters. I would also urge that the rifle corps should be extended at our schools throughout the country, and that all boys at school should pass through its ranks. All possible means for its encouragement should be adopted, not only for the sake of the benefit derived from the drill, the esprit de corps, the rifle shooting, and the camping out, but for the good of the nation; and engineering in all its branches might be added with advantage to mind and body.

There should be added *workshops* to develop mechanical taste, which is of value to all and of great value to many, and form a great resource on wet days; the useful and healthy *swimming bath*; a library and art museum; natural history and debating societies; music, drawing, bicycle excursions, and gardening, the last of which could generally be easily carried out and made most enjoyable, especially for the delicate boys. Thus occupation

would be provided for every boy of every conceivable taste in all weathers. I need scarcely add that it is most important that the gymnasium, racquet court, and workshops, should be thoroughly ventilated, if they are to prove a source of healthy recreation.

Cricket.

No word is necessary in praise of the virtues of *cricket* as a recreation. I would only say that if the *elevens* of our great schools are to attain to the perfection of which they are susceptible, a thorough organisation of the game must be effected throughout the whole school, so that the requisite capacity may be elicited early in life, and well developed during youth. At present there is too much looking on at the "swells" by the little boys. Moreover, the boy who never takes any other exercise, such as walking, running, and swimming, must not assume that he will excel at cricket. The best cricketer needs running and walking exercise to train his wind and legs for a long innings. And he requires fives, racquets, and continual bowling and throwing, in order to bring his arms and chest into the highest condition.

Boating.

Boating is one of the best exercises for boys, and every available piece of water should be utilised for the purpose, since the exercise develops all the muscles about equally, making strong arms and legs, a well-expanded chest, and a straight, strong back. It is also, when carried out with precaution, good for the development of the heart and lungs. But I think it would be an invaluable rule to restrict boating to those who take the trouble to learn to swim first; the pursuit would thus necessitate swimming, and would also be safer.

In rowing, it should be particularly borne in mind that frequent periods of rest are necessary, for here the

tendency is to prolonged exertion. Those who row should begin gradually, and by degrees increase the distance and force, until a long distance can be traversed without fatigue or harm. It should always be remembered that no severe exercise, such as rowing, should be undertaken without previous training, by those who have been leading a sedentary life, by those recently convalescent from an illness, or by those suffering from colds or coughs.

I lay special stress also upon the value of the Swimming. swimming-bath and bathing. Every school that can possibly manage it should have a place in which the boys can learn and practise swimming. If there be a river, it may be utilised, with advantage, for summer bathing; but it is not as good as a swimming-bath under cover, the water of which can be warmed, and thus used all the year round. Swimming should be taught, if necessary, though as a rule nearly every boy will learn by himself or from his schoolfellows.

The size of the bath should vary according to the number of boys in the school. The entrance should not be at the end from which the boys dive: the door should open on one side of the building by a porch; then as the door opens no one can see the bathers inside, nor can the wind enter with a direct rush. The bath itself should be arranged for all sizes of boys, and two points are essential in its construction:—

First, that the hot water should enter the bath from the boiler at the *shallow* end, where the little fellows in learning to swim paddle so long in the water, so that they may have the benefit of the warmer water.

Secondly, that the *cold* water should leave the bath for the boiler from the deep end, and from the surface of the water; and that the *hot* water, which, as I have said,

should enter at the shallow end, should come in at the bottom of the bath. Being specifically lighter, it will rise to the surface, and thus, by its upward movement and constant circulation, warm the water throughout. When the hot water comes into the bath at the surface, as is sometimes arranged, it simply floats on the top like oil, its heat ascending and heating the building only, while the water below is absolutely cold, often 15° Fahr. lower than that at the surface. There is not only a great waste of power in such heating arrangements, but it is positively injurious to swim in water hot round the neck and cold to the feet: occasioning in the young fainting, and tending to produce apoplexy in the middle-aged.

There is, however, a still better plan than that of passing the water from the bath itself through the boiler, by providing a system of hot-water pipes round the bottom of the bath, and passing hot water or steam through them.

The temperature should never be below 65° Fahr., or above 70° Fahr.; for boys, winter and summer, generally stay too long in the water—which should be discouraged.

(1) *Time of bathing.*—If bathing is to be a source of health, and not a cause of mischief, it is necessary to bear in mind certain rules. Those presented by the “Royal Humane Society” are so excellent that I cannot improve upon them, except by adding another.

IMPORTANT TO BATHERS.

1. Avoid bathing—within two hours after a meal.
2. Avoid bathing—when exhausted by fatigue or from any other cause.
3. Avoid bathing—when the body is cooling after perspiration.
4. Avoid bathing altogether in the open air if, after having been a short time in the water, there is a sense of chilliness with numbness of the hands and feet; but

5. Bathe when the body is warm, provided no time is lost in getting into the water.

6. Avoid chilling the body by sitting or standing UNDRESSED on the banks or in boats after having been in the water.

7. Avoid remaining too long in the water; leave the water immediately there is the slightest feeling of chilliness.

8. The vigorous and strong may bathe early in the morning on an empty stomach.

9. The young, and those who are weak, had better bathe two or three hours after a meal; the best time for such is from two to three hours after breakfast.

10. Those who are subject to attacks of giddiness or faintness, and those who suffer from palpitation and other sense of discomfort at the heart, should not bathe without first consulting their medical adviser.

And I would add—

11. Bathe as many times a day as you like, provided you are not in the water for more than a few moments. In summer, a plunge and out again, several times a day, is not only refreshing but very invigorating.

(2) *Time in the water.*—Harm results when boys remain so long in the water that they get thoroughly cold. The time should be measured by minutes, not by quarters of an hour. Bathing makes the skin more healthy, and gives it tone; *prolonged* bathing, on the contrary, has a depressing action on the skin, and at the same time congests the internal organs, causing serious mischief to them.

(3) *Life Saving by Swimming.*—It seemed to me that so much good could be effected in public-schools by teaching the boys (who eventually are scattered all over the world) how to save a drowning person—good not only to themselves, but by their influence and example teaching others also—that in the year 1882 I proposed to start a prize at the school which I have the honour to serve. And, casting about for the best way of carrying out this intention, I wrote to the “Royal Humane

Society," and asked if they could help me in the matter with an examiner and a medal, provided I reimbursed them, as I thought the prize would be much more valued by the winner, and create more competition, if it came from so estimable an official source. I pointed out to the Society what a vast amount of benefit would be effected if it assisted in making the boys of our great public schools take an interest and excel in *saving life from drowning*. The Royal Humane Society immediately entered into the scheme warmly, and very generously awarded "an annual *silver medal* for each great public school for the best practice in rescuing from drowning;" thus, I hope, there will pass into the world every year hundreds of boys, well skilled in life-saving by swimming—able themselves, and capable of teaching others.

RULES TO BE OBSERVED BY COMPETITORS FOR THE PRIZE SILVER MEDAL AWARDED BY THE ROYAL HUMANE SOCIETY FOR PROFICIENCY IN SWIMMING EXERCISES AT PUBLIC SCHOOLS WITH REFERENCE TO SAVING LIFE FROM DROWNING.

1. The Medal to be awarded annually to each selected School, and to be presented at such time and place as the Head Master may appoint.

2. The Competition to be open to all Boys of the School, subject to the approval of the Head Master, and to take place in the river or other bathing-place used by the School, and to be carried out under the supervision of the Head Master, or such Umpire as he may appoint.

3. Each boy to have one Trial under the following conditions:—

1st Trial.—A Dummy or Block of Wood, to represent a Body, to be floated at some distance from the place where the Boy has to enter the water. He is to swim to it and bring it back to the starting point.

N.B.—In running water this rule may be modified to such extent as the Head Master may consider necessary.

2nd Trial.—A weighted Dummy or Block of Wood with rope handles to be sunk at some distance from the place where the Boy is to enter the water. The Competitor to swim to the spot, dive and bring the dummy to land at a place appointed. The spot where it is sunk may be indicated by a floating cork, not to be attached to the dummy.

3rd Trial.—A Dummy to be sunk in the bath or river, the place not being indicated. The Boy to enter the water at a given point, then dive, find the dummy, and bring it to shore. The weight of the dummy to be proportioned to the ages of the Boys. Where it is impossible to conceal the dummy, this Rule can be modified by the Umpire, only making the trial more difficult than those preceding it.

A certain number of marks to be awarded to every Competitor in each of the above trials, the minimum of time occupied being an important consideration.

4. Competitors to be partially clothed.
5. The Medal, and its accompanying Testimonial inscribed on Vellum, is to be awarded to the Boy who has obtained the greatest number of marks in the above three Trials.

That the teaching of saving life by swimming may be of use, even while at school, I can personally testify, for a nephew of mine, a public school boy of only fourteen years of age, in 1885 saved the life of a schoolfellow who, while bathing, had got into a sluice. He had already sunk twice, when this boy saw him, jumped in with his clothes on, and saved his life. The Royal Humane Society have awarded this plucky rescuer a medal in consequence.

But while these "rescues by swimming" restore the poor victim to *land*, I should like to see him restored to *life*; and I have, therefore, supplemented the generous gift of the Humane Society, at my own school, by a small prize (a silver challenge-cup) for the best practice in the "restoration of the apparently drowned," when he has been brought to land, to all intents and purposes dead, unless immediate help be at once forthcoming.

Restoration
of the
Apparently
Drowned.

This method of "*How to Restore the Apparently Drowned*," is one of paramount importance for boys to know, being not merely a matter of health, but of *life*. Every now and then a boy gets nearly drowned from a blow on his head in diving, or cannoning under water, or getting faint from swimming too long under water, and from other causes.

Now, if life is to be saved at such times, boys must rely on themselves, instead of waiting for the arrival of a medical man; since the first few moments are the most valuable. I am therefore striving to teach boys what to do on these occasions. There are various methods; for instance: *Marshall Hall's*, which is practically out of the question, as it requires two, if not three, boys to carry it out effectually; but where will three ordinary boys be found in a moment able to calmly act in concert? The same objection applies to *Silvester's method*, which requires, to prove of any use, that one person should hold the tongue, while another works the arms in the orthodox fashion. I do not think that one among five hundred boys would be found able to hold the tongue effectually.

I have, therefore, taught *Howard's method*: first, because one boy can carry it out alone; secondly, on account of its extreme simplicity and efficacy.

Why this method is not advocated and practised generally I cannot conceive; for although "*Silvester's method*" admits more air into the lungs *when the tongue is properly held*—which it is very difficult to do, especially as the jaws are usually clenched—yet it is not a question of the *quantity* of air admitted which is essential, but the fact of water getting out, air taking its place, and one person being able to effect it. It is thus carried out:—

HOWARD'S METHOD.—HOW TO RESTORE THE DROWNED.

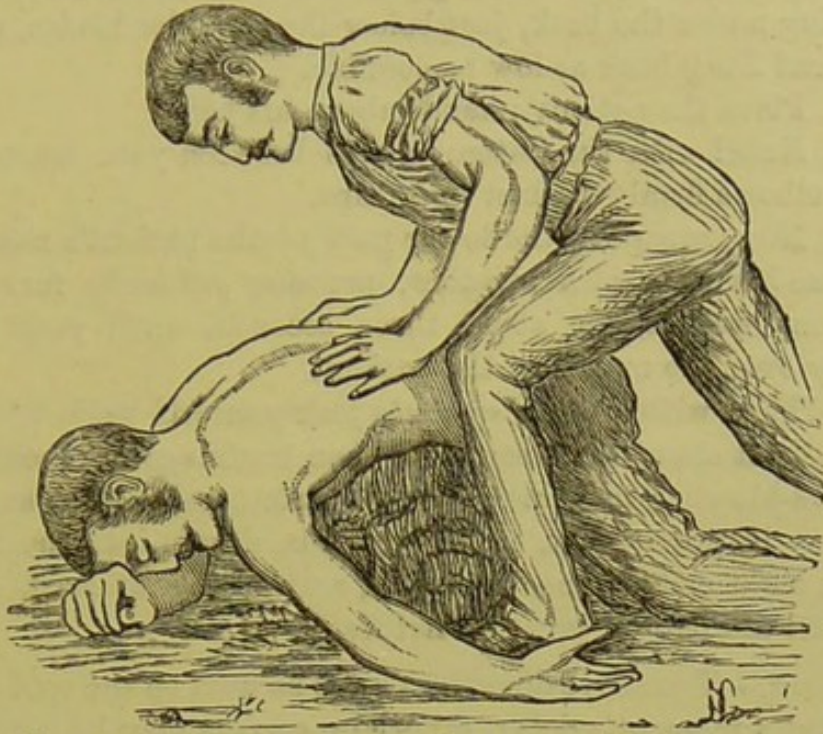


FIG. 14.—PRESSING AND DRAINING WATER FROM LUNGS AND STOMACH.

1. *Instantly* turn the patient downwards, with a large firm roll of clothing under stomach and chest.

2. Place one of his arms under his forehead, so as to keep his mouth off the ground.

3. Press with all your weight two or three times, for four or five seconds each time, upon the patient's back, so that the water may be pressed out of lungs and stomach, and drain freely out of the mouth.

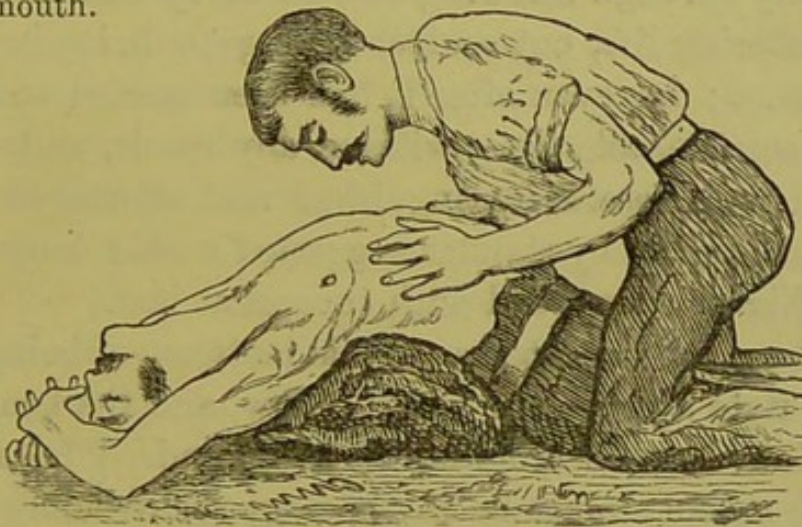


FIG. 15.—THE BELLOWS-BLOWING MOVEMENT, FOR PRESSING FOUL AIR OUT AND DRAWING PURE AIR INTO THE LUNGS.

1. Then *quickly* turn the patient, face upwards, with the roll of clothing under the back, just below the shoulder blades, and make the head hang back as low as possible.

2. Place the patient's hands above his head.

3. Kneel with the patient's hips between your knees, and fix your elbows firmly against your hips.

4. Now, grasping the lower part of the patient's naked chest, squeeze his two sides together, pressing *gradually* forward with all your weight, for about three seconds, until your mouth is nearly over the mouth of the patient.

5. Then with a push, *suddenly* jerk yourself back.

6. Rest about three seconds; then begin again, repeating these bellows-blowing movements with perfect regularity, so that foul air may be pressed out, and pure air be drawn into the lungs, for about eight or ten times a minute, and during, at least, one hour, or until the patient breathes naturally.

NOTE.—The above directions must be used on the spot instantly, without a moment's delay, otherwise success may be hopeless.

Prevent crowding around the patient; plenty of fresh air is important. Be careful not to interrupt the first natural breaths; if they be long apart, carefully continue between them the bellows-blowing movements as before. After breathing is regular, let the patient be rubbed dry, wrapped in warm clothing, take hot spirit and water in small occasional doses, and then be left to rest and sleep.

At one of our universities, in 1885, a life was saved not only through knowing how to carry out the method for restoring life, but mainly owing to indomitable perseverance; for even after it had been carried out well for some considerable time, without any result, and when all hope of success was extinguished and efforts were being discontinued, a by-stander suggested a still longer effort, and this was rewarded with success at last.

The great importance of this matter—of being able to resuscitate a drowning school-fellow, and the benefit that can thus be disseminated by five hundred boys from a public school—must be my apology for dwelling at such length upon the subject in a treatise on "School Health."

IX.

ILLNESS.

ILLNESS at all times and in all places is a misfortune—the greatest misfortune in this world. But illness at school has so much that is distressing attached to it, that we must consider minutely, not only how to prevent it, but also how to care for it when it has occurred, and how health should be regained, without permanent ill-health or organic defect remaining.

It is heart-rending to the parents, who are often at a distance—both parents sometimes residing in India or in one of our Colonies—from their child. For, knowing neither doctor nor nurse, they are apt to think that nothing can be done for him as it would have been done for him at home under the mother's eye, and with the confidential family medical adviser, well-known and faithfully trusted, to look after him.

It is an anxious time for the house-master too, for he knows how a parent must feel, separated from his child at such a period, and he is consequently often over-anxious that all that skilled science can do should be done at the right moment, and in the right way, for the sufferer.

It is also a time of anxiety for the conscientious medical officer, who has often to bear alone the entire responsibility of a life. Never are those beautiful words of Hufeland brought more vividly home to a medical adviser than at such a time:—"Thine is a high and holy office; see that thou exercise it purely; not for thine own advancement, nor for thine own honour, but for the glory

of God, and the good of thy fellow-creature : hereafter thou wilt have to give an account of it."

It is anything but a pleasant time, even when the illness is not dangerous, for the boy himself. For, being naturally a lively animal, he feels acutely the necessary discomforts and restraints of illness, and is ever striving to free himself from them. Moreover, he is separated, more or less according to circumstances, from his school-fellows and his games, and this he regards as a "bore."

When convalescent from an illness, he is often still more to be pitied ; for, feeling well, he is anxious to be set at liberty, before he is either free from infection, or strong enough to bear the exposure and exertion.

But when a death at school takes place—fortunately so rarely as to amount, in the school I have the honour to serve, to only 4 deaths in 15 years, out of 400 boys always present, or 1 in 1,500, or 0·06 per cent. per annum—the whole school is hushed : every one is appalled.

Mr. E. Chadwick, C.B.,* has stated that the death rate in common schools is from 6·0 to 12·0 per 1,000.

It is the aim of this treatise not only to point out how illness and death may be reduced to a minimum in all schools, and under all circumstances, but also to prevent seeds being sown at school, which may develop, after school life has ceased, into vice, disease, and early death.

FEIGNED ILLNESS.

I am obliged first to speak of *feigned illness*,—the Malingerer.

All schools possess this creature, but he is found especially at the public schools, where he has increased

* Loc. cit.

opportunities for carrying out his inclinations, and great scope for the practice of his ingenuity.

There are two specimens of this class : the boy who has nothing the matter with him whatever, except that he dislikes work ; and the boy who has some slight discomfort, which he exaggerates when work has to be done, but ceases to remember in the intervals of work. These creatures—I cannot call them boys—are only seen on whole-school days ; or when the lesson is “unseen,” and this fact should clearly reveal to the master the boy’s peculiar system of preparing his lessons at other times. These boys are rarely to be seen on a half-holiday ; though it must be remembered that the “malingerer” of whole-school days very frequently becomes the “loafer” of half-holidays, and strives to shirk any game which is distasteful to him, if he is compelled to play.

I need scarcely say that they do incalculable mischief to others, as well as to themselves.

This impostor is not a natural production, but a carefully-manufactured article, produced at the cost of considerable ingenuity on the part of the malingerer, and considerable denseness on the part of the parent or parents ; and being produced at home, solely by parents or their subordinates, is sent to school, to be a source of bad example to others.

The parent commences to manufacture this specimen very early in the life of the boy, almost as soon indeed as he can talk : it is a very gradual process, and usually passes through the following stages. The boy has something disagreeable to do at home, which he does not relish, and does it with bad grace. By-and-by he dislikes it more and more as its repetition occurs ; and at last it becomes so irksome that it worries him, and he pulls a long face, and looks the picture of misery. The parent, instead of observing the drift of the case, says, “What is

the matter? Do you not feel well?" No answer. Then leading questions are put, and the chord is struck—the first step in the malingerer is made. "Do you feel sick? Have you an ear-ache?" Happy thought! "Yes; my ear is very bad." Then follow sympathetic expressions, and he is let off his disagreeable duty. By-and-by the return of the distasteful duty comes round, and the same dodge is tried and is successful. Similar ruses are practised a few times as they are found to pay, and the confirmed malingerer is produced. He is, in due time, sent to school, and is only to be found when work is on hand, or the weather is cold, wet, or foggy: never when there is a half-holiday, or any pleasurable excitement. He tries to evade the doctor—occasionally with success, and soon learns what description of ailment and what facial expression are required to delude his master. These he practises with indescribable skill, and often is successful, as he knows how to ring the changes sufficiently to gain his purpose. This type of boy is often very trying to patience and temper, and no pains should be deemed too great to judge such an individual accurately in each single instance, so that, on the one hand, he may not feel that he can *do* the doctor or his master; while, on the other hand, he may not be sent to work, or punished, when he is really unwell. It requires much care and caution on the part of the doctor to be sure that he is right, and then no mercy should be shown: shame him if possible, and as soon as possible.

