Work and overwork in relation to health in schools / [Clement Dukes].

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WORK AND OVERWORK

IN RELATION TO

HEALTH IN SCHOOLS

AN ADDRESS

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BY

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I.

Introduction.

Mr. President, Ladies, and Gentlemen,

I am deeply sensible of the honour which has been conferred upon me by the invitation of your President that I should open the discussion on Health in Schools, at this annual meeting in Oxford of the Teachers' Guild. The burden of implied responsibility, however, is to be measured by the honour of the position; and greatly, therefore, as I esteemed the confidence reposed in me, I felt considerable reluctance in accepting the duty, since I fully realized the fact that I should be addressing a body of experts, many of whom were more competent to fulfil the task. Indeed, had it not been for the special request of your President—a friend of twenty-two years' standing—I should scarcely have dared to undertake the important work. And those of you who know him as well as I do—able, esteemed, and amiable—will understand the difficulty of responding to any invitation of his with "No."

Moreover, I was further influenced in my decision

by the fact that I was not required to deliver an exhaustive address, but simply to initiate a discussion, and call your attention to those salient features of the subject upon which your ampler experience and specialized ability might profitably enlarge. It is always an advantage, too, whatever be the subject of consideration, that a member of an allied and friendly profession should express an opinion, if, as I have done, he has devoted thought and attention to the question ; for even the mere point of comparatively outside view from which he speaks may help to throw light upon some of the problems involved.

I, therefore, ask your generous indulgence. I can at all events honestly, though diffidently, assure you that no one in your profession, or mine, is more keenly alive to the question of health at school : it has been my constant, patient, and thoughtful study for upwards of twenty years ; and any unusual vigour of expression I may adopt, you will rightly attribute to the strength of convictions produced by an earnest consideration of this vital subject.

In reflecting upon your President's request, it seemed to me that the question of all others, which most closely touched your side of the subject and mine, was that for which schools are instituted, viz. education, or School Work. And seeing the delicate organization of the child who is placed under the teacher's influence for the purpose of education, it is incumbent upon us to be on our guard, that even the borderland of overwork is not reached ; since it is

easy to overstep the line of safety, and cause lasting injury to the nascent brain.

The question that I desire each one to ask himself is, Does overwork occur at school? I maintain that it does, and sometimes to a very serious degree. The attempt of my paper, therefore, is to prove this case. If I succeed—and here diffidence gives place to certainty—the result must be an amendment of our ways. The general question of overwork has recently assumed large and definite proportions, and whatever may be our individual views upon it, we at least are standing on safe and substantially undebatable ground in discussing it in the interest of our boys and girls, who are practically impotent themselves in this matter, and dependent upon our decision.

It is a serious question to ask, whether teachers should be permitted to work, for the long hours at present in vogue, those whose physical and mental growth is as yet unfinished. Pupils are roused from sleep sometimes as early as 6.30 a.m., and are kept more or less at work until bedtime. Boys and girls at school certainly require as much protection as factory children!

It seems to be forgotten that a large share of strength is expended in providing for growth and development at the school age; so that the allotted task and the excessive hours tell doubly. The greatest drawback to the young human being at school is, that this growth and development necessarily proceed *pari passu* with education. This cannot be obviated. For education must take place while the tissues are in a

nascent state, since in this way only can they be developed into their highest state of perfection, whether they be nervous or muscular. At some schools—I think I may safely say most schools—the pupils are allowed insufficient time for sleep ; they are often deprived of fresh air and exercise by school regulations, or unwisely assigned punishments ; they have no time to masticate their food, owing to the hurry of school customs ; and are frequently kept at, or permitted to, work for eleven hours a day and more. Since this address was written, I have seen a boy, aged fourteen, whose ordinary work allotted to him occupied him on one occasion fourteen hours in the day. Comment would only detract from the iniquity of such a proceeding.