I have spoken at length on this point because the practice ruins a boy's character; and because I want parents to see that it is they who are mainly responsible for the injunction of the evil: later on its arrest is difficult, if not impossible.

Sometimes, however, a malingerer is produced by the *bullying* which a boy has to undergo at school. To ex-

tricate himself from this he feigns illness, and will then resort to every conceivable and inconceivable means to gain his point—so terribly does the bullying affect his mind.

MEDICAL ARRANGEMENTS.

In private schools, with a small number of boys, the medical arrangements are, of course, the same as in a private family. The doctor is sent for when required, and the patient is nursed in the same way as is usual in private houses.

But in our great public schools a complete medical organisation should exist—perfect in detail, and capable of coping with any difficulty, small or great, not only for the welfare of the individual boy, but also for the benefit of the whole school.

One essential must be observed to ensure this: there should be undivided responsibility; consequently, *one medical officer*, and one only; the whole school should be under his daily supervision in medical and sanitary matters.

Medical
Officer.

It is, however, the custom with some of our great schools to have more than one medical adviser for the school. This is unwise; for it entails an unwise division of responsibility without any compensating gain, and one doctor is quite competent to deal with all the cases of illness that occur; and he should be solely responsible for the conduct of his staff of nurses. At other schools, one medical officer only is appointed; but he is not allowed to practise his profession outside the school: a more short-sighted policy it is difficult to conceive. Such an arrangement is really disastrous to the welfare of the

health of the school : the medical adviser must simply rust away and become useless. He literally has not sufficient illness "to keep his hand in." If the reader will kindly refer to my Table of Infectious Illness at Rugby School on p. 266 he will see at a glance what I mean. For instance, in fifteen years I have seen, in my school practice, only three cases of diphtheria and two of typhoid fever. There is something very wrong with a school in which many of these major illnesses occur ; and yet, if the medical officer never see any but these few cases he cannot be in the highest state of efficiency to deal with them when they do arise. I really pity the parent who has a child with a dangerous illness under the care of a doctor whose practice and experience is limited to a school sick-roll—unless, of course, the school is so full of illness as to afford him sufficient practice. Such an unwise restriction is about on a par with a man who provides a fine bright lock and key for a valuable chest, and then only allows the key to be turned in the lock twice in fifteen years : when he tries to turn it he finds it rusted in the lock and he cannot move it—in fact, it is useless. It must surely be evident to all, that it is the duty of the school authorities to appoint the best physician that can be obtained, of high attainments and known high character, to pay him a suitable salary, and to allow him to obtain all the practice he can get in the neighbourhood, including a hospital appointment when it is possible. By this means he will constantly see all manner of cases of illness, and the school will thereby be best served.

The appointment of medical officer to a great school is one of importance, as will be seen from a discussion of his various duties ; for on his proper discharge of them much of the health and happiness of the school will depend. The medical officer, while appointed by the head-master, should hold his office by virtue of the will

of the governing body of the school and not at the head-master's caprice. For, had the medical officer, in case of threatened dismissal, the right of appeal to the governing body, he would then be able to accomplish far more good for the school and scholars, without the threat of dismissal hanging over his head at every turn, and at every suggested remedy for abuses.

Since this was written I find Dr. Farquharson, M.P., in his work on "School Hygiene," making the following pertinent remarks:—"In the first place, every school should be provided with a medical attendant appointed by the head-master, working under his direction, responsible to him and to him only, but with the right of appeal to the governing body in case of capricious dismissal. It is just possible, although not probable, that, as occasionally happens in private practice, sanitary recommendations may clash with the self-interest of those to whom they are made, or differences of opinion may arise on points of professional ethics or even on actual practice. Under these circumstances the assumption is not an extravagant one that an attempt may be made to cut the Gordian knot of controversy by the sacrifice of the opponent, and that the future career of the doctor may be seriously compromised by removal from his post. Such things have occasionally happened within the professional ranks of education, and may at any time happen again; but, inconvenient although it may be for an assistant-master to lose his appointment, he will seldom fail in obtaining employment elsewhere, and therefore stands on a different basis from the medical man, whose credit must necessarily suffer in the neighbourhood in which he lives, and who loses a considerable and perhaps essential part of his income by dismissal. Without in any way wishing to impair the authority of the head-master, or to insinuate a doubt of the almost

invariably kind and sympathetic treatment of those under his charge, we are compelled to admit the occasional infirmity of human nature and the possibility of injustice being done, and it will, therefore, be right to allow the doctor an appeal to the governing body in case of what may appear to him to be unnecessary or insufficiently-explained removal from his post."

Duties.

The medical officer should be responsible to the head-master and house-master for the entire arrangements in respect of sickness and accidents occurring at school ; he should send the sound boys to their work, and prevent the unsound ones being worked when they are unfit for it. He should regulate and control the entry and return of all boys who have been sick, or who come from houses where sickness has occurred in the vacation ; he should also, through the masters, advise parents of any infectious illness that has arisen during the latter end of term, so that precautions may be adopted at home for preventing the infection of the family, and the spread of infectious illness over the country from the schools as a centre.

The *duties* of the school medical adviser are thus fourfold, and of paramount importance. First, to treat accidents and sickness of all kinds ; secondly, to have under control all sanitary arrangements in the school, boarding-houses, and sick-houses ; thirdly, to prevent infectious illness entering a school, and to minimise it if it occur ; fourthly, to protect parents from infectious illness being brought home from school.

Consultations.

But while, in order to ensure efficiency, I thus advocate undivided responsibility in carrying out the important medical work in large schools, I would also urge that a *consultation* should be obtained without the slightest difficulty whenever it is considered necessary by a master

or a parent, with a view to preventing the possibility of arbitrariness.

To carry out his duties properly, a *daily attendance* is necessary. He should visit the whole school every day at a certain fixed hour, at a time when all the boys may be found in their houses ; and the earlier in the morning the better, so that cases of illness and infectious disease may be at once weeded out from each boarding-house, and all malingerers sent into school. This medical visit should be made most punctually, for boys are boys, and if seeing the doctor entail the slightest trouble on them, they will not present themselves ; but if they know that the doctor can be found at a certain moment, they may then condescend to show themselves to him.

Daily
attendance

It is only thus that the fundamental medical rule for schools can be carried out, namely, "*Report yourself to the matron or doctor on the occurrence of the slightest ailment,*" for by this means alone can serious illness and epidemics be prevented. If the ailment be found to be *nothing*, the boy should be sent into school ; if a *slight ailment*, he should be kept indoors, so that he may not become worse ; if a *serious illness* be commencing, he should be immediately housed and taken care of, and placed under the most favourable circumstances for cure ; if the *illness* be an *infectious* one, the matron should at once isolate him until the doctor has seen him, and then, if there be a doubt, he should be *quarantined*, or if a certainty, he should be immediately transferred to the infectious house, and kept clear of the rest of the school. The rule of reporting illness early is absolutely necessary for the efficient medical government of large schools. A great difficulty to be contended against is the careless boy, who, knowing that he is not well, having even a *rash*,

All Illness
to be
reported
at once.

“thought it was nothing,” and so risks the health and life of his school-fellows.

School-home for Delicate Boys.

There are a certain number of boys in all schools who, though not ill, are not strong enough, for the time being, to bear the usual strain and exposure of school life, but need more home comforts and attention than can be well provided where the number of boys is large. As far as I can learn, in no great school is special provision made for these delicate boys, although it could be easily carried out without trespassing on any vested interests, and with very great benefit to the boys themselves.

Class of boys for School-home.

The class of boys for whom this provision should be made in the shape of a *School-home*, includes young boys who are not naturally strong, but weakly, and who need care for a year or two at the commencement of their school life before they are able to “rough” it amongst a large number; boys from a hot climate, who cannot bear much exposure for a term or two; boys who *have* a constitutional ailment that needs great care; boys who require extra care during school life in order to *prevent* the development, owing to an unfavourable family history, of a constitutional complaint; boys who have had a recent severe illness, from which they have recovered, but who need the care of home life still for a term or two, the parents not wishing them to lose ground at school by being kept away until they can dispense with this additional attention.

Officers of School-home.

Such provision as I refer to could be carried out by a carefully selected junior married master; or, still more appropriately, I think, by the medical officer to the school, where he is capable of managing boys, and could be induced to take them, as the boys would then be under constant medical supervision.

The sending of boys to this home should be entirely under the control of the head-master, so that parents should possess no voice in the matter except through him.

Constitu-
tion of
School-
home.

By this means every parent would not be under the impression that his own boy was delicate and needed extra care.

The fees again would naturally make the home prohibitive to any except those who *really* required the extra care. The number should be strictly limited, according to the number in the school, and every reasonable modern sanitary improvement should be provided, so that the boy would live in the highest state of health possible to be attained.

By this means house-masters would be relieved of much anxiety about such boys.

PROVISION FOR SICKNESS.

Every boarding-house in a large school has, or should have, a *sick-room*, where every boy who is not really ill, and yet not well enough to be at work, should be taken care of, and remain under the constant supervision of the matron, who should exercise full control, and supervise his diet, to be regulated by the medical officer, until he is again able to go into school. There should also be a night sick-room, in which a boy who is not quite well should sleep, in preference to his dormitory.

Sick-room.

Should, however, a case of *infectious* illness remain in the sick-room for even a short time—for instance, waiting for the doctor—the room should be thoroughly disinfected in some way before another boy is placed there; and this may be effected either by sulphur fumigation, by setting free nitrous fumes from nitric acid and

copper filings, or by setting free chlorine from chloride of lime by vinegar—a very easy and effectual process. The bedding, also, on which the infected boy has slept in the dormitory, should be removed and disinfected, and the dormitory itself well flushed with a cross draught of fresh air as long as possible, or, better still, be fumigated as above described.

It should not be forgotten that plenty of sun and fresh air are among the most powerful disinfectants which can be employed.

Should a boy be really *ill* at school, he ought never, in my opinion, to be nursed at his boarding-house, for no proper arrangements exist there for sick nursing. There is too much noise and bustle, and no quiet can be obtained; every one is fully occupied with those who are in health, and his school-fellows, by always wanting to visit him, retard recovery.

I think that a skilled nurse alone should look after sickness when boys have to be treated away from home. How parents like to treat their children, when ill at home, is one thing; but how schools should look after them, when they are absent from their friends, is another. There the most perfect arrangements should alone be in force, and the best skilled nurses alone employed, so that everything may be done, from first to last, for speedy and effectual cure. This rule cannot be questioned, and is, I believe, mostly, though not entirely, in force in all great schools. For I regret to say that, even during the last few months, I have known of cases of even infectious illness being kept in the boarding-house: thus, at one of our greatest schools I knew of seventeen cases of “mumps” being treated in the boys’ cubicles amongst all the other healthy boys. At another great school cases of “diphtheria,” one of which died, were treated in a master’s boarding-house. At another school

there occurred many cases of "typhoid fever," five of which were treated in a dormitory of a master's boarding-house, and four in the school-house. Moreover, there is one of our most ancient schools which has lately been re-built at a distance from its former foundation, where the governing body have not seen fit to provide any sick-house of any sort or kind, and where, consequently, all cases of illness, however infectious in character, have to be treated in the master's boarding-house.

The best skilled nurse that can be obtained should be appointed as *matron* to the sanatorium. She should be wholly responsible for the superintendence of all the arrangements for the care and treatment of the pupils during illness. She should be answerable for the carrying out of every detail in the treatment of the sick, and in the management of the sick-houses, exclusively to the medical officer and to no one else. If any fault has to be found by those in authority, the complaint should be made to the medical officer only, and not to the matron who carries out his orders. It is absolutely impossible for any matron to faithfully do her duty if she be subject to the head-master and house-masters and their wives. Matron.

She should have under her the necessary number of nurses and servants according to the size of the school. When many cases of illness occur, or when the illnesses are so severe as to entail much night-work, extra nurses can be obtained from some of the excellent nursing institutions found in all large towns, for no fagged nurse can do her duty.

Again, not only must the matron be a highly-skilled sick nurse, and capable of managing household affairs, but she must be a woman of character, so that she may be able to control those under her care, which is not always an easy matter when boys are convalescent after an

illness. For some have high spirits, and delight in mischief; while others have the proverbial ill-temper incidental to recovery, both of which call for the exercise of patience and firmness.

Much tact again is required in dealing with parents, masters and their wives, many of whom are apt to think they know more about sick-nursing and the general treatment of illness than those who have taken years to acquire their requisite skill; which is as ludicrous as if these should presume to instruct masters how to teach classics or mathematics.

While a pupil is ill, therefore, the matron should recognise no head but the medical man in charge, and respectfully but clearly refuse to follow requests—which should properly and solely be made direct to the doctor—of any one else, or otherwise no reliance can be placed on her by the medical officer who is responsible. The first one to turn upon her and say she is not to be trusted, will be he or she who induced her to deviate from her orders, either from thoughtlessness or often simply from the love of interference.

Sana-
torium.

A *sanatorium* or sick-house is essential, and should be provided for every great school, where all cases of *illness* and *accidents* should be treated. Here, also, may be admitted the majority of *infectious ailments*, such as typhoid fever, diphtheria, measles, rötheln, mumps, chicken pox, and whooping cough, unless the school can—in some schools they are already in existence—provide two sick-houses (quite irrespective of the fever cottage for scarlatina), the one for accidents and non-infectious illnesses, the other for the slighter infectious ailments. I think one sanatorium is sufficient, provided there be great care and vigilance on the part of both doctor and nurse. The Rugby School Sanatorium is

quite a model ; it consists of three separate blocks of two floors, each block radiating in a different direction from a

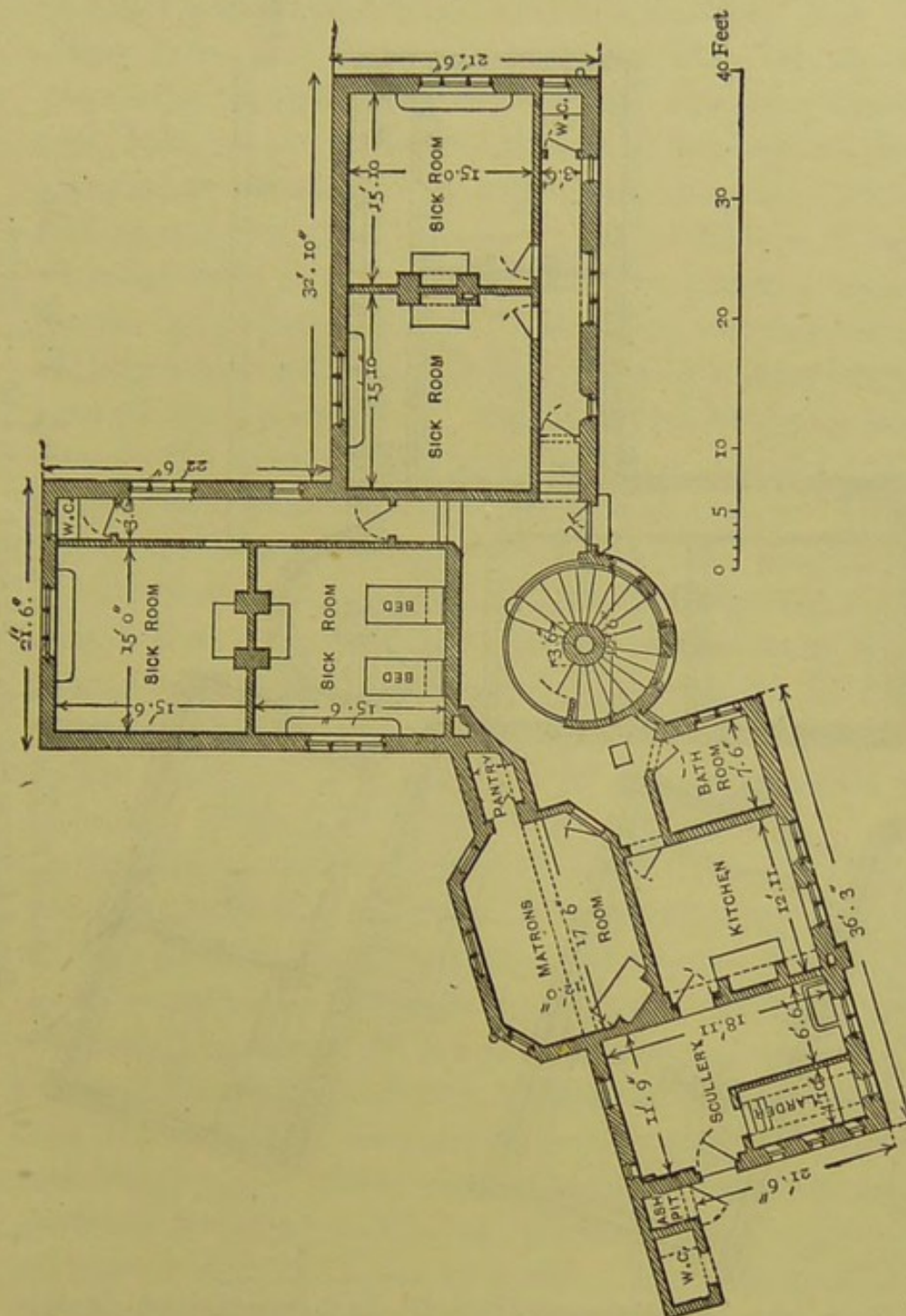


FIG. 16.—THE RUGBY SCHOOL SANATORIUM.* GROUND FLOOR.

common hall, which has a circular stone staircase in it, very spacious, and so well ventilated as to be practically

* These drawings were kindly lent to me by Mr. Penrose, the architect.

open at the top. Personally, I have never known a case of an infectious illness spread from one boy to another,

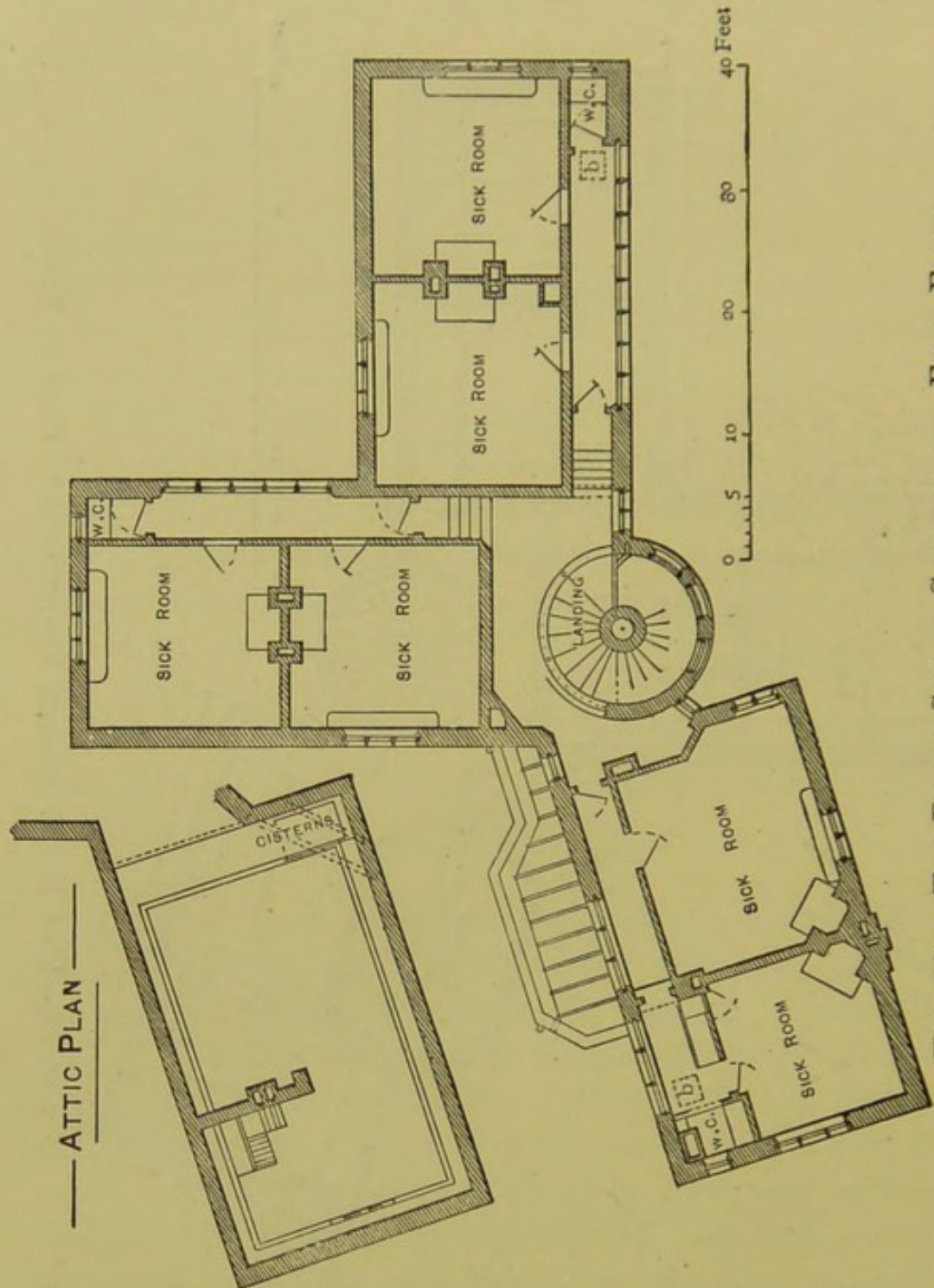


FIG. 16A.—THE RUGBY SCHOOL SANATORIUM. FIRST FLOOR.
Size of Rooms = $15'6 \times 15 \times 10'6 = 2,441$ c. f., or $1,220$ c. f. per bed.

or from one block to another, in this sanatorium during fifteen years ; but, as a rule, cases of the various infectious illnesses do not very often co-exist, although, if this should happen, one floor, or one block, may with care be safely used.

The above plan can be so varied and modified as to provide ample accommodation for every case of illness in schools of any number. Such a building may have either three or four *wings*, each of which can be kept practically separate. Each wing may comprise three, or even four, *rooms*, each room two or three *beds*, all to be occupied at the same time or not, according to the nature and severity of the illness. In some schools as many as seven beds in a room are allowed ; this is a mistake, for the noise from those who are not ill, or who are convalescent from an illness, must always be a great disturbance to those who are ill. One delirious boy, too, would disturb the sleep of, and often terrify, the remaining six boys. Each *floor* may be distinct and separate by providing no inside staircase whatever, and making one outside staircase for the first floor, and another for the second floor. Or, as I have shown in the drawing, the ground and first floors may communicate by an inside staircase, while the second floor is kept absolutely separate by the provision of a staircase to it alone outside the building. (Figs. 17, 18, 19, 20.)

In such a sanatorium the *ground floor* may be used for accidents, and for all cases of non-infectious illnesses, such as rheumatism, pneumonia, and severe colds. If all these rooms on the ground floor are provided with "French windows," opening into the garden, each can be used as a separate quarantine room by keeping all the doors locked, and admitting and discharging each suspicious case by the window, by which means no doubtful case would enter the building at all, but would be kept completely isolated during the hours of doubt. The room should be thoroughly disinfected after the discharge of each case that proved itself infectious, before being again used for any purpose whatever. (Fig. 17.)

The *first floor* will provide, by shutting off each wing

from the well-ventilated staircase by double doors, three

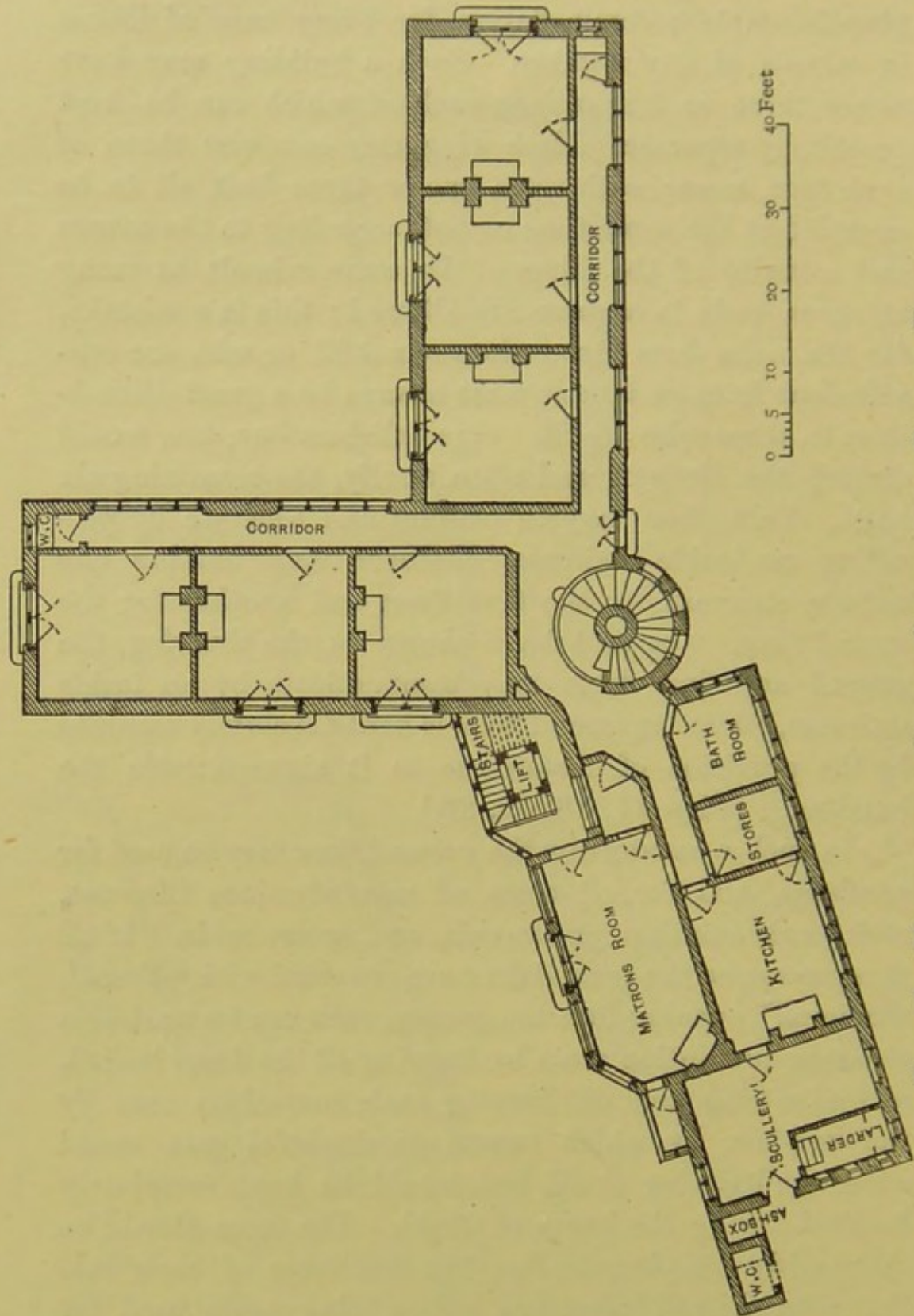


FIG. 17.—MODEL FOR A SCHOOL SANATORIUM. GROUND FLOOR.

separate houses, under the control of one matron. In these wings, under the charge of a special nurse for each,

when necessary, three kinds of the milder infectious illnesses can be treated at the same time, without fear

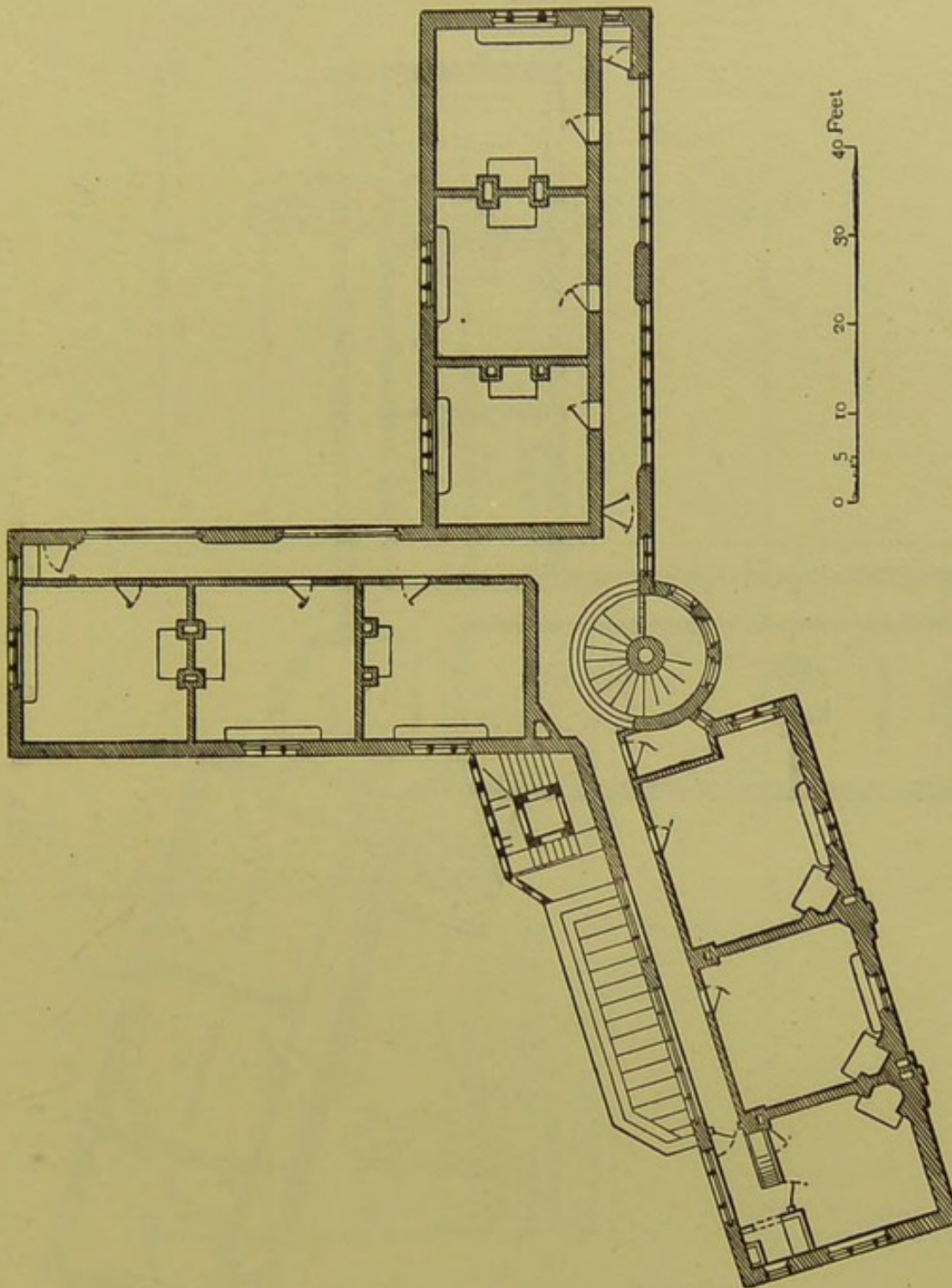


FIG. 18.—FIRST FLOOR.

of one illness spreading to another—thus we may have in three wings chicken-pox, measles, and mumps (Fig. 18.)

On the *second floor* (Fig. 19), scarlatina, or diphtheria,

can be completely isolated from all other parts of the house, by having an outside staircase to admit patients,

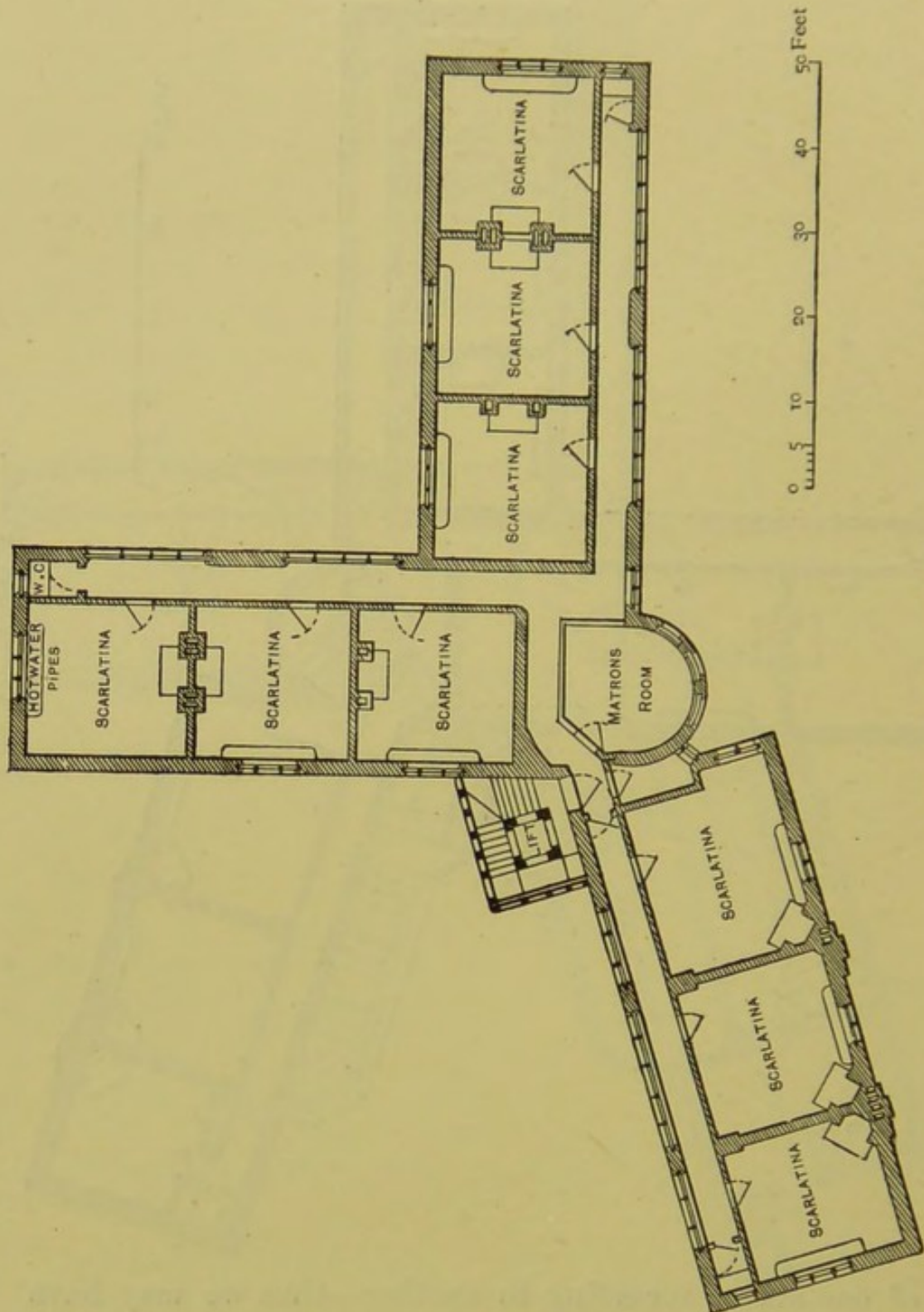


FIG. 19.—SECOND FLOOR.

and a small lift also outside by which to send up food and other requisites ; or still better, by having one lift suffi-

ently commodious and easy to admit patients and their

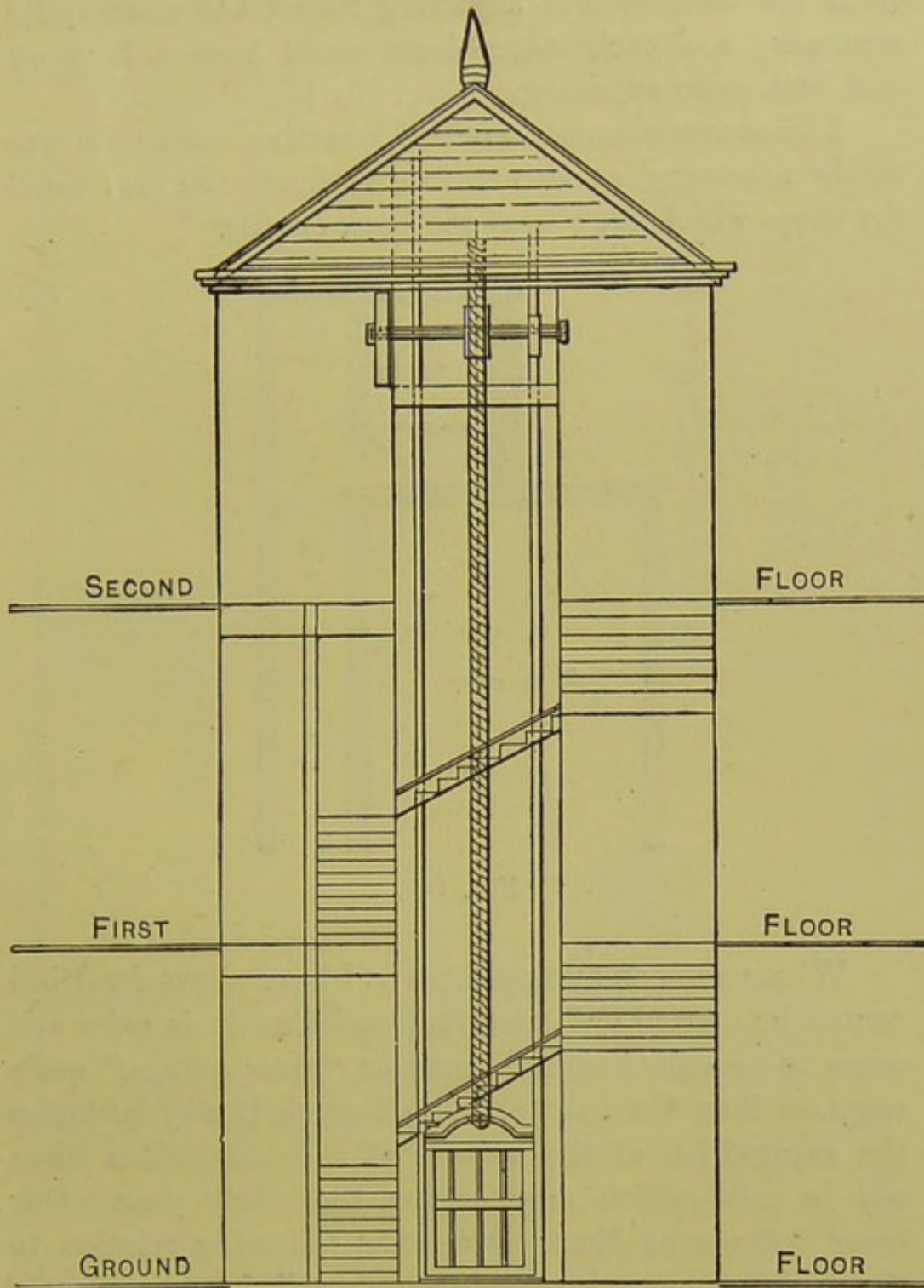


FIG. 20.

daily necessities, and no staircase at all. This lift and staircase should be kept under lock and key by the matron. (Fig. 20.)

The water-closets on each corridor can be built out from the corridor and adjoining rooms, and made quite separate; and each water-closet could have a lavatory and bath-room adjoining. (Fig. 20A.)

I have intentionally avoided inserting more than was really necessary, so as not to complicate the very small drawings which the size of the book entails.

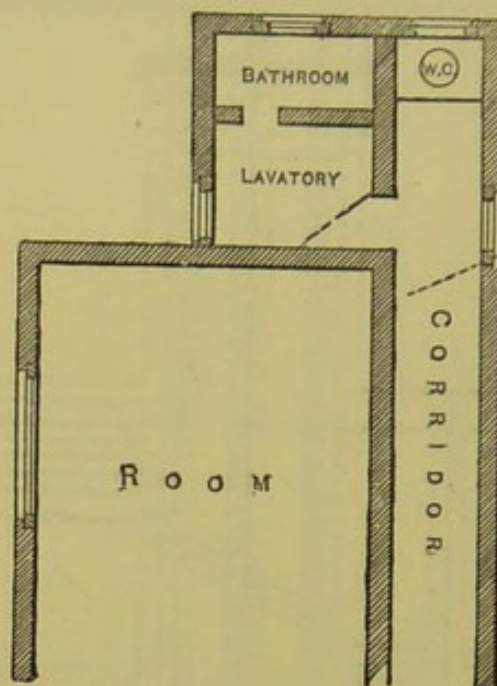


FIG. 20A.