Teachers of day schools will at once assert that I cannot accuse them of this charge, since they have not the opportunity. I need, therefore, only remind them of the large amount of home-work which in day schools is assigned to pupils for preparation alone in the evening. This is frequently the hardest toil of the day. It is work which requires the guidance of the teacher ; and yet it has to be carried out without assistance, unless the parents provide a home-tutor, and at a time when body and brain are fatigued. I have heard of such children, often girls, sitting up at work until 10 p.m., and rising at 6 a.m. to resume the unfinished task of the previous evening. I know of others who work at lessons during meal-times, as well as in every spare moment, and, when unfinished,

continue them in bed, because parents insist upon books being closed at 9.30 p.m. Yet it is often said of these children that "they won't work," when it can only be truly stated that they are *too* willing.

Now, by an irony of phrase, this is termed "teaching," that is, developing the brain, and educing faculties in the young; whereas the process would be much more truthfully described as analogous to the production of that excellent savoury, *pâté de foie gras*—a process of "stuffing"—but without the delectable result.

I have the further grave charge to allege against the majority of day schools, that their work is so arranged that no possibility is provided for the pupils having the recreation afforded by School Games, because, in winter at all events, the hours of work are continued during the entire daylight. These unfortunate children thus grow up without the benign influence of school sports, and develop, in consequence, a distinct but most objectionable precocity. By thus forbidding games during so many months of the year, the taste for them languishes, and the vacations consequently tend to be spent in mere loafing, with resulting loss to character and vigour.

I would make an "Eight Hours' Bill" for schools on a scale adjusted to the various ages, the eight hours being applicable only to the senior pupils. At the present time even the younger are set to work for this period, which is sometimes prolonged for the elder ones. Of course they do not actually and legitimately exert

themselves for that number of hours, since, if this could be the case, few would survive the ordeal unscathed ; nevertheless, they are chained under the restraint of work.

More genuine work could be effected, without resulting harm, were the hours of study shortened. I would ask you to bear earnestly in mind the incontrovertible fact, that immature organs are incapacitated and deteriorated by excessive labour ; while development and vigour are ensured by moderate healthy and progressive exercise, and this graduated and reasonable course is the only mode in which a real and permanent development can be secured.

The true object of all training and of all education should be to develop the best type of manhood. Do we keep this goal always in view in our daily work ?

II.

The Material to be considered.

It would often appear, superficially—if one did not penetrate beneath the surface—that the scholastic profession is so pleasant a haven of ease, and the result of the work a matter of such haphazard consequence, that, with the exception of primary schools (where a pupilage is enforced, sometimes with disastrous effects to the pupil-teacher), no specific training is assumed to be required, and every one is supposed to be naturally and instinctively qualified to teach. No assumption is more fatal, or fraught with more malign influence upon the children, who bear throughout life the evil effects of its adoption.

The military, naval, medical, clerical, and legal professions all demand a special training; while in the scholastic profession a boy, or girl, is too frequently taken direct from school, or a graduate from the university, and is authorized, without the least preparatory discipline or proved adaptability, to take a "form," or teach a "class." And this in face of the fact that the effective training of the young is a subject of

national concern, involving issues that permanently affect the character of the race, and the future progress of the world.

Now, using the word "supposed" advisedly—because the answer to the question is often merely a supposition—what is the supposed meaning of work at school? It is, apart from the attendant moral discipline, the development of the nervous tissue in the head—the brain—to the highest perfection, exactly as the gymnasium instructor endeavours to develop the muscular system. And as the latter sometimes forgets the proper object of his instruction, and teaches his squads a mere series of tricks for the purpose of exhibition, so teaching often, nay, usually, degenerates into similar artifices for the purposes of examinations, and the brain is impoverished and damaged in the attempt. Examinations too frequently are solely regarded as the goal, and culture of nervous tissue is ignored.

It is one of the chief functions of the competent educator to graduate the training of the brain from short and easy tasks to more difficult and strenuous exercise. But, under the present system, it is constantly overlooked that the young are necessarily without the power of sustained endurance, which is only educed towards the end of education.