Fever
Cottage.

Where such an arrangement as I have above described cannot be carried out, then for scarlatina it is safer and wiser to provide a special house or "*fever cottage*," quite separate from the sanatorium, although it may be under the supervision of the matron of the sanatorium when *not* in use—which may be for the whole year. Our fever cottage at Rugby bears the following relation to the sanatorium, and has answered well for many years without any defect. (Fig. 21.)

When it is occupied, it should be nursed and managed by a *separate* staff of nurses, and servants or helpers, holding no communication with the sanatorium staff.

But a house for the isolation of scarlatina is absolutely useless—and the expense of it should be saved the

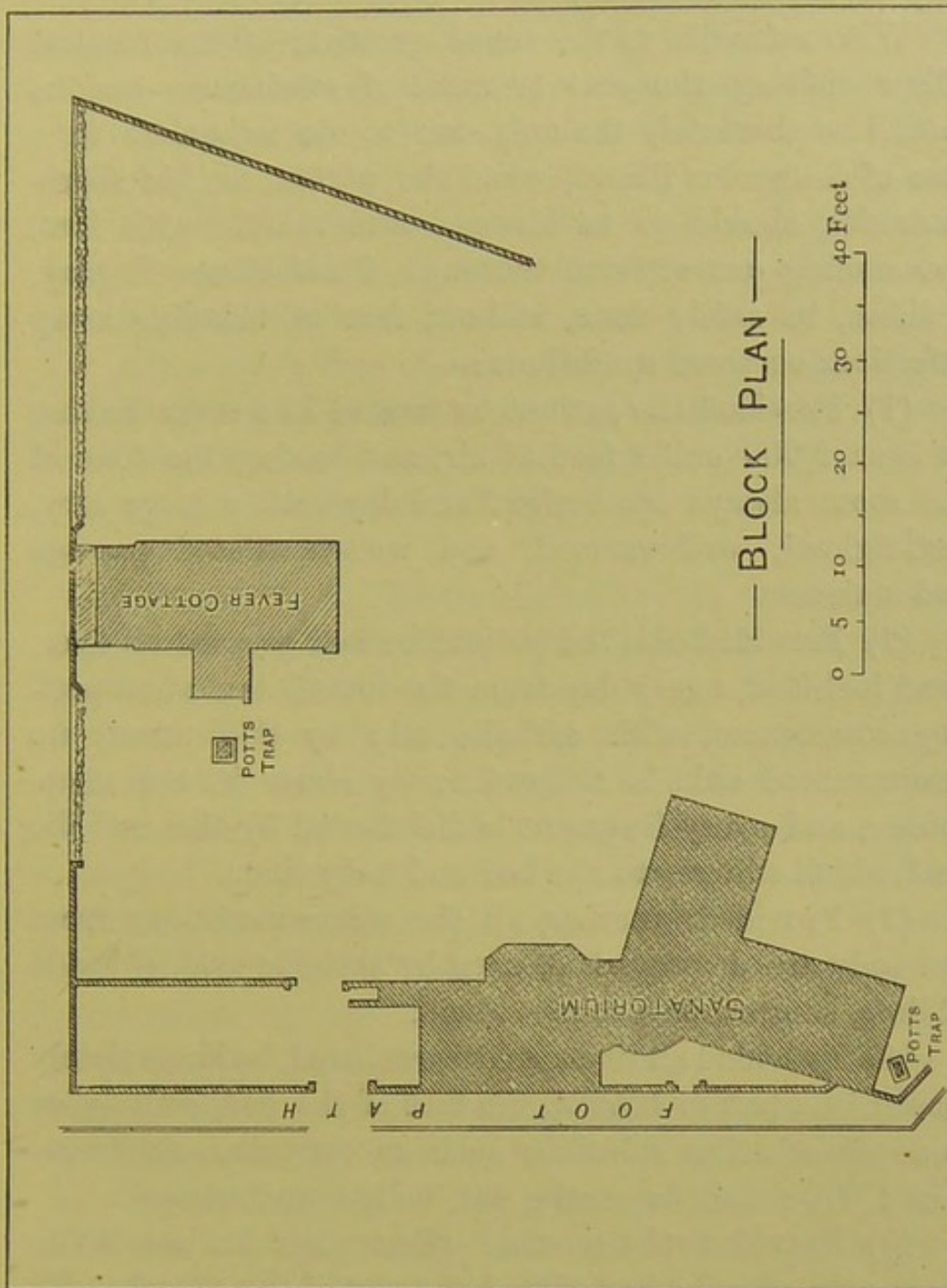


FIG. 21.—FEVER COTTAGE.

school—if masters, masters' wives, and parents are to be allowed to visit boys while they are isolated. It is not isolation then, but a sham, a pretence, and absolutely

valueless. Isolation should be thorough or not at all: one weak link in the chain, however strong the others may be, makes it rotten.

With reference to the vexed question of the medical officer visiting the case or cases of scarlatina—and he should be absolutely the only one to do so, unless in a case of dangerous illness, when the parent, or his representative, should go to his son and remain with him, not coming out without thorough disinfection—it may, I think, be safely done, without fear of bringing away infection, on these conditions:—

(1) Provided the patient be treated in a room having at least 2,000 cubic feet of air, and having the door of the room always open night and day into a large airy, well-lighted, well-warmed, and well-ventilated passage and staircase.

(2) Provided also the patient be well greased all over, head included, every day from the fourth day when peeling commences, with carbolic oil; by this means no desquamated skin is suffered to fly about in the atmosphere, and every fragment is disinfected by the carbolic acid which adheres to the bed and body linen.

(3) Provided, further, all the other secretions from the body are destroyed at once by carbolic acid, chloride of lime, sanitas, or a mineral acid.

(4) Provided all linen, as it is removed, be immediately placed in a pan or bath at the foot of the bed, containing some disinfecting solution, such as corrosive sublimate 1 in 1,000: then be wrung out, boiled, and washed.

(5) Provided the medical officer visit his scarlatina cases only after he has visited the rest of the school. He should be careful to touch nothing in the house except with his hands, which should be well washed afterwards, and the soles of his boots: no other part of his clothes should come in contact with anything in the house. If

he prefer to have a special coat for the purpose, it should be made of brown holland or of mackintosh, and should extend from his neck to his feet, with close-fitting sleeves: this coat should not be kept in the building, but out of doors under cover, and it should be put on before he enters, and taken off out of doors after he has left the building.

He should visit only as often as is imperative; and should remain for as short a time as is really necessary to do his duty.

After every case of scarlatina, it is important to disinfect the cottage thoroughly; just as though another case would never enter the building, in order that it may not always be a hot-bed of infection.

All this "provision for sickness" is not complete—
Quarantine
Arrange-
ments.
especially for scarlatina—without ample means being provided for the thorough *quarantine* of doubtful cases; so that, while every case, on the merest suspicion arising, should be at once separated from the school, it may not be transferred to the fever cottage, until all doubt has vanished. I know of no more anxious or arduous duty befalling the physician to a great school than having to provide for several doubtful cases of scarlatina. To leave them in the boarding-house is wrong; to place them in the fever cottage is wrong; to put them all together in one room is wrong, for if one prove a case of scarlatina and the others are free, the latter stand the very greatest chance of being infected through exposure. The only proper and safe quarantine arrangement accordingly is, to place every doubtful case in a room by itself—using the ordinary sanatorium for this purpose if possible, as I have already explained—for the few hours during which the doubt remains; then carefully to disinfect every room which has held a true case, and

has thus become infected, before placing there another doubtful case.

By this strict isolation, from the beginning, of suspicious cases during their doubtful period, epidemics can be very much reduced, if not actually prevented.

Ambulance
Carriage.

Every public school needs some mode of conveyance for the removal of sick boys, unable to walk, from the boarding-house to the sanatorium, but especially for infectious cases, for which public conveyances ought never to be used. A properly-constructed ambulance carriage, drawn by a horse, is undoubtedly the best form of conveyance, which can, in the event of necessity, be transferred to the railway, and so a boy be carried to the door of his home; but inasmuch as it is only seldom required, it may be considered an unnecessary expense. The next best conveyance is a Bath chair which will shut up, and can be washed and fumigated inside without damage to it.

Games for
Convales-
cents.

A point not sufficiently considered in schools is the provision of occupation for those who have been ill, and have still to remain in the sick-house. Unless something be done for these boys, they are sure to get into mischief. Books are always provided for them; but boys cannot continue reading all day long, especially when their brains have wasted with their bodies during the illness. Moreover, the books are often so inappropriate in their *print*, and in their contents, that boys with wasted brains and wasted bodies do not take an interest in them on account of the great fatigue involved in understanding them. It seems to be forgotten that those who have been ill have not the same mental power as those who are well and strong; and books are often provided for convalescents which would be exceedingly

good for a healthy and strong boy's library, but which are worse than useless for sick boys. For rather than fatigue themselves with reading them, boys provide themselves, or their school-fellows supply them, with light reading and novels, and these often of the worst description—books which no young boy can read without the risk of serious damage to his character. Books are frequently read that would make a parent or a teacher blush were the reader detected; but these books find a ready hiding place under the bed-clothes.

What I am anxious to point out is that the fault does not lie with the pupil, whether boy or girl, but with the authorities who do not provide suitable books for those who are, or have been, ill. If this evil is to be avoided, some lighter literature, even children's books, in good large print, must be supplied.

Games of all kinds, both in-door and out-door, should be arranged for them. Tennis and cricket for fine weather; chess, draughts, backgammon, dominoes, and bagatelle, for bad weather. And if masters' wives—whose kindness and attention I am the first to recognise and appreciate—would teach convalescents knitting and netting and crochet, it would make many a weary hour pass more pleasantly, with great benefit to all concerned.

ARRANGEMENT AND MANAGEMENT OF SICK-HOUSES GENERALLY.

This is a matter of such paramount importance to the welfare of individuals and the school itself that it must be very carefully considered in every detail.

All arrangements in this world, of whatever description, when only required occasionally, are apt, unless very

great vigilance be exercised, to be always out of order just at the very moment they are wanted for use. School sick-houses—which sometimes are not used at all for several weeks together, especially infectious sick-houses—are a very good instance of this fact. There is only one way of getting over this inconvenience, and that is, to have them in such order that they are always ready.

Warming
and Airing.

To ensure adequate warming and airing, a certain construction of the *warming apparatus* is necessary, and special arrangements should be made and rigidly enforced by the constant personal supervision of the medical officer, on whom the undivided responsibility should rest for carrying out every detail in the working. Thus, all sick-houses, of whatever description, should be provided with proper means for being always kept warmed and aired, either by hot-water pipes throughout, hot air flues, or calorogens; besides having open fireplaces in all rooms, for fires when they are occupied. In this way the whole house can be always aired and warmed by keeping up one good fire when the house is not in use; this fire should be always burning in damp weather, and lighted every other day in fine bright weather, except in summer, when it should be lighted on every day that is damp or without sun. On every suitable day windows should be open throughout the house, by which means the whole house will be well aired and purified. Every now and then the water-closets and sinks should be overlooked and flushed when the house is not in use, though when the house-drains are properly cut off from the sewer, as they should always be, this is not of such paramount importance, as no sewer gas can then enter the house.

I have many beds under my care, and so completely

in working order are all arrangements that, from the day the boys return to school to the day they leave for the vacation, I can fill up any and every bed at any given moment without any other preparation than making up the bed or beds, and setting light to the fire in each room as required. By hot-water pipes throughout both sick-houses the *rooms* are kept aired and warmed, and the mattresses, blankets, and pillows, are also kept aired by being placed against the hot-water pipes, or by very large hot-water tins being folded within them for twenty-four hours each, in rotation. By thus keeping sick-houses always in perfect working order they can be used in sickness with impunity, and by no other means can they be safely occupied when sickness, as is generally the case, occurs suddenly.

It is indefensible for any school to place a case of illness or fever in a bed that is not well-aired, or in a room which is unwarmed. Nor is it enough that a fire be lighted, in a room previously shut up, immediately before the reception of the patient. The result of this is that the warmed air condenses on the cold walls and makes them reek. I do not think it possible to conceive a more deleterious condition for a recent acute fever case to be placed in, than within cold damp walls or a damp bed. Yet this happened in a well-known case, which was brought to trial, where death had arisen.

I have laid particular stress upon the importance of being thus ready for sickness in schools, which is usually more or less intermittent in character, because sufficient attention is not, as a rule, directed to the question, and preparations frequently are not made, nay, scarcely even thought of, until the illness actually occurs. This, in my opinion, is altogether too late : constant readiness for sickness of all sorts is needed, if we are to have our schools as healthy as they ought to be.

Cubic
space.

All rooms provided for sickness should allow at least 1,000 cubic feet for each non-infectious case, exclusive of the 800 cubic feet required for the nurse in attendance ; but for infectious illness 1,500 to 2,000 cubic feet are essential, and even more may be required if the case be severe or malignant, since such cases are generally much mitigated by an abundant supply of fresh air.

Ventila-
tion.

Besides this space, thorough ventilation must be given, free from draught. As a rule, the windows in the sick-room ought not to be opened during sickness, but the inlet for fresh air—which should be constant—should be from extensive and well-ventilated passages ; by this means the fresh air enters the room indirectly, instead of directly, and the patient is then less liable to draught than he would be if the window opened directly on to him in his room. Not only does this plentiful supply of fresh air benefit the individual, but in infectious illness too much stress cannot be laid on its importance to the community ; the poisonous element by such provision is more rapidly destroyed.

Tempera-
ture.

The temperature of the rooms should never be cold or hot ; as a rule 60° Fahr. is about the average ; though sometimes a hotter, sometimes a cooler temperature, is beneficial, according to the character of the illness.

Convalescents from any illness always need artificial warmth in cold weather ; and even then the temperature of the body is generally subnormal, varying from 95·5 to 97·5 Fahr.

Walls.

The walls of rooms for infectious cases should not be papered, but should be either painted or covered with silica, which will wash with a disinfectant several times ; or still better, made of Parian cement, which will wash

ad infinitum, and to which nothing will stick. In rooms for non-infectious cases silica is good, and lasts well, even when washed several times ; but colour wash may be employed, though in this case the walls need re-colouring annually, sometimes even oftener.

The floors of sick-rooms should be stained and varnished ; never washed, but wiped with a damp cloth every day when in use, and polished with beeswax and turpentine once or twice a week. Floors.

The furniture in all sick-rooms should be only as much as is really necessary for comfort and convenience, and on no account should carpets be allowed ; mats, however, may be used, the best being those made of cork, which will wash and are warm to the feet. Furniture.

In all infectious illness—especially scarlatina—if a succession of cases occur, and the same beds and the same rooms have to be used again, *a second case should on no account be put in the same room, or on the same mattress, or between the same blankets, until they have been thoroughly disinfected.* It is an infringement of this rule, I think, that accounts for the later cases being often more severe than the earlier ones ; the rule, therefore, ought to be very closely observed and carried out under the personal superintendence of the medical officer. Succession of Cases.

If it be important in a boarding-house, as I have striven to prove, to have the drains properly constructed, with the soil-pipe thoroughly ventilated, and all drains cut off absolutely from the sewer, it is still more so at the sick-houses ; for it is a serious matter to send a boy to a sanatorium for some comparatively trivial ailment, Drains.

and to have him contract while there, through faulty drains, a dangerous disease, such as typhoid fever or diphtheria.

In towns, therefore, all soil-pipes from sick-houses ought to be cut off from the town sewer, and in the country, earth-closets should be used ; or, if a cesspool exists, it ought to be far from the sick-house, on a lower level than the well, and should be treated as though it were a sewer by disconnecting it from the house.

Sick-house Laundry.

The washing of the soiled linen of sick-houses should be carried out on the premises, if possible, so as to avoid the chance of spreading infectious illness. Where this cannot be done, a laundry should be found where no other washing is taken in. On no account should any of the linen from the sick-houses be sent to the laundry where the washing from the boarding-houses is done. Of course, *theoretically*, all the washing of clothes in accidents and non-infectious illnesses could be safely done at the common laundry ; but, *practically*, there will always be the possibility of a mishap at some critical moment, and the infected linen will be sent where it should not go. The only safe rule is, therefore, a separate washing establishment.

Books.

In the sick-house of a school all kinds of infectious cases are received from time to time, and it is manifest that, in the provision of books for sick boys, some arrangement must be in force to prevent one kind of infectious illness being transferred to the subject of another kind of infectious illness through the agency of these books.

To carry out this important principle, one of two methods must be in force :—

(1) Either every book used during an infectious illness must be burnt immediately the illness is over, for

it is impossible to disinfect them, unless every page is separately treated, or the next reader will in all probability catch the complaint, a system which is very expensive and unnecessary.

(2) Or the sufferers from each infectious illness must be provided with their own books, for use only during the illness. This will entail endless trouble, confusion, and mischief, unless a certain plan is in force, and then it becomes simple enough.

The plan which I myself adopt is to paste a band of coloured paper, two inches wide, round the back and over both the covers, so that it is plainly visible, as the main feature of the outside of the book, whichever way the book lies: thus, scarlet for scarlatina; yellow for chicken-pox; blue for measles; green for roseola; white for whooping-cough; black for small-pox; brown for mumps, and so on. Then each parcel of books is kept in a large box in a well-ventilated box-room.

It is imperative that the treatment of those who are ill at school should be solely under the control of the medical officer in charge, subject, as I have already said, to consultations whenever it is deemed necessary.

The treatment of the sick at school.

(1) *Food*.—During the time a boy is in the sanatorium on account of illness or accident, he should have no food supplied to him except through the medical officer, and nothing but what he orders or sanctions should ever be given, from whatever source it may be sent.

If it be thought that the medical officer fails to provide a sufficient variety of food, or not sufficiently tasty articles for those who are bad feeders during or after illness, he should be spoken to about it. He can then explain, if needful, the reason of the course he is pursuing. It seems frequently to be forgotten that it is clearly to the interest of the doctor to cure and get rid of the illness,

and to strengthen the boy for his school-work, as quickly as possible, and that he can have no other desire than the patient's welfare, when he does not pay for the food, but only orders it at the expense of others.

I know that parents will often grumble ; but it is not surprising to any one who knows anything about the feeding of sick boys, when the unwise articles of food are seen which are sometimes sent by parents.

I know also that boys, accustomed to continual self-indulgence in eating and drinking, generally find fault with sick-fare ; but this is not to be wondered at. Who does like sick-fare ? or, who likes sickness itself ? It is not a question of what boys like when ill, but what is the best way for them to get out of the illness as soon as possible, without its leaving any permanent ill effects. But the young do not realise this, and, naturally, dislike the ordeal. I remember the following amusing incident, which happened to me some years ago. I had several boys ill at the same time with one of the mild infectious ailments, for which they were kept in bed, and allowed a milk and farinaceous diet only, for the first few days. Amongst these boys was an elder one—a “swell.” He found fault with his fare, much to the amusement, and silent participation too, I have no doubt, of all the rest. I explained to my patient that it could be no pleasure to me to deny him anything, that I did not pay for his food, and that I only withheld some foods from him for his own good, and to prevent him being more ill. He was, however, implacable, and my explanation did not satisfy him. So, as he had arrived at the years of discretion, I told him he could have for his dinner anything he liked to order ; and I told the nurse, who was standing at my side, very much amused, to provide him with whatever he told her that he wished to have : I forget now what he chose. But the next day, and for several days,

he was very poorly and miserable, and scarcely able to take what I desired to give him. He expressed regret that he had been so unwise, and assured me that he felt I had only his welfare at heart when I restricted his diet. His smaller schoolfellows, convalescent and enjoying their food many days before he was able to, quietly enjoyed the fun of seeing the reward of unreasonable discontent.

For a well-to-do master to send delicacies to individual boys when they are ill at the sanatorium, is a vicious principle. It wrongs all his colleagues: those who conscientiously will not interfere in illness, and those who are not so well off; and it does the recipient no good. However, if masters or parents will send eatables to the sanatorium, even to convalescents, the course to be pursued by the medical officer is perfectly clear—they should be divided amongst all the schoolfellows who are in the sanatorium at the time. This is the only way to prevent jealousy arising, owing to one boy having something to eat different to another who is, or has been, ill with the same illness, and thus an unwholesome rivalry amongst house-masters themselves will be avoided which can only lead to invidious distinctions.

(2) *Medicine*.—The requisite medicinal treatment of sick boys at school, still more of those in the sanatorium, should be exclusively in the hands of the medical officer. At present this is not the case; and, as far as I can gather, it is very far from it: I suppose because the love of amateur doctoring is inherent in human nature. Those who attempt quack doctoring forget, or never realise, that a remedy, when inappropriately given, may not only do no good, but, as is only too often the case, positive harm. Beyond and above this, however, the greatest harm is effected through the unfortunate patient being prevented using the appropriate remedies of the physician until the

amateur fails or gets frightened, and the disease has thoroughly developed itself, and is thus made more difficult of relief and cure.

It is not so very long ago that I heard of a head-master's wife—with the best intention, no doubt—administering belladonna to healthy boys every morning as a prophylactic against scarlatina, which was rife at the time, on the childish notion, I suppose, that a drug which produces redness of the skin, when taken in poisonous doses, will prevent the advent of a disease, one of whose characteristics is that it is accompanied by a redness of the skin—the futility of which theory the late Dr. Warburton Begbie proved after a most careful and thorough investigation.

In all earnestness, I would ask, “How many parents, had they been asked, would have approved of such a proceeding?”

Also, I have heard of another head-master's wife having prescribed, and sent, a remedy for a boy in a sick-house. When the medical officer in charge found it out he returned the remedy to the lady, with his compliments; which involved remarks not highly flattering to himself, although he was not the offender, and only desired to do his work unhindered by underhand proceedings.

(3) *Report of sickness to parent.*—When boys are ill, and lodged in the sick-house—as they should always be—a report should be sent to the parents: and the proper person to send such a report—through the house-master—is the medical officer in charge. Parents would then hear of the illness first-hand, and thus a more accurate account of the illness itself, and of the daily state of the patient, would be furnished, which would instil confidence in the mind of the parent, and obviate needless alarm, whether such alarm has been caused from ignorance of the nature of the illness, or on account of the actual state of the

patient through insufficient information having been sent, or through the incapacity of a non-medical authority to convey an accurate idea of the importance, or the trivial nature, of the illness.

Where the medical officer unwisely sends an unintelligible account, then the parents can ask their own medical adviser to interpret the nature of the illness and the state of their child to them.

INFECTIOUS ILLNESS.

The subject of infectious illness at school is of the first importance to all schools, especially those where the younger boys are educated. These diseases are always a cause of anxiety, and often entail a serious interruption in work. They vary to an enormous extent in different schools. In some, owing to a damp situation, causing a want of vigorous health: in others, owing to their being situated in towns; in another, owing to the boys being crowded together in boarding-houses in hundreds instead of in tens; in others, on account of the most faulty sanitary arrangements; or, because of the boys being overcrowded, and insufficient air-space and a want of cleanliness occurring in consequence; or, because of an impure water supply; or, because of imperfect medical arrangements, so that infected boys are not immediately and completely isolated from the others; and, actually, because boys suffering from many of the infectious illnesses are treated in the boarding-house with those who are not infected. Is not this a disgrace in this nineteenth century? Nothing short of a *government inspection* of our high-grade schools will ever make them what they should be; and even this plan will not be sufficient

without an *annual publication* of all cases of infectious illness occurring at school, so that the public may protect themselves and their children. At the bare suggestion of such an annual return, methinks I see this and that great school setting its house in order long before the first return has to be made, rectifying everything that could possibly cause illness, or even deteriorate general health, so as to ensure the highest state of vigour, in order to obtain as clean a bill of health as possible. It would prevent over-crowding, cure faulty drains, remove refuse heaps, and provide a good water supply, more than any other scheme that could be devised. For the school that always had a large percentage of infectious illness would soon lose its pupils. It would then either remedy its defects, or become defunct through its own inherent incapacity. We should not then hear of schools which number their infectious cases by hundreds, or of another which managed to obtain diphtheria at the rate of nearly a hundred cases in a year, ending fatally in two cases—a master and a boy.

Schools will never be exempt from infectious illnesses—unless we are able by-and-by to prevent them by inoculation—but they should be under some effective control. At the present time some schools are, I think, criminally careless about them.

This question of infectious or zymotic diseases is largely one in which cleanliness of person, of clothing, residence, and general surroundings, are intimately concerned.

What is infection? It is the communication of a disease from one person to another, by means of a material poison, which is capable of re-development in the system.

Parkes quotes three views of infection or contagion—

(1) The particles are of animal origin, born and growing in the body; minute portions of bioplasm or

protoplasm, upon which all germination, growth, and multiplication depend. These fomites are independent organisms, having movements, and growing and dying. Each kind is capable of manifesting only its own specific action—*i.e.*, originating its own specific disease, as scarlatina or measles (Beale).

(2) The particles are of a fungoid nature, and grow in the body, after being introduced from without.

(3) The particles of contagia are of the nature of the Schizomycetes—*i.e.*, members of the lowest stratum at present known in the animate world. They are variously called Bacteria, Bacilli, Microzymes, Vibrios, Spirilla, Monads.

That these particles are *intimately concerned* in some way in many diseases is now beyond dispute. The conclusion that they constitute the *actual cause* of disease is within a measurable distance of being proved to be an indubitable fact.

Lister showed that such particles are concerned in septicæmia. A bacillus has been discovered for splenic apoplexy; another for typhoid fever. Cohn says that the glistening particles of "vaccine" are bacteria. Koch traced phthisis to a bacillus, and has recently, in Egypt and India, apparently discovered the bacteria of cholera, which, however, Klein disputes; further investigation is requisite before this momentous question can be decided; for there is special difficulty attached to its investigation, as the germ will only develop in a certain soil, and that, apparently, outside the human body.

Each disease has its own special physical signs; and the bacteria, as a rule, are found mostly in the particular tissues affected. Thus, in scarlatina, they are found in the epidermis and the epithelium of the throat; while in typhoid fever they are discovered in Peyer's patches; and in case of small-pox in the pustules.

The next question is, Can these infectious illnesses in schools be prevented or diminished?

There is no doubt on this point! By cleanliness in the person and surroundings, and residence on a healthy site, by regular daily exercise, by full, but not excessive, mental work, and by the absence of articles of food which disagree, the highest state of health is secured so that these germs of lower life—really parasites—find greater difficulty in their growth and multiplication, it being a well-known law that all parasites exert their sway with greatest power on animal and vegetable life whose vitality is diminished. The greater the vigour of the animal or plant, the less the chance for the parasite.

What can be done in one of our great schools in the prevention of infectious illnesses is shown by the following table.

TABLE OF INFECTIOUS ILLNESS IN RUGBY SCHOOL
FROM APRIL, 1871, TO APRIL, 1886,
WITH AN AVERAGE OF 400 BOARDERS.

NAME OF ILLNESS.	Total number of cases.	Total number of cases per annum.	Per cent. per annum.
Measles	180	12·0	3·0
Roserash, or Epidemic Roseola	131	8·73	2·18
Mumps	115	7·66	1·91
Scarlatina	57	3·8	0·95
Chicken-pox	33	2·2	0·55
Whooping-cough	18	1·2	0·3
Ringworm	10	·66	·166
Diphtheria	3	·2	·05
Typhoid fever	2	·13	·03
Erysipelas of face and head.	1	·06	·01
Small-pox	0	·00	·00
Total of all cases of Infectious Illness among 400 boys in 15 years .	550	36·66	9·16

This table shows how the "infectious diseases" of the young, even when they are congregated together in large numbers, may, by an accurate knowledge of their "life history," by the advancement of sanitary science, by adequate provision for the immediate isolation of every case, and by placing in quarantine every suspicious case, be held in check. It shows that small-pox may cease to be a disease of school life by efficient re-vaccination. It further shows that in this school "filth diseases," such as diphtheria and typhoid fever, depending mostly upon unsanitary conditions of life, such as impure water, imperfect drains, and decomposing refuse heaps, have been all but exterminated.

It also proves that "epidemic roseola" is in fact the most infectious disease of all; for, although measles shows an actual larger number of cases, yet if every case of catarrh could be isolated for four days, which is impossible, as no school could go on working, it could be more readily held in check than roseola, which, even with instant isolation, still spreads extensively whenever it arises.

If a similar record were taken of zymotic diseases occurring amongst an equal number of young people of the same ages, and distributed over an equal number of years, living in families, instead of thus congregated in a school, I doubt very much whether as clean a bill of health would be found, on account of the excellence of the means of isolation and the completeness of the medical organisation.

In a few years I trust that all schools will be less pestered by these internal parasitic diseases, for Pasteur has already shown that by vaccination with *modified* micro-organisms of chicken-cholera and anthrax, immunity is obtained from the action of *unmodified* micro-organisms.

We are, however, interested in a wider question, and inquire whether all infectious diseases are the result of bacteria, and if so, whether such specific preventives can be adopted for them all, as is the case in small-pox, malignant charbon, chicken-cholera, and other diseases.

It is impossible to discuss this question here. I would only, in a word or two, point out what vaccination has done in the case of small-pox; and earnestly hope and believe that by-and-by the same beneficial results will be effected in the case of all other zymotic diseases.

THE CAUSE AND PREVENTION OF INFECTIOUS ILLNESS ARISING WHILE AT SCHOOL.

Infectious Illness at School may arise from various sources, some of which I proceed to enumerate, with their remedy:—

SOURCE.

1. From the *town* and neighbourhood where cases already exist.

PREVENTION.

1. Liberty, during play hours, is a rule at all public schools; and while there are "out of bounds" districts, the town is generally not forbidden; and I would not lightly advise any infringement of this wholesome liberty of our public schools, so valuable a condition of their healthy life. Nevertheless, it is a constant source of infectious illness; and whenever a town epidemic prevailed, it would be sufficient to acquaint the boys with it, as they would keep away without the necessity of putting the town "out of bounds": boys are always afraid of infection.

SOURCE.

PREVENTION.

- | | |
|--|--|
| 2. From <i>day scholars</i> often bringing infectious illness into school from an infected home. | 2. As day scholars cannot be abolished, school authorities should encourage the greatest openness in such matters from parents, and be always on the alert, and equally open themselves in return, which is not the case at the present time. |
| 3. From infectious illness occurring among masters' or medical officers' children. | 3. Such cases of illness in masters' or doctors' families should be most strictly isolated, or, better still, sent into the sanatorium or fever cottage, as if they were pupils in the school itself; otherwise infection may be carried amongst the boys of a house or form. Masters' and doctors' houses should be above suspicion in such a matter. |
| 4. From the <i>laundry</i> —a constant source of anxiety and doubt. | 4. Where schools can, they should have their own laundry, as many have already; this is the only way to prevent infection from such a source. |
| 5. From the <i>dairy</i> . | 5. Every great school should have its own dairy; or be supplied with milk from <i>one</i> reliable source, which should be under the supervision of the medical officer. |
| 6. From the <i>sewers</i> . | 6. The only security against this source of illness is to cut off the soil-pipe and house-drains absolutely from the town-sewer, as I have advised; to ventilate the soil-pipe; and to see that the town-sewer is thoroughly ventilated and flushed periodically. Parents should make all these necessary inquiries themselves, and should not leave them to chance. |

SOURCE.

PREVENTION.

- | | |
|---|---|
| 7. From <i>cesspools</i> , one of the most fertile sources, and often causing the most dangerous illnesses. | 7. Earth-closets should be employed in their place; and if cesspools be used at all, there should be no possibility of their overflowing into a well; they should be cut off from the house-drains and well ventilated. |
| 8. From <i>impure water</i> , especially when contaminated with sewage. | 8. No well should be used in a town; wells in the country should be so placed and constructed that no surface-water can get into them. All water should be properly filtered. |
| 9. From <i>railway journeys</i> to neighbouring towns for various purposes. | 9. These journeys, as far as possible, should be forbidden, as they are a frequent source of infectious illness in a school; for other school reasons they should be reduced to a minimum, if allowed at all. |
| 10. From "exeats." | 10. Exeats should be abolished in all schools, now that "terms" exist instead of "half-years"; there is not a single good word that can be said for them, they are only a relic of the past. |

THE PREVENTION OF EPIDEMICS.

Epidemics in schools are so serious—because of the number affected, however slight the nature of the illness itself—that the most vigilant care to prevent them is at all times imperative.

They sometimes either damage a boy for life, or cause his death; and they will make even an old and well-established school totter to its foundation, if they be

severe or frequent. The question, therefore, that concerns every one is, How are epidemics to be guarded against, and how can they be reduced in frequency and severity?

1. By *instant isolation* of the first case, together with his nurse, where the faintest reasonable suspicion can arise; and the same treatment in each succeeding case. Means should be provided for this purpose, which, although costly, would save in the end a large amount of money.

2. By perfect *quarantine* regulations and accommodation.

3. By perfect *disinfection* after the illness itself, or after even the slightest exposure to the illness.

4. By plenty of *cubic space* to live in, and thorough *ventilation*, in all boarding-houses and class-rooms; so that disease germs may have no favourable soil in which to develop.

5. By efficient *d. ainage*.

6. By *pure water*.

7. By the production of such a high condition of health in every boy that he will be less susceptible to the re-development of the poison.

We should remember what my able master, John Simon, taught:—"That a contagium of a given disease, such as small-pox or measles, has no more power to influence the un-predisposed body, than yeast has to ferment alcohol, or to turn pure water into beer."

8. By *books* which have been used by an infectious patient before he is isolated, even at the beginning of his illness or during his convalescence, being destroyed, as it is impossible to disinfect them properly, unless every page be treated separately, which, it is needless to say, would rarely be safely carried out.

DISINFECTION.

Notwithstanding all precautions for the prevention of infectious illness in a school, it will arise from time to time. It is necessary, therefore, to discuss the means, when a case of infection has arisen in a school, of rendering the patient, after the illness is over, sufficiently safe to mix with his schoolfellows without spreading the disease. This is effected by complete destruction of the germs which have caused the illness, by the process termed "Disinfection."

After infectious illness has broken out many questions arise, and the one most anxious to schoolmasters, and often involving the greatest annoyance to parents, is the period when a boy may safely return to school after an infectious illness has appeared at *home*; or when the boy may safely re-enter school, or go home, after an infectious illness has occurred at *school*. The time lost in such cases—waiting for freedom from infection—is irritating in the extreme to all concerned; the parent thinks he is paying his money for a thirteen weeks' term, and finds six weeks lost through his son not being free from infection, and therefore unable to mix with his school-fellows; the master is annoyed at the boy not only losing his time and his position in the school, but also at his becoming demoralised in consequence of his comparatively enforced idleness; the boy himself is sickened and disheartened with his imprisonment and isolation: so that all suffer.

This anxiety and annoyance can be greatly mitigated, if not, indeed, almost obviated, by efficient disinfection of the person, clothes, bedding, and room of the sick boy and his attendant.

This is best achieved by great cleanliness of the body so that any poison on the skin, as in scarlatina, may be rendered inert as rapidly as it is formed. Various disinfecting soaps are efficient for this purpose, such as carbolic soap, terebene soap, coal-tar soap ; or fluids added to water or oil, such as carbolic acid, terebene, sanitas, or Condyl's fluid ; or "acids," such as sponging the body with aromatic acetic acid, or simple vinegar, which is an excellent destroyer of organic poisons.

Disinfection of the Person.

Disinfection of the person is absolutely useless, so long as the clothes and bedding remain saturated with poison, which they will retain for months.

Disinfection of Infected Clothing and Bedding.

Howard, a century ago, said,* "There should likewise be an *oven* ; nothing so effectually destroys vermin in clothes and bedding, nor purifies them so thoroughly when tainted with infection, as being a few hours in an oven moderately heated." The way this plan was carried out was to put "his clothes into an oven, in a sack upon a pair of iron dogs." The verdict of sanitary science still is, that the best method for the disinfection of clothes and bedding, is dry, or moist, heat.

Henry, of Manchester, showed that vaccine virus lost its power, after being heated for three hours at 140° Fahr. He disinfected scarlatina clothing by exposure to a heat of 212° Fahr. for one hour. The woollen clothing worn by plague patients, after being heated for twenty-four hours at 144° to 167° Fahr., was afterwards worn with impunity by fifty-six healthy persons for fourteen days. But experiments on bacteria have shown that they are difficult to kill.

Lex found that 260° Fahr. failed to kill them, and after boiling for half an hour they still showed vital movements.

* "Prisons," p. 45.

Calvert found that 400° Fahr. was required to destroy them.

Bastian stated, before the Royal Society, that bacteria and vibrios are killed at a much lower temperature; 158° Fahr. either killed the bacteria germs or destroyed their powers of multiplication.

Sanderson says that bacteria in water are not developed in fluids heated to 366° Fahr., or even when boiled.

Tyndall stated, before the Royal Society, that while prolonged boiling failed to sterilise, yet successive heatings for a short time, even below the boiling point, were successful.

It is said that "disease bacteria" are more easily destroyed than "putrefactive bacteria" (Parkes).

Dr. Vernon contributed a paper to the *Lancet*, in which he gave the minimum heat required to render the germs of disease inert. He reported that Parkes said 220° Fahr. was sufficient, but 250° Fahr. desirable; Ransome, that 235° Fahr. was sufficient, but 255° Fahr. desirable. Henry recommended 212° Fahr. for an hour. Wynter Blyth stated that 278° Fahr. retards development, but that all the bacteria were not destroyed. Esse, of Berlin, advised 234° Fahr. moist heat. Vernon said that moist heat was more potent than dry heat, and that 250° Fahr. moist heat was effectual; but in experimenting he found that the dry heat scorched linen at 255° Fahr., and ignited it at 380° Fahr., whereas moist heat of 340° Fahr. failed to scorch. Watson Cheyne maintains that spores are not destroyed unless they are exposed to a current of steam for about three hours.

However much physiologists differ as to the heat required to destroy the infectious germs of disease, the physician, who has to prevent the spread of these diseases, has to come to some definite and reliable conclusion.

The heat required for disinfecting purposes is best generated in what is called a "disinfecting chamber," heated by gas, coal, or coke. Into this chamber the clothes and bedding are placed. It will be found one of the greatest boons to parent, master, doctor, and patient.

A large and daily experience with the use of the disinfecting chamber makes me desirous to extol its virtues in no measured terms; for of all the inventions of modern times there is nothing that can exceed in value the "gas disinfecting chamber" for the practical physician who has much infectious illness to deal with.

There are several forms of this "Disinfecting apparatus" in use at the present time all over the country and all are of value. It is made to be worked with either gas or coke, gas being far more easily managed; ready management, of course, also adds very much to its usefulness, which is no small item in carrying out disinfection properly. The most perfect one, I believe, is the "Nottingham Self-Regulating Disinfecting Apparatus;" Jennings' is also a very good one; but Nelson's, of Leeds, of which I have had long experience, is cheaper, is trustworthy, and answers admirably in every way.

The *heat* is raised until the thermometer registers a minimum of 140° Fahr. outside—the heat inside being about 60° Fahr. above this, or 200° Fahr.—and it may range from 200° Fahr. to 250° Fahr. inside without damage to articles of clothing or bedding. It takes about twenty minutes to get thoroughly heated for use; and in this chamber every soiled and infected article can be rendered free from infection within a reasonable time—from twenty to sixty minutes after the attainment of full heat, varying according to its size, material, and thickness.

Vacher says,* "It is very remarkable that, whereas

* Loc. cit.

the typical contagious liquid—vaccine lymph—survives the intense cold produced by solid carbonic acid and ether (*i.e.* a temperature of 166° Fahr. below the freezing point of water) it is killed by exposure to a temperature of 150° Fahr.”

I have never known a case of infection occur through imperfect or ineffectual disinfection by this hot-air process. And my experience includes cases of infectious illness—after convalescence and disinfection—being sent into school again where several hundred pupils were living together; others were sent home, where young children were residing, and even mattresses, on which scarlatina cases had slept for six weeks, have been occupied, after disinfection, by those who had not already had scarlatina and in consequence were not protected. Such tests are crucial.

It has been suggested that in the use of these chambers sulphur should be burnt in them, so as to submit all articles to the fumes of sulphurous acid at the same time. The suggestion is excellent, but unnecessary, unless it be found by this addition that the required degree of heat can be lowered.