In fact, Sir Edwin Chadwick has shown, from careful and direct observation, the length of time during which children, at various ages, can success-

fully devote continuous attention to a single lesson: thus—

Age of the child.	Duration of effective attention to one subject.
5 to 7 years ...	15 minutes
7 „ 10 „ ...	20 „
10 „ 12 „ ...	25 „
12 „ 18 „ ...	30 „

The muscular tissue is soft, flabby, and powerless without use. The gymnast gradually brings it, by appropriate daily exercise, to such a condition of vigour as to fit it for any legitimate exertion that may be required. If he claim too much from it before it has reached this state, it becomes incapacitated.

In like manner, the nervous tissue of the brain can be brought to comparative perfection, step by step, by appropriate use; and he is the typical educator who can thus develop the brain-structure to the completest degree, and render it capable of any reasonable effort. If, on the other hand, he educate unwisely, harm—sometimes fatal, often permanent—results.

"It has often occurred to me," says Sir Crichton Browne,[1] "that if educationalists could peep through a little hole in the skull, and see the living, throbbing brain, and realize that it is a pulpy organ of about

[1] "Education and the Nervous System," by Sir Crichton Browne, M.D.

the consistence of calves'-foot jelly ; and if they could look at the minutest shred of it under the microscope, and admire one little galaxy out of the millions of starry cells that it contains, lying scattered amongst the strands and sources of its fibres, 'like a swarm of fireflies tangled in a silver braid,'—if they could, as physiologists can, picture to themselves the functional activity of the brain—now, as at times of ease and abandonment, *shimmering* over its surface from point to point ; now, as at periods of calm and connected thought, localized into a steady *glow* in certain regions ; and now, again, as in moments of intense mental application, concentrated on one spot into a *spark* of surpassing brightness,—if our educators could do all this, and if they could become practically acquainted with the brain, they would, I think, be more careful in the handling of it than they sometimes are, and be a little less ready to deny that there is any danger of exerting over-pressure on this delicate structure."

There is so much for the teacher to consider in the process of education in each individual pupil, that much thought must be spent if he desires, as he should, to aim high. Each child possesses its own proportionate stamina and mental ability. The ability may exist potentially in abundance ; but of what avail unless the stamina be sufficient to provide a plentiful supply of good red blood to feed the brain ? And whence is this derived, except as the result of good digestion, which can only be obtained

by appropriate food, fresh air and exercise, and ample sleep? Yet see how little care is bestowed in teaching children to masticate, instead of bolting, their food; and how little sleep is permitted, especially to the younger children at school, for supplying the loss by wear and tear, and for the formation of new tissue. Such matters are regarded by the majority of educators as beyond the pale of their duties; while I maintain that they constitute their very essence.

I cannot impress the fact too strongly upon you that the brain, which you are called upon to teach and train, is an immature, growing organ, which, like all undeveloped tissues, will not bear strain. If it be supplied with good red blood, which can only be the case when a maximum of health is induced, its vigorous growth is possible. Diminish, however, the supply of healthy blood to the brain, evidenced by pallor and anæmia, and implying a supply of inferior quality, and the brain not only ceases to grow, but the tissue already formed deteriorates in quality. It is the number of the red corpuscles in the blood which indicates its nutritive quality; and when these are diminished, as they invariably are by deficient or inappropriate food, by insufficiency of air, light, and exercise, and by overwork, the brain is handicapped and incapable of genuine work. Look at school-children, trained under the existing system, at the end of term; and their mere physical appearance condemns

the method, or rather the absence of method, which now prevails.

Then, again, whence comes the individual brain which the teacher has to cultivate? We none of us need pride ourselves on our brains. True, we may have helped to make, or mar, them by our own industry or laziness; though even this power of use and abuse is not entirely our own, but implies a largely inherited faculty, which demands a spirit of thankfulness instead of boasting.