Mattresses and pillows take about three-quarters of an hour to an hour to become thoroughly purified, and every mattress that is required for a second case, even of the same infectious illness, should be thus purified and rendered free from infection before being used again.

Recently “superheated steam” has been employed, with these advantages—That a less heat is sufficient, and that it damages articles of clothing less than the dry heat. Moreover, as already stated, Watson Cheyne regards this form of disinfection as the most reliable.

Of course all clothing that will wash should be

washed ; but all articles that cannot be washed can yet be rendered perfectly safe from infection.

The benefit obtained at schools by this apparatus for the disinfection of the clothes and bedding is palpable ; but there is another gain, even greater, involved in its use, on the re-assembling of schools after the vacation. I shall explain myself best by stating cases, which will be more readily followed.

First, take an example of an infectious illness arising *at school*. A boy has, say, measles ; as soon as the illness is over, and he has been up and out of doors for several days, he can be daily washed all over with carbolic soap. His clothes can then be passed through the disinfecting chamber, and he can return to school safely. His mattress and bedding also can be rendered free from danger, and ready for another case should occasion require.

If I now state what used to be the process followed, the gain obtained will be clear. After every case of infection, however trivial, the clothes had to be disinfected as best they could, by sulphur fumigation and washing, or else a farm had to be found, after a great deal of trouble, in the country, and there the boy was sent for as long as was necessary, according to the nature of the attack and of the illness ; his bedding had to be soaked in a disinfectant, which damaged it, or else it was sent to an upholsterer to be taken to pieces and thoroughly disinfected, at considerable expense.

Secondly, take three examples of infectious illness occurring *at home* during the vacation, and observe the service of this apparatus.

A boy has measles in the vacation. The illness is over, and he is ready to return to school ; but he comes from an infected house, and his clothes are saturated

with poison. What is to be done to protect the school from the admission of poison?

Instead of having to send him away from all source of infection for a time, he can—after home disinfection—come at once to the school sanatorium, be there thoroughly disinfected, and then enter his boarding-house without danger to anyone.

A boy's sister has scarlatina. He himself has had it at some previous time, but he has been with his sister, or mixed with those who have been in the sick-room; and although there is little chance of his having it a second time, yet his clothes are infected. How is the school to protect itself? Instead of sending him right away from all chance of infection in order to purify his clothes, he can come to the school sanatorium to be disinfected, and then enter his boarding-house with safety to his school-fellows.

A boy's brother has scarlatina. The boy himself has never had it, but has been with his brother; is he therefore already infected? Is it incubating in him? In this case, he ought to leave the house and be free from all chance of infection for eight clear days; then, if he show no symptoms, he may be disinfected and return to school.

The disinfecting apparatus has proved, together with other precautions, an immense boon; for the greatest period of anxiety to schools is the first ten days of term. Where boys come from all parts of the country, the question is—What illness has been brought back to school?

The following regulations may serve as a guide to parents and masters as to the return of infectious cases to school. For instance, a parent writes to say he has scarlatina in his family at home, and desires to know what the school authorities require concerning the return

of a son to the school ; the master consults the medical adviser to the school, who fills in the following form, according to the nature of the illness :—

REGULATIONS APPLICABLE TO THE RETURN OF
INFECTIOUS BOYS TO SCHOOL.

1. If your son has had (say, scarlatina), he may safely return to school at the time appointed, provided he come straight to the sanatorium to be disinfected by the school authorities.
2. If your son has not had (say, scarlatina), he must be removed from your house, and hold no communication with any member of it, for (scarlatina, eight) clear days ; and then, if he show no symptoms of the illness, he should come straight to the sanatorium for disinfection.

(Signed),

Medical Officer to.....School.

Date.....

Where there is no disinfecting chamber in use, the clothes and bedding may be effectually disinfected by soaking them in a solution of carbolic acid and water ; this is the plan I adopted before I was able to use a heat chamber. Others place them in chloride of lime ; others in acids, and then expose them in the open air until they are dried. Another plan I have frequently used, and employ still, is by fumigation, in a well-closed room, by burning sulphur ; with care, and method in spreading out the garments that need disinfection, it is a safe and easy method, and purifies the room itself at the same time. I need scarcely add that in the process of disinfecting every detail should be conscientiously carried out.

For schools which have no disinfecting apparatus, certain rigid rules for the preservation of the school are

necessary, before a boy can enter or return to school. This involves the "duration of effectiveness," which will be considered presently.

Disinfection of Rooms

The disinfection of the person and clothes must be supplemented by the purification of the infected room. The former can, I believe, be always thoroughly purified and rendered safe; it is not such an easy matter always to make the poisoned room safe, for scarlatina has frequently arisen in the unfortunate person who has been the next to occupy the room after it has been infected, even after a lapse of months. Is it from careless disinfection?

The greatest purifier for all infected rooms is plenty of fresh air, added to which there should be thorough cleansing with soft soap and water, to which carbolic acid may be added. They should be further disinfected by the fumes of burning sulphur, or by nitrous acid fumes.

CONVALESCENTS AFTER INFECTIOUS ILLNESS.

If the subject of a "Convalescent Department" were mentioned to the masters of most schools they would not understand what was meant by it, for little, if any, thought has been bestowed upon the subject. The Gordian knot is usually severed by returning boys to their homes immediately after the termination of an infectious illness, to their serious detriment and to the risk of the family, and, through them, to the whole community. The payments levied by schools for educational purposes should include not only board, lodging, and tuition, but should also provide for the care of boys during illness *and* convalescence; and infectious convalescents should

never be sent, or permitted to go, home until they are able to mingle with relatives and friends with impunity, and until they can travel without leaving a trail of infectious germs behind them in railway carriages and cabs. When this rule is observed with some amount of faithfulness there will be a lessened number of cases of infectious diseases in our schools and homes, and a diminished mortality to mourn over.

In all infectious ailments, after the illness itself is over, if only *a case or two* have occurred, convalescents may be retained in the sanatorium until fit to go home or to return to school, provided always a sufficient time has elapsed, and efficient disinfection of clothes has been carried out ; and as no such case should be permitted to re-enter school until perfectly safe, so no case should be allowed to travel in public conveyances until free from infection.

But where *many* cases occur, following each other rapidly, the beds are required for fresh cases ; and as one batch is convalescent it should be removed, and the rooms and bedding disinfected before being occupied by another batch. The question—Where are they to be removed to ? is often one of great difficulty and anxiety. Of course, no invalid must be touched on any account until he himself be perfectly safe for removal—nay, more, until removal would be beneficial to him other provision must be made. Personally I have, though sometimes with great difficulty, always been able to find a farm, situated quite in the country and away from all houses, kept by a farmer and his wife (who should be a trustworthy, motherly woman), without children. Here we send boys as they are ready, and they eat, drink, sleep, and enjoy themselves beyond measure, and are generally loth to leave.

BREAKING UP A SCHOOL ON ACCOUNT OF THE ADVENT
OF MALIGNANT INFECTIOUS ILLNESS.

This difficulty may at any moment arise at any school, and require a quick and judicious decision on the part of the authorities.

If a single *malignant* case of infectious illness occurs in a school, it is the duty of the medical officer to acquaint the head-master with the fact at once, warning him that it may be the nature of the poison—malignant—which has caused it, though possibly it may be only a *mild* poison, which happens to affect the individual severely, owing to his idiosyncrasy. But should a second case arise, it is his duty to lay the matter clearly before the head-master in a form beyond misconception, for the blame of neglect or ambiguity would rest on the medical officer.

The head-master then, if he think it necessary, can give all parents, *whose sons have not had the illness previously*, the opportunity of removing them if they wish; but, in my opinion, no school should ever be broken up and the boys dispersed to their homes, where, perhaps, there are families of young children, whether the parents wish it or not. The illness was developed at the school, and the authorities should make all necessary provision for its treatment; and the onus of removing a boy from the school at all, with the risk of illness or death to other children, and spreading the infection in all parts of the country, should rest with the parents, and not with the school authorities.

Further, I strongly hold that a head-master has no right to keep such fatal illness in a school from the knowledge of the parents, but should kindly, as he would wish to be done to himself, acquaint the parents of the fact, tell the exact truth as to the number of cases

and the way they have been dealt with, and convey any further advice and help he may think proper. Such frankness on the part of the head-master would be reciprocated by equal candour and confidence by the parents.

The medical officer's report to the head-master might be in the following form :—

REPORT FROM THE MEDICAL OFFICER TO THE
HEAD-MASTER.

1. There is a case of malignant (say, scarlatina) in the sanatorium.
2. It is just possible that this may be only a single case, which has taken a malignant form owing to the peculiarity of the constitution of the boy.
3. But it is probable that it is the first case of an epidemic of a malignant type.
4. Within eight days—most likely on or before the fourth for scarlatina—this point will be determined.
5. Then should a second case occur of a malignant type, I shall feel it my duty to advise you that every parent, whose son has not already had the illness, should have the option of removing him at once.
6. My reason being that in every epidemic of such a malignant type of (scarlatina), every case would be likely to assume the same character, and the disease would in all probability be very fatal.

(Signed),

Medical Officer.

Date,

All boys thus removed should take home a certificate, acquainting the parents with the period of incubation of the illness; the time during which the boy should be kept apart; and the date at which he may, without danger, mix with the other members of the family. I append a form as a guide:—

MEDICAL CERTIFICATE.

Your son may be already infected with.....
and the illness may be incubating in him; if so, it will show
itself within.....days.

If no symptoms present themselves by.....
he may be considered free from the illness, and may safely join
the other members of your family.

(Signed),

Medical Officer.

Address,

Date,

But in dispersing a school it is necessary to remember that it is only those boys who have *never had the disease* who need the privilege of going home; those who have had it may safely remain at work. For in forming regulations for infectious illness in schools it is essential to bear in mind the very important law in medicine—ably taught by Cullen a century ago, but now too often overlooked—that one attack of an eruptive fever—*e.g.* measles or scarlatina—grants an immunity from a second attack in the same individual. The “germs” of infectious diseases apparently require a virgin soil for their development; a prior attack appears to so exhaust

the soil that it is incapable of furnishing a suitable nidus for the reproduction of the germs. This law is so true—for the exceptions to the rule are so few that they may be regarded as scientific curiosities only—that for the guidance of every-day life it may be held as an absolute and invariable fact. This truth is well-known and constantly taught, though often ignored by some from want of accurate observation and diagnosis. For instance, it is necessary, however difficult sometimes it may prove, not to mistake measles, epidemic roseola, simple roseola, and caterpillar rash for the same thing, and thus avoid calling each illness another attack of measles—I constantly hear of even third attacks of measles. Nor should scarlatina, epidemic roseola, and erythema be mistaken, and called three attacks of scarlatina. Nor ought erysipelas, erythema, and urticaria to be confounded, and termed several attacks of erysipelas—yet this is commonly done.

The breaking up of a school, too, is such a serious and expensive matter that it should never be resorted to unless the cases of illness be extremely numerous, or, owing to malignant illness, the question be one of life or death; though the difficulty, when it arises, should be promptly faced and action taken without a moment's delay.

THE PREVENTION OF INFECTIOUS ILLNESS BEING
CARRIED HOME FROM SCHOOL.

As it is the parent's duty to see that infectious illness is not taken from home *to* school, so it is a master's duty—equally important—not to allow infectious illness to be carried home *from* school; he should therefore inform parents when infectious illness has occurred towards the end of term. Of course, no boy who had had the illness ought to be allowed to go home until he was perfectly free from infection and able to mix with others; this, I regret to say, is not the case at some schools, for boys are sent home immediately the illness is over, even with a printed circular stating that they are highly infectious still, infecting railway carriages and cabs *en route*. But I am referring to a boy who may have caught the illness, which is incubating in him, and which will show itself at its natural time, but who, to all appearances at the time of leaving school, is quite well, and may continue so for many days, and yet exhibit, at the appointed time, the illness at home. The parent, not knowing it is likely to occur, makes no preparations, may be about to travel with his family abroad, may be at a distance from all medical assistance, and then find to his cost that he has been carrying a deadly and expensive enemy with him on his holiday trip.

Such a possibility should never be permitted to occur. Every parent should be informed by the master of the fact, and thus be warned in time of what may possibly happen. Every master, therefore, when such infectious illness has occurred near enough to the end of term for a boy to exhibit it after leaving school, should forward to the parent a form of certificate, similar to that appended,

warning him that his son may show a certain illness within a specified date—if he have not already had it—and so enable him to use precautions for the protection of his other children and his friends :—

THE PREVENTION OF INFECTIOUS ILLNESS AT HOME.

Some cases of (say, mumps) having occurred in Mr.house during the last few days of term, it is possible that your son may be infected, if he has not already had it, though every care has been taken to isolate each case as the illness showed itself.

Your son may be considered free if he show no symptoms within (say, three weeks for mumps).

(Signed),

Medical Officer to.....School.

Address,

Date,

But infectious diseases have at times curious vagaries, as the following case will testify. A. came home from school at X—, where measles or epidemic roseola had prevailed, quite well. He brought the germs of infection with him in his clothes, and gave them to his brother B., who had just returned from school at Z— where they had no infectious illness whatever. Then A. subsequently caught the illness from B., to whom he had already conveyed it by his clothes. This shows that at first A. was scarcely susceptible to the ailment, and that B. was very susceptible to it; while directly there was a concentrated dose of the poison, generated by B. in

his illness, A. succumbs and goes through the characteristic attack of the illness.

THE PREVENTION OF INFECTIOUS ILLNESS BEING CARRIED TO SCHOOL FROM HOME.

If such consideration and care as I have indicated be exhibited by the school authorities, parents will in their turn become more careful and conscientious, and schools will not then be in a state of anxiety and suspense for the first few days of term on account of the possible importation of infectious illness.

But it is necessary and very important for schools to protect themselves still further ; for we sometimes have

THE PREVENTION OF INFECTIOUS ILLNESS AT SCHOOLS.

Obverse.

There have been the following cases of infectious illness in my house during the vacation :—

1. Nature of illness.
2. Date of commencement of the last case of the illness.
3. Precautions that were taken.

4. My son....., who is at school at.....
has or has not had this illness.

Name.

Name of School.

(Signed),

Parent or Guardian.

This should be posted to the Master a week before the return of the boy to school.

careless parents to deal with—parents who do not mean harm, but who do incalculable harm.

I think, therefore, that every school, public and private, should supply a form of "certificate" to parents, to be brought back, signed by the parent, when the boy returns to school; and if he return without it, he should be kept separate from his school-fellows until it is obtained, or until, by the telegraph, a satisfactory answer has been received.

But I do not think it is reasonable or fair, as is sometimes done, to compel a parent to incur the expense and trouble of obtaining the signature of his medical adviser to a document which the parent can sign himself as efficiently and truthfully. The form of certificate might be as follows :—

THE PREVENTION OF INFECTIOUS ILLNESS AT SCHOOLS.

Reverse.

There has not been a case of any infectious illness in my house during the vacation, nor has my son, to my knowledge, been exposed to any infection.

(Signed),

Parent or Guardian.

The School Authorities regard the following Illnesses as infectious :—

Scarlatina.	Chicken-pox.	Relapsing Fever.
Diphtheria.	Measles.	Mumps.
Erysipelas.	Epidemic Roseola.	Whooping-cough.
Small-pox.	Typhus Fever.	Ringworm.
	Enteric Fever.	

This should be posted before the boy returns to school, or sent with him.

INCUBATION PERIOD OF INFECTIOUS ILLNESSES.

My information and guidance to masters and parents, in all that relates to school infectious illnesses, will not be complete unless I give a clear statement of the "periods of incubation" or latency of such illnesses—*i.e.*, the time from exposure to the manifestation of symptoms. By so doing much annoyance to parents will be obviated because they will then know the natural history of infectious seeds or germs, and will understand better that these seeds, like every other seed, have a specific time of development; and that all that is required by school authorities is an observance of the periods of their development, with a view to the preservation of the health of the boys in school.

The following table will serve as a rough guide, but all points on which a doubt can arise should be referred to the medical authority.*

A knowledge of the incubation period of infectious illnesses is of the first importance; but the accurate knowledge of the incubation period of scarlatina is of such moment to all our schools that no apology is requisite from me for discussing briefly a medical question in this non-medical treatise, for it deeply concerns all, parents, masters, boys, and doctors.

I think there is no incubation period so variously stated by different authors as that of scarlatina; I have heard it given from a few hours to twenty-eight days. Yet there is nothing more certain, in my opinion, than the fact that it never extends beyond a week, and rarely lasts so long. During the time that scarlatina is prevalent, it should be remembered that there is a class

* See Author's Paper, *Lancet*, October 29, 1881.

INCUBATION.			
Name of Illness.	Most commonly on the	But with the range of	Remarks.
Scarlatina ...	4th day	1—7 days	
Diphtheria ...	2nd day	2—5 days	
Erysipelas ...	4th day	1—7 days	
Small-pox ...	12th day	1—14 days	
Chicken-pox ...	14th day	10—18 days	
Typhus Fever ...	12th day	1—21 days	
Enteric Fever ...	21st day	1—28 days	
Relapsing Fever ...	5th day	2—16 days	
Measles ...	14th day the eruption appears.	10—14 days	Infectious during the catarrhal stage, which occurs for three days before the eruption appears.
Rötheln, or Epidemic Roseola }	14th day	12—20 days	
Mumps ...	19th day	16—24 days	Infectious for twenty-four hours before the parotid swelling is visible.
Whooping-cough ...	14th day	7—14 days	Infectious during the primary cough, which may be three weeks before the whooping-cough commences.

of sore throats—to all appearance often only simple acute tonsillitis, while at others having a membranous or sloughy appearance, and with a complete absence of eruption on the skin—occurring in those who have already had scarlatina : this kind of sore throat, however, is capable of passing on scarlatina to an individual who has not already been effected by it. Scarlatina is often spread extensively by this means ; for, if the patient has suffered previously from scarlatina, these sore throats are looked upon as simple non-infectious sore throats, and are consequently not carefully isolated for three or four days, as they should be ; being unrecognised therefore as centres of infection, the incubation period of scarlatina is miscalculated accordingly, entailing, in consequence, not only a scientific inaccuracy, but sometimes preventable disease and death.

Thus, A has scarlatina on June 1st, and is carefully isolated on the same day ; but, previous to his being isolated, he infects, or gives off germs which find a nidus in B's throat, who has already had scarlatina, with a sore throat, which appears on June 5th. B, not being isolated for this, goes about infecting his school-fellows for a week. Amongst others, C, who has not had scarlatina, is infected by him on the last day of the week, June 12th, and on June 16th C shows symptoms of scarlatina. Here A is regarded as the source of infection of C, and his case accordingly is regarded as one of sixteen days' incubation.

Again, B infects many boys, who have hitherto had scarlatina, with sore throats only, on various days, and these again others, until some one becomes infected who has not suffered from scarlatina, and in his case true scarlatina appears, perhaps on the twenty-eighth day from A's isolation. We then hear of a case of twenty-eight days' incubation of scarlatina

There is also another not sufficiently recognised source

of error in estimating the period of incubation of scarlatina. And until these, and similar errors are carefully eliminated, we must be continually hearing of scarlatina having a long period of incubation. Some years ago the following episode happened to me. I had a case of scarlatina, and when a week had passed, I assured the master in whose house it had occurred that no more cases would arise from this first case. However, many days after, another occurred, and at the end of a week I repeated, with confidence, my statement that no other cases could arise from the first or second cases; but that we had not yet been able to trace the origin of the first case. This was repeated again several times, until we had, I think, about five cases: all of them with an incubation period of considerably over a week. I have mislaid my notes of the exact dates. These few weeks were anything but a pleasant time to me. The master, I have little doubt, thought that my ignorance of the period of incubation of scarlatina was only equalled by my assurance in reiterating to him the statement that its incubation was never more than eight days, and rarely more than two or four days: notwithstanding this assertion of mine, each of these cases occurred more than a week after each other.

How to interpret the facts accurately I could not; though I was convinced of the accuracy of my knowledge of the incubation of scarlatina. However, by and by the sequel appeared—the unknown quantity was discovered. The boys went home for the holidays; and one of the parents wrote to the master to say, that he regretted his son had been allowed to come home with his hands peeling from scarlatina. This boy had never been ill for an hour, consequently no one knew anything about his having scarlatina: throughout the whole time he had gone about infecting his schoolfellows, and the only sur-

prising part is that he did not infect hundreds instead of units. Under such circumstances as the above, it is not to be wondered if the incubation period of scarlatina be variously estimated, as is at present done, from a day to a month. The slight ambulating cases must always be thought of and watched for.

By recognising indubitable facts of this nature, the *number* of cases of scarlatina will be diminished, and its *incubation* period will be accurately fixed in cases which would otherwise be misleading.*

In this way epidemics will be less severe, less frequent, and the incubation period will be accurately fixed.

I strongly affirm that it is a rare thing for scarlatina to occur after the fifth day from exposure, and never after the eighth day: I know of no reliable case on record to the contrary.

DURATION OF INFECTIVENESS.

In the present state of medical science this question cannot be definitely settled, for sufficient accurate data are not available on which to base an opinion, the requisite facts for an absolute conclusion being very difficult, if not impossible, to obtain; but, for practical purposes, we must form some provisional rules to guide our conduct.

The practical question is this: at what date may a boy who has had an infectious illness rejoin his school-fellows? or, safely return to school from home? or, be allowed to go home? Under this section we only consider the question: *When a boy has had the illness himself, how long does he continue infectious?* All other matters have been previously discussed. I think the following table will most accurately give the requisite information.

* See Author's Letter, *Lancet*, May, 1883.

TABLE SHOWING DURATION OF INFECTION WHERE EFFICIENT DISINFECTION IS IN FORCE.

NAME OF ILLNESS.	PERIOD.
Scarlatina	The boy may enter school when all desquamation has ceased and the throat is perfectly healthy— <i>i.e.</i> , in from five to eight weeks. This is the only safe rule to act upon at the present time in the management of schools, for it is impossible to say accurately when the contagion ceases. But I am far from believing that scarlatina is infectious beyond a very few days from its commencement—probably only during its febrile stage— <i>provided</i> the skin, and the clothes worn during that period, have been thoroughly disinfected.
Diphtheria	The boy, after a mild attack, may enter school after fourteen days; or as soon as his strength allows after a severe attack—which may take many weeks.
Erysipelas	The boy may enter school when all desquamation, especially that of the scalp, has ceased: from three to four weeks.
Small-pox	The boy may enter school when every scab has fallen from head and body,—average time, about six weeks.
Chicken-pox	The boy may enter school when every scab has fallen from the head and body,—average time, about three weeks.
Typhus Fever	The boy may enter school when his strength has sufficiently recovered to allow it, which in a mild case, such as occurs amongst children, may only take fourteen days; whereas, in a severe case, it may require many weeks.

TABLE SHOWING DURATION OF INFECTION (*continued*).

NAME OF ILLNESS.	PERIOD.
Enteric Fever ...	The boy may enter school when his strength has sufficiently recovered to allow it,—average time from one to three months.
Relapsing Fever ...	The boy may enter school when his strength has sufficiently recovered to allow it,—average time four weeks.
Measles	The boy may enter school when all desquamation and cough have ceased,—from two to four weeks.
Rötheln, or Epidemic Roseola...	The boy may enter school after ten to fourteen days from the commencement, according to the nature of the attack.
Mumps	The boy may enter school fourteen days from the commencement, unless orchitis occur on the 8th day—which is frequent at, and after, puberty,—when it may take fourteen days more.
Whooping-cough ...	The boy may enter school when the cough has quite ceased, or else six weeks from the commencement of the whooping.
Ringworm	The boy may enter school when all active growth has ceased; but even then he should be under daily medical supervision for a week at least, and at frequent intervals subsequently, until not a broken hair remains.

This table, however, has been compiled on the assumption that the school authorities protect themselves with respect to the boy's infected skin and clothes. It is of no use whatever trusting to parents, for they are not responsible, and the responsibility of sending infection amongst several hundred boys does not seem to weigh with them

as it should ; and, while one parent is very careful in every detail, another is as careless. Accordingly, when there is the faintest suspicion that a boy is infectious himself, or has come from an infectious house, he should not be allowed to mix with his school-fellows until a responsible school authority has washed him thoroughly from head to foot with disinfecting soap, and fumigated every article of clothing with sulphur or chlorine—or, still better, until every article has been passed through the disinfecting chamber.

If the school is not provided with proper means for disinfection, as all large schools ought to be, for purifying infectious boys and their clothes before they enter school or before they go home, then the period of isolation must be greatly extended, much to the annoyance

TABLE SHOWING THE DURATION OF INFECTION,
WHERE EFFICIENT DISINFECTION IS *NOT*
IN FORCE.

NAME OF ILLNESS.	DURATION OF INFECTION.
Scarlatina	Two months.
Diphtheria	One month.
Erysipelas	One month.
Small-pox	Two months.
Chicken-pox... ..	One month.
Typhus Fever	Six weeks.
Enteric Fever	Two months.
Relapsing Fever	One month.
Measles	One month.
Epidemic Roseola	One month.
Mumps	One month.
Whooping-cough	Two months.
Ringworm	One to twelve months or more.

of all concerned, and entailing a considerable waste of money from loss of time that should be spent in school. Further, none of the clothes worn during illness and convalescence should accompany the pupil.

I firmly believe that *all* infectious ailments are communicated by the clothes of persons visiting those infected; but whether this be endorsed by others or not, it is the only safe rule to act upon in the management of great schools. That some of them are thus communicable, all will admit; that some are not so may be an open question. It is, however, childish to see how near we can approach fire without burning our fingers; and where life and health in a great school are concerned, we should keep as far as possible from any chance of infection, and regard every one coming from an infected house as *not* being above suspicion, and act accordingly. All boys, therefore, coming from an infected house should be always disinfected by the school authorities; for the neglect of the disinfection of the most insignificant article of wearing apparel may be the occasion of an infectious illness, and the starting-point of serious mischief.

It is incumbent on schools to make the most stringent rules for their self-preservation from infectious illnesses; but these rules should be founded solely on the natural history of the infectious diseases, and should be neither mere whims nor arbitrary dicta, but as true to accurate facts as medical science at present permits.

SELF-REGULATION OF HEALTH.

IF boys are to be strong and healthy while at school, free from acute serious illness and chronic ailments, not only must schools introduce the provisions I have previously advised, but boys must also be taught how to manage themselves. Much can be done for them by the occasional guidance of parents and masters, and much can be effected by an appropriate word in private ; but the boy cannot always have some one at his elbow to guide him, and must therefore learn to manage himself properly, according to his constitution, and to find out that Nature will not suffer any infringement of her laws with impunity : an experience only gained after many serious trips.

(1) He should understand that where health is vigorous, the internal arrangements are not easily disturbed, and diseases from without have a hard struggle in planting themselves.

(2) In order to ensure this high state of health, the first essential is "regularity of life." Nature abhors sudden changes of all kinds ; thus, in the daily life, proper clothing should be adopted, according to the seasons ; regular sleep ; adequate time for regular meals ; proper time for regular exercise and work.

(3) The "amount of food and exercise" must be balanced ; evil results from excess of either. What is an appropriate amount of food when work is being done is excessive on a day of idleness. If, therefore, a boy takes

a fair amount of food when in exercise, he must, during a succession of wet days, when he takes no exercise at all, not continue to eat the same quantity of food. All diet should be evenly balanced; it should neither be in excess of exercise, nor should exercise be in excess in relation to diet; with either excess disease is likely to arise.

(4) He should learn to manage his *stomach*; to observe what he can eat and what he cannot eat without discomfort; to recognise that it is not wholesome to eat what disagrees with him, and that a frequent repetition of the error will either make him ill speedily, or tend to disease in after life. It is intemperate and disgusting to eat or drink too much: equally so, to eat or drink what it is known will disagree.

It is unhealthy to eat or drink between meals: the pastry or sweets which he desires should be taken immediately *after* a meal, and not between meals; for they upset the stomach—which requires rest between meals—and prevent the eating of his staple food. Also, to enable the stomach to digest its food, active exertion should not be undertaken—certainly not within an hour and a half—after eating.

When fatigued, light food only should be taken; never a full meal until the fatigue has passed off by rest and light refreshment.

Much ill-health and discomfort are occasioned by eating too fast: all food needing careful mastication, not only to reduce it in size, but also to mix it with saliva.

(5) When not feeling quite well, and disinclined for food, it is best for a boy to abstain from food altogether for a few hours, and he will then right himself; but it is unwholesome, when unable to eat ordinary food, to resort to the pastry-cook, or hamper, and eat dainties, and so make himself worse.

(6) Boys should make a good meal at tea-time, and avoid food afterwards, unless it be a little milk and bread-and-butter; but they are better without anything, for they will sleep more quietly and comfortably, and awake more vigorous in the morning.

(7) Temperance in alcohol is essential for all; total abstinence imperative for the young.

(8) It is not dangerous to drink cold fluids while hot, provided the liquid be taken in sips; the danger lies in drinking a quantity of cold fluid, which is very injurious indeed.

(9) A cold bath should be taken every morning on rising. It is not only cleanly, but invigorating to the whole system.

(10) He should be taught the importance, while he is young and active, of having his *natural relief* every day, without fail, at the same time, not only for his present health and comfort, but also to obviate a tendency to disease, which a neglect of this precaution entails in after years.

(11) It is most important to him to see that his *feet* are kept warm and dry, and that boots should be made to fit accurately, in order to prevent chilblains and other discomforts and deformities. Slippers should only be worn indoors; to wear them out of doors is both slovenly and dangerous.

(12) The habit of standing with the back before the fire with the coat-tails raised is unhealthy, and very selfish, for there is usually only one fire for 30 to 100 boys, and others are thus deprived of its warmth. Sitting over the fire reading a novel on half-holidays, instead of taking healthy exercise, should never be practised. The whole weight of the public opinion of the school should be employed against these practices.

(13) It is impossible to enlarge too much upon the

condition of the *skin*, which is a very important gland of the body and needs considerable care. It should be always kept clean and sweet, so as to enable it to act with the greatest advantage ; it should be covered with flannel to keep it warm, to absorb its moisture, and to prevent sudden changes of temperature affecting its continuous action. For active exertion, therefore, which will cause the skin to perspire freely, *special* flannel garments should be provided which will absorb the moisture during the exertion, and allow the ordinary garments to be put on afterwards in the place of those which are damp from the exercise.

(14) It is most unwise and dangerous to leave off wearing the thick flannel vest on the first warm day in the year ; warm weather should be well-established before this is attempted. In our climate the change is rarely safe before the beginning of June, except in the extreme south ; and in some parts this period is too early.

It is unwise to stand about or lie on grass when the skin is, or has been, perspiring ; but every effort should be made to encourage the skin to cool gradually, a feeling of chilliness being a sure sign that it is cooling too quickly, and that exercise, or another coat, is required.

(15) Very strongly indeed would I urge upon boys the necessity, from the point of view of health, of accustoming themselves to sleep as cool—not cold—as they can at night : the custom tends to health and vigour, and to purity of thought and conduct.

To spend the night in a bath of perspiration, as so many do, from excess of clothing, is most debilitating and unhealthy, and tends to laxity of morals in the young.

(16) And, most important of all, I would urge on all boys the great importance of purity of life in thought,

word, and deed, and not to think it manly to be impure. There is no true manliness without purity.

(17) Exercise is the great remedy to keep down excess of animal spirits. It is also necessary in order to obtain the greatest amount of brain power for hard work, and to enable all the functions of the body to work with the greatest advantage. But this exercise should be taken on an empty stomach as soon as the preceding meal is digested, which varies, of course, according to the nature of the meal—from $1\frac{1}{2}$ to 4 hours. For the young and growing the exercise pursued should be that which requires rapidity and agility, rather than strength or violence.

(18) The amount of mental work that can be borne is very considerable, almost indefinite, if life be regulated under favourable hygienic conditions, with proper diet and exercise, sufficient cubic space, adequate sleep, and with an absence of hurry and worry.

But there is nothing worse in the education of the young than, during part of the term, for them to do as little work as is possible, and then, when the examination approaches, to work hard in a spurt. It is bad, physically, for the brain, and wrong, morally, to the character; and, worse than all, it is not sufficiently discouraged in our schools by those whose duty it is to do so. One way to effectually crush the indolence alternating with industry would be, to take more account of the general work of the term, and mark it higher, than of the examination at the end of it. Again, this would have a still further salutary effect, for it would make school examinations at the end of each term less of a test, and would thus do away with the habit of working for examinations, which is so detrimental to good work and thoroughness, and which is also fatal to the real attainment of knowledge.

Let it be remembered here, that physical exercise develops muscles; mental exercise, brains. That excessive physical exercise deteriorates muscles, and arrests growth and development; excessive mental exercise deteriorates brain tissue, and arrests its growth and development. Further, that excessive work, and deficient food (whether from actual lack of food, or from relative deficiency, as shown where the food is normal but the growth excessive) deteriorate muscular tissue. And excessive mental work (the excess being first exhibited by restlessness, irritability, and sleeplessness), combined with deficient food, causes deterioration instead of growth of brain.

(19) Besides these physical conditions, "good temper, cheerfulness, and hope" are essential; together with uprightness of life and purity of motive. Deeply important as is the preservation of physical health, I must prominently include moral health, or the former cannot exist in its fulness.

(20) And lastly, a boy should by all means resist the formation of the character of a "loafer:" it will cling to him all his life. There is no more despicable creature in a school, or in "society."

XI.

DAY SCHOLARS.

IN speaking of day schools I am referring only to those scholars who are of the age to go to a public school.

There is much to be said for and against the day-school system. To some boys it is an incalculable gain to be able to go to a good school, and yet reside at home, and have the benefit of home influence, home comforts, and the society of mother and sisters, also to know and share home economics, home sickness, and home trials. While to others it is the worst thing that could happen to them, for they never develop into men at all, but are babies all their lives.

On the whole, I think, it will be generally admitted that it is the greatest gain for nearly every boy to go from home to boarding-school; his work is done better, he has more time for play, the games are better organised, and he learns that most wholesome lesson—which should be learnt early in life—of finding his own level: he there finds also that good feeling of comradeship which is salutary to every boy throughout his boyhood and in after life, as well as that inestimable boon of staunch friendship which often lasts as long as life itself.

To the few who only receive harm from being away from home at school, and to some delicate boys, the privilege of attending as a day scholar at a good public school is very great, but this is not yet sufficiently recognised by parents.

It would be very desirable if it were more the fashion

for parents who reside near a good public school to place their boys there as day-scholars, instead of regarding it as an imperative duty to send their boys away as boarders to a school at a distance.

It seems to me also that the day-school system in connection with our great public schools could be well extended with general benefit, if a certain house, or houses, were set apart for day-boys, where they would live and eat, work and play, under exactly the same conditions as the boys in boarding-houses, but with an absence of dormitories, so that they could spend their evenings at home, after preparation, and thus see their mothers and sisters every day, and sleep at home at night. They would thus obtain some of the benefits of home and school-life combined. By this means boys would be better able to join in school-games, and the great defect in the day-scholar system would be removed.

For those who do not reside near a good public school the system of boarding their sons at a school at a distance is a matter of absolute necessity and not one of choice.

I must not, however, consider the boys only, but the effect also on the school itself where these boys are admitted. Where the parents are high-principled, and uphold the school authorities as they should, and conform to school rules to the letter, day scholars are a source of good to the school by the influence they exert on the boy himself and on the school friends who visit at his house; but where the parents are the reverse, and allow laxity in the boy's conduct and in his observance of school rules, and the home is ill-regulated, the practice may cause much mischief to the general tone of the school.

Another disadvantage which must not be overlooked is, that day scholars may bring infectious illness into a school unless great vigilance and circumspection be exercised both by parents and the school authorities.

XII.

GIRLS' SCHOOLS.

THE general education of English girls is still almost inconceivably defective in principle ; it is quite fifty years behind the education of boys.

Notwithstanding this deficiency, however, our girls schools, as far as I can learn, are quietly and unostentatiously making great strides in improvement ; but I should like to see the alteration in the method of education that is requisite. Much, if not most, of what I have said in these pages relates already to girls' schools, or will do so, I trust, in time.

The *great defect* in most schools for girls is the utter neglect of *physical education* ; whereas it should have a *prior* claim to their intellectual education, if there be any difference made at all. We need strong, healthy, vigorous women, and not fragile, fainting, insipid creatures ; and yet no attempt is made to produce them, during the only years in which they can be produced—the years of their active growth and development. Their exercise usually consists only of a stately walk in the street, weather permitting ; dancing, calisthenics, and deportment once a week ; sometimes lawn tennis. Such neglect should not be.

The exercise at present prescribed is not enough, nor is it of a suitable kind. Skipping, trapeze exercise, lawn tennis, swimming, riding and rowing are more appropriate. Were girls allowed such exercises as part of their daily life, we should cease to see the frequent

curvature of the spine, and consequent ill-health ; and those wretched spine-boards, on which girls are still in some schools doomed to recline, could be used as "fire-wood." A girl's back is by nature long, and needs a chair with the support of a back during lessons ; and during the three years of very rapid growth—from eleven to fourteen years of age—when the girl suddenly develops into a woman, rest on the sofa during the preparation of lessons may also be allowed with benefit. But the regimen for straight backs in girls must be thorough exercise whilst growing, and not backboards.

Girls need exercise as much as—or, more than—boys ; and yet this requirement is all but utterly neglected in this country ; and, as in the allowance of sleep for the young, the error is on the side of too strict a temperance. Girls require as *lively* an exercise as boys, and would enjoy it just as much, if only they had the chance of participating in such appropriate exercise.

The present fashion of education is the very way to produce *girls* who are useless as companions, *wives* who live on a sofa, and *mothers* who are unfit for their duties. Besides, if greater pains were taken to make vigorous bodies, we should have more vigorous brains, so that a double gain would result.

Girls' brains grow with their muscles ; and vigorous brains cannot be produced without vigorous muscles—they grow together.

Why do girls fail in health directly they undergo hard mental work, sometimes becoming incapacitated for life—physical wrecks, and the victims of hysteria and other neuroses ? Simply because they and their friends try to make them do the impossible. If we are to have a higher mental education in girls—of which they are mentally quite capable—they must not be pressed during those years when their growth and development are so enormous

—from 11 to 14—when they leap, as it were, from childhood to womanhood at a bound; for all their nervous force is used in this development.

Nor must teachers fail to recognise the difference in the constitution between the boy and girl. *Continual* application to work from day to day, from week to week, and from month to month, should never be enforced on girls, nor even should they be allowed to put it forth: periodical cessation and rest should not only be encouraged, they are imperatively necessary.

Their mental education, again, must proceed *pari passu* with a thorough physical education; otherwise, with rare exceptions, it must end in failure and serious life-long misery to the girl. If we cannot yet manage both in Great Britain, let the mental education remain as it was, and the physical education be undertaken more thoroughly, so that the girls may be prepared by degrees for the higher mental education, and become better suited for their sphere in womanhood.

At the present time a girl's education is effeminate to a degree; whereas what is needed is that it should be only feminine.

Why is it considered unladylike for girls at school to be allowed any other exercise than a formal walk in the street? There is no conceivable reason for this; but so it is. The lady who has the courage to break through the spell, and establish a good school for girls, in which their physical education shall be as well organised as their mental and moral education, will deserve well of her country, and will carry out one of the greatest and most needed reforms of the age.

I would further condemn the neglect, as a rule—happily not without exceptions—of the morning cold bath for girls; there is nothing that so tends to create health and strength, apart from the question of clean-

liness. They are usually restricted, to their great detriment, to a warm bath once a week.

It must not be forgotten that girls are naturally more subject than boys to nervous excitement, but this could more effectually be kept under control by a sounder physical development. Defects in eyesight, too, unremedied during childhood, will not only foster, but create a nervous constitution. On account of this nervous condition, I think competitive examinations for girls, as a rule, are bad. Witness the terrible breakdowns the physician so often sees resulting. If this age be one in which young people cannot live unless they are competing, let us err on the right side; and let our girls be taught to excel in every womanly exercise, in preference to nervous excitement, and a preternatural development of the emotions. But why are our girls what they are? Some of them nothing but nerves, others nothing but emotions, others ready to faint on any, or without any, provocation. They are simply suffering from their faulty education, their narrow mode of life, and their preposterous fashion of dress. We want more muscles and less nerves in our girls, if we are to have them healthy and vigorous.

If girls' physical education were properly carried out *from the beginning* the necessity would never arise for the "back-board" which is seen in most girls' schools, and on which they are—often unwisely—doomed to lie for some portion of the day, instead of being employed in muscular exercise which would develop their brains, their bodies, and their characters.