Every brain is the product of many generations, and all the cells, fibres, and tissues within, work naturally and freely as they have been trained and taught to work in ancestors from whom they have sprung. The blood has been mainly accustomed to nourish muscles; the teacher suddenly requires it to nourish brain. The sensory apparatus has been wont to obey external stimulus; now the senses—sometimes violently—are arrested into quiescence, so that the man may be stimulated from within. The nervous energy must flow in new channels; the will must somehow control, in unknown ways, the whole nerve structure, and make it laboriously perform unaccustomed work. The whole machinery of life must be remodelled; and nature frowns upon these abrupt revolutions.

It is true that the "genius" sometimes springs from a previously uneducated, and practically dormant source; but this is of the nature of the "sport" in the vegetable world, well known to the gardener,

and recognized as an unnatural, though much sought after, growth.

The brains of children whose forefathers have led a muscular life need the gentlest handling, since their nervous tissue is unfit for pressure. It is thus palpable that what may be hard work for one child is scarcely work at all to another.

III.

School Routine.

i. *Regular Work.*

I HAVE divided the work which is set by the teacher into various sections. And first I would speak of regular work, meaning by this the ordinary stated daily school routine. This is usually ample for all purposes of education; sometimes it errs in excess.

For the younger children in all schools I think that I may safely say, that it invariably errs from excess. For instance, although I know that these ages often overlap, yet, roughly speaking, we may take it that there are schools where children are educated from the age of five to nine years; others adapted for the ages from nine to thirteen years; and the last class arranged for those from thirteen to nineteen years of age. With possibly rare exceptions, the children of the ages five, nine, and thirteen have to work respectively the same number of hours as those of nine, thirteen, and nineteen.

Now, I would ask, is this right? Is it reasonable? I know perfectly well that your answer will be, not a justification, but the difficulties of any other

plan. I can only reply that difficulties are meant to be faced, and not shunned; especially when a grave wrong is perpetrated, upon those who cannot help themselves, by not facing them.

I do not say that the work *can* be curtailed, but I insist that the hours *must* be shortened if you are to cease to grievously wrong the children committed to your care for the purpose of education.

There are many ways of meeting the difficulty: thus, the younger children at each school should go to bed earlier, and rise later: they should have no evening work to prepare, and no lessons before breakfast; and their morning and afternoon hours of work could be shortened, without interfering with the work of their elder, and more advanced school-fellows. Such arrangements would prove of untold value in the growth and development of body and brain, and would consequently add to their future prospects in the world.

The only real difficulty seems to me to be the *will*, not the *way*, to do it.

But school work frequently lacks the aim of all education—by which I intend the culture of the brain—in that quality of work is sacrificed to quantity of subjects. These studies should be diminished in number, in order that some attempt may be made to ensure *thoroughness*, in place of teaching a smattering of innumerable subjects, no one of which can be really mastered. *Multum, non multa!* This could be readily attained, without inducing monotony of work, if the

assumption that all brains are cast in the same mould could be abandoned. For some brains have the faculty of assimilating one subject, and not another. And no amount of pressure will enable these brains to master certain subjects, while other studies may be readily absorbed. There are few brains that, even during childhood, are not naturally adapted to some special work.

The *Preparation of Work*, especially evening work, as at present arranged, is a real hardship to most boys and girls at boarding, as well as day, schools. For it constantly happens that some of the hardest work is required to be prepared in the evening, when the body and brain are tired, and when the leisure of recuperation should be the only duty. Frequently, too, the task has to be prepared without assistance, and the child becomes dazed. This work is often pursued until the pupil retires to bed, and a grave wrong is thereby committed.

Sir Crichton Browne[1] has truly said, "The most arduous mental work 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

[1] "Education and the Nervous System," by Sir Crichton Browne, M.D.

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." He 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? The question is now ripe for alteration, and it is to be hoped, especially in our day schools, that the solution of it may be forthcoming."

ii. *Adventitious Work.*

By adventitious work I mean uncounted accessory toil, which is an addition to the regular school routine, and which, even when the regular curriculum is not in excess, proves the last increment that over-tasks the nascent brain. I would include in this section punishments, examinations, and holiday tasks.

1. *Punishments* at school are a serious item, and as at present administered certainly do not improve the mind or character. On the contrary, they