It may be asked, "What appropriate muscular exercise is there for girls?" I will briefly mention a list; but it should be remembered throughout that there is a difference physically between girls and boys; and that exercise and games should, in every instance, be adapted

and regulated accordingly. In all the exercises I name, there should be proper clothing and appropriate boots, which should be changed as soon as the exercise is over.

First we have *walking*, *running*, *skipping*, and *jumping*, all of which are capital exercise, especially walking, but this should be performed in the country, with perfect liberty of pace and choice of friends, and should never be enforced as a regulation march. Then we have *dancing*, which is a splendid exercise when performed at appropriate hours in appropriate rooms, and tends to produce grace of movement so essential to a lady's education. *Gymnastics*, such as light dumb-bells, parallel bars, the trapeze, rings, horizontal bar and ladder exercise, may all be safely used and with the greatest benefit. *Drilling*, too, is very useful, especially in producing an upright carriage. There is no better or more suitable exercise than *riding*. *Swimming* is cleanly, and would remove the tendency to "nerves" more than anything else; besides which it is useful to others as well as the performer herself. *Skating* is invigorating and health-giving beyond measure: it comes at a time, too, when there is more or less a deficiency of means of exercise; every available moment, therefore, should be granted for this exercise and enjoyment, and work might be well stopped for half the day—as the opportunity for skating recurs so rarely in this country—even if more time were given to work when the ice has broken up. Moreover, excellent exercise might be obtained for girls by the use of roller-skates on a good asphalte floor.

Rowing provides one of the best exercises of all for girls. It would soon banish the "back-board" from girls' schools, for the muscles of the back would become so strengthened that weak backs would be straightened, and the curved spine and outgrowing shoulder blade would become morbid conditions of the past. The exer-

cise also develops the chest, and the abdominal muscles, together with the arms and legs. It should not be allowed, however, unless the girl has previously taken the trouble to learn to swim.

Cricket forms a delightful exercise for girls; *lawn*

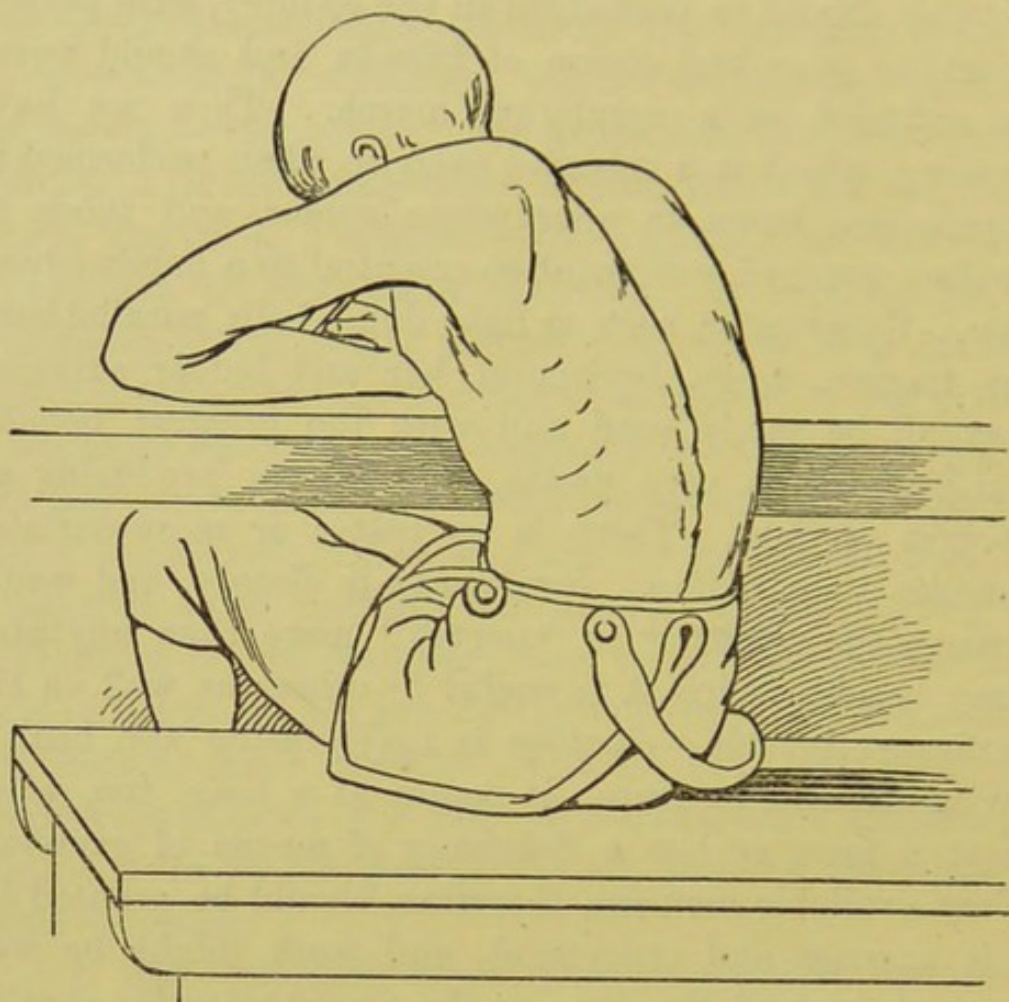


FIG. 22.—LOUNGING OVER TABLE WRITING OUT LESSONS.

tennis, *racquets*, and *fives* also. *Tricycling* may be pursued, but in a costume similar to that devised for riding. *Gardening*, too, would suit many a girl incapable of more active exertion; and *natural history* excursions.

Were such exercises faithfully carried out girls would not require special "lessons in deportment;" for, the muscles being rendered strong and elastic, grace and ease in their carriage would naturally result.

Another defect in the education of girls lies in the excess to which the practice of requiring lessons to be *written out* has been carried ; for with improper seats, unsuitable desks, imperfect light, and several hours con-

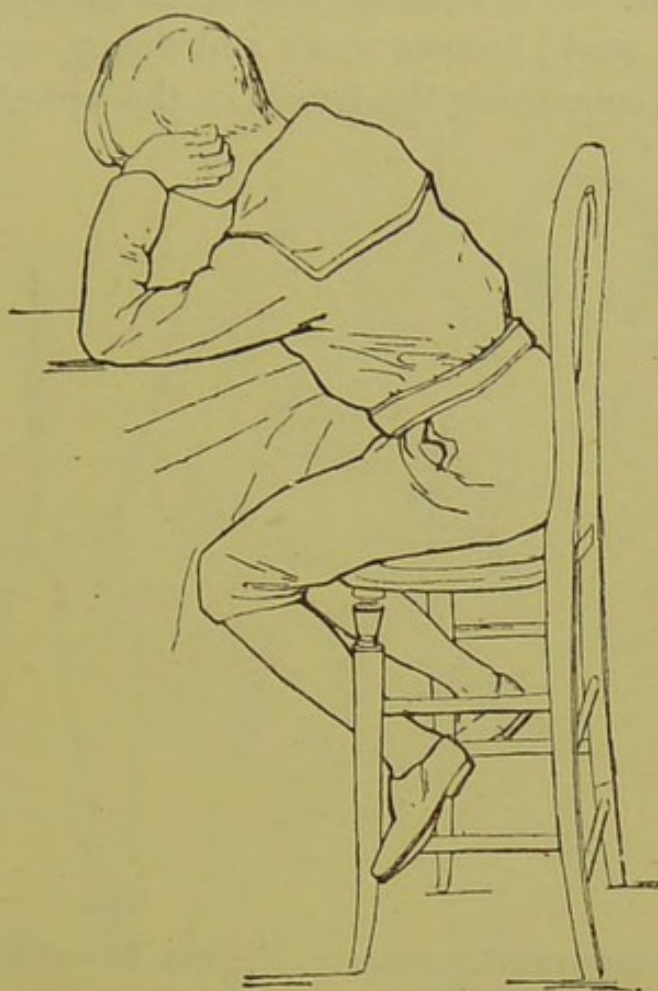


FIG. 23.—LOUNGING AND SUPPORTING HEAD ON HAND OWING TO FATIGUE OF BACK.

tinuous work, instead of an hour in and an hour out, the pupils become so fatigued that they lounge over the table, and a curved spine and prominent right shoulder result. In fact, it is difficult to find a girl without an abnormally curved back, one-sided shoulders, a prominent shoulder-blade, and a tilted hip.

But this lateral curvature of the spine is not entirely owing to the causes above mentioned ; it is partly due to

the artificial support given to the spine during the growing years, and the general constraint of the modern dress preventing the muscles having good healthy work to do, even where permitted, and thus becoming strong and capable ; instead of this, the muscles of the spine, through absence of work, become weak and flabby, and quite incapable of supporting the trunk in the upright position.

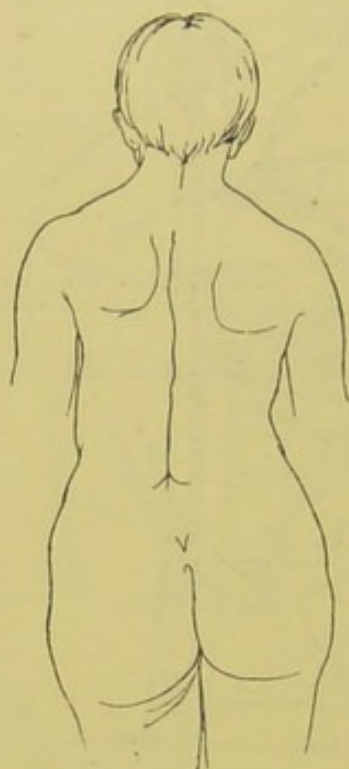


FIG. 24.—SHOWING LATERAL CURVATURE OF SPINE.

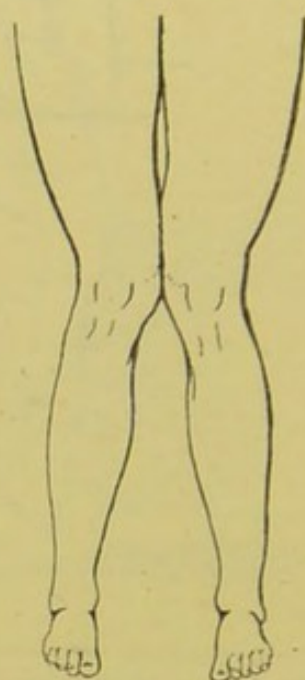


FIG. 25.—“KNOCK-KNEE.”

It seems, unfortunately, still to be necessary to teach that muscles cannot grow strong and vigorous without sufficient exercise. The spinal muscles of the girl waste, and so allow a spine to become deformed, because they are incapable of their required exertion. *High-heeled boots*, too, not only cramp the feet, but deform them, and the spine and pelvis as well—an effect which cannot be too strongly deprecated in growing girls, who are expected to become women and mothers.

Girls, again, become knock-kneed and flat-footed,

causing the most ungainly gait, in consequence of the way in which they are taught to sit and allowed to stand. This deformity of knock-knee absolutely prevents a graceful or elegant carriage of the person, which is so much to be desired in girls.



FIG. 26.—SITTING AT LESSONS.

For instance, they are taught that it is unladylike to sit with their knees apart, and so they sit with their knees together and their feet apart, and with the result shown in Fig. 26. When standing at lessons it is usually thus, and as each leg tires, so it is rested in this position, producing knock-knee and flat-foot.*

* As these drawings were taken from life, they were more conveniently drawn from little children.

Such deformities of person need not and should not be: they would be unknown if more care were taken at school in developing the bodies of girls to the highest standard of beauty. An effective way of preventing



FIG. 27.—STANDING AT LESSONS.

knock-knee and flat-foot in girls is to require them to sit, while learning their lessons, in tailor-fashion.

Another excellent position for learning lessons and preventing or remedying a curved back is that of kneeling to a table, which prevents stooping, and restores the natural curves to the spine.

When will these requisite changes be carried out in

our schools for girls? When parents and the public demand that girls shall be better educated physically—and not till then.

Again I would urge that the education of growing girls should not be carried out at the expense of motherhood: we do not want crammed heads, but strong well-made bodies, fit for what Nature requires of them.

The observations I have made concerning morality, I would repeat here in a modified form, but in tone no less strongly, since it is even more important for girls; and I would urge mothers to warn their daughters of the existence of evils in acts as well as words, and even acquaint them with some of the physiological facts which are discussed freely amongst girls at school. It is better for a girl to learn such facts purely from her mother, than from the loose talk of school-fellows; for, it must be remembered, as a difficulty which has to be faced and not shunned, that there is an *innate* curiosity in young human nature—male and female—which *will* seek to be satisfied; and which, if not allowed its becoming satisfaction in the acquisition of knowledge, will degenerate into a vicious pruriency, which is so little to be desired. “Whence came I?” is as natural a question for the child to ask, as, “Whither am I going?” is for the adult; and it should be truthfully answered by the parent in a spirit of purity.

XIII.

VACATIONS.

CLOSELY connected with school-life, although not forming part of it, are the periods of rest between the terms at school.

A holiday, a boon to all workers, is a necessity for the young, who work hard, during their growing years. Most of our large public schools give four months vacation in a year: eight weeks in summer, four or five weeks at Christmas, and three or four weeks in spring.

In many schools the spring vacation is movable, and depends on the date of Easter Sunday, which occurs on some day between March 22 and April 25. It seems to me, however, that it would be much better for all concerned, if the spring holiday were fixed, so as always to commence at the same time, irrespective of the date of Easter Sunday; for even then Easter Sunday would most frequently be included in the vacation.

By this means each term could be equalised to twelve weeks, and the Christmas and Easter vacations could be either five and three weeks respectively, or four and four weeks according to the desire of each school.

The purpose of the vacation, which some parents seem unable to understand and therefore continually grumble at the holiday, is, that the pupil and master shall, after hard and prolonged work, have a period of rest, or at least, a change of scene and occupation, for their health's sake.

There is a further and equally important reason for holidays, though it is, for the most part, disregarded by some parents, but proves a priceless gain to others and their children. A boy averages about ten years away from his home at school. Are these ten years nothing to the child, that a parent should separate him from his brothers and sisters, and hand him over to the care of strangers, at the most critical time of his life, without a chance of exerting any personal home influence over him? It is only by means of the vacation that parents can "keep touch" of their children at all. The sooner one ceases to hear of the grumbles of parents about the length of the holidays, and the sooner they more generally strive to understand their children's characters, and to exert a wholesome home influence over them during the vacations, the better for their children, the better for our schools, and the better for the world at large. A little more personal intercourse between parent and child will tend, if parental responsibility be duly recognised, to make parents feel that the holidays are even too short to enable them to carry out their desires and fulfil their duties.

But why do we hear these periodic murmurs? Because, at school every hour is occupied; whereas at home the parent does not take the trouble to provide hourly occupation and pleasure for his children; the holiday time thus drags heavily, the child gets into mischief in consequence, and the parent "wishes those schools would not give such long holidays."

The holidays are not any too long for health; or for affording a sufficient opportunity to the parent for knowing, loving, and influencing his children.

I must protest altogether against "holiday tasks"; there is no rhyme or reason in them.

Holiday
Tasks.

Holidays are times for rest, and change of occupation, and no work should burden them.

If the prevailing feeling throughout the country between masters and parents be that the holidays are too long, by all means let the effect be tried of curtailing them for a season and let the result be watched. But to give a certain period as time for needful rest and recreation, and then take away a portion of it again, in the form of a holiday task, is simply a pious fraud which does no good to anybody. To the industrious boy—who surely has well-earned his holiday—it stands as a grim spectre before him daily throughout his holidays, as something that must be done, and his last few days are spoilt entirely. To the lazy boy it is simply a matter of perfect indifference, and I don't suppose he opens his book to look at its contents until he has actually returned to school, or is in the train going there, when he snatches an hour or so before it is required of him. There is also another boy who, when his holiday task is given him, asks himself the natural question, *Cui bono?* This he answers in a way which satisfies his own conscience: he accepts the books, which his father pays for, and never condescends to open them at all, being quite content with the appearance of the covers.

I would, therefore, strongly urge that whatever holidays are allotted, let the pupil have them in full measure, and not with a five per cent. discount.

I have never been able to understand for whose benefit the holiday task is set. It surely cannot be maintained that it does the pupil or his tutor any good. Is it supposed to be a boon to the parent? There is only one thing about it I am able to see and that is a glaring pious fraud, manifest enough even to the dullest pupil.

There is another phase of holiday tasks in existence which is literally a farce—so ludicrous that its citation

would be more appropriate in a "comic paper" than in this treatise. Some schools allow a mid-term holiday—an "exeat,"—of a few days, and it will scarcely be believed that a holiday task is levied from the boys for these few days. Comment would only detract from the ridiculousness of the proceeding.

But while I very strongly object, as a matter of school routine, to holiday tasks being allotted to all boys, I think idle boys could easily be converted into industrious ones, to the infinite gain to themselves, their masters, and their schoolfellows, if parents would follow the excellent course adopted by an intimate friend of mine.

The
remedy for
the boy
who is idle
at school.

He had two sons at a public school, and received a very unsatisfactory school-report in mid-term on account of their idleness. Their father did not chide them, he only wanted to cure them for ever. So he wrote and told them that if such a report was sent again, they would have to do their neglected work at some time during the year; that they could choose their own time; that it was quite immaterial to him when it was done, but done it must be. If they preferred the term for play instead of for work, he had no objection whatever, only the money he would have spent on them for their enjoyment during the vacation must be employed in providing them with a private tutor instead; since they must not think that he would allow them to play all the year round.

At the end of the term, however, a similar report about their idleness arrived. Nothing was said to them, but the following morning the private tutor appeared, and they had to work daily throughout the vacation, to their intense chagrin.

Now this was a very simple arrangement—nothing

but a transposition of work and play. They themselves chose to have their games at school and their work at home, and they had it—but only for this one term and vacation. They saw their father was in earnest as to their work, and it cured them.

Could a more suitable punishment—no, *remedy*—have been found? Here we had wrong done by the boys' laziness, then down came the remedy or punishment, suitable, forcible, and natural, upon them.

I believe there is a similar remedy to be found for the intellectual and moral ailments of every individual boy, if only those in authority would seek it.

XIV.

CONCLUSION.

ALL will admit that school life should be perfectly happy and healthy—the happiest and healthiest period of life. In these pages I have endeavoured to set forth how this result may be attained.

In considering the whole life of a boy at school, from the time he enters to the time he leaves, I have—though imperfectly, I feel—tried to show what tends to increase and what to deteriorate health, what surroundings are necessary for the attainment of the highest state of health, and what are the causes, near or remote, of disease. I have also endeavoured to show that if there be one thing worse than another for a boy, one thing more detrimental than another, to a whole school, it is that a boy should be placed under the care of a master who is lax in discipline, and has not the capacity of management. As a friend of mine has very aptly put it: “A good disciplinarian is not a man who punishes disorderly boys; he is a man in whose presence boys never think of being disorderly;” for a boy has simply the greatest conceivable contempt for a master—and there is no severer critic than a public school boy—who is deficient in the power of control.

The existence of good masters—masters naturally commanding respect for character and just administration, no less than for learning—is essential to the production of good boys.

It will be said that I have spoken strongly about the evils of our great public schools. I admit it; and they are so vigorous that they can afford to listen to candid speech. But I have done so in no carping spirit. Our great schools are the glory of this country: their good points are universally known and allowed. But I can-

not be blind, in my love of them, to their faults : they can be, and must be, improved, and this improvement is better to originate from within, than be forced from without. Their defects must be eradicated. Those in authority—it may be from lethargy, perhaps from blindness—do not do their best to minimise the evils that must exist in all human institutions. They punish detected evils severely enough—often too severely ; but they do not take the trouble to *seek out* the evils and their causes, and strive to *prevent* their occurrence by appropriate provisions, as the physician does in the case of disease : they seem only capable of dealing with the evils when they *have been* committed, and little care and forethought and prudence are taken to *prevent* their being committed.

Faithfully I have tried to depict—from the physician's point of view—what should be and what should not be in schools. Our schools are none of them perfect, and they vary very much, some being years behind others in medical and sanitary matters. I have also striven to point out how parents may send forth from home—and masters from school into the world—not only healthy boys, but boys with manliness, generosity, and uprightness, able to withstand temptation, and willing to do their duty wherever and whatever it may be.

If my observations should conduce to the benefit of any school or scholar I shall feel amply repaid and can ask no greater reward. In the words of Milton I would close, and say, “For he who freely magnifies what hath been nobly done, and fears not to declare as freely what might be done better, gives ye the best covenant of his fidelity ; and that his loyalest affection and his hope waits on your proceedings.”

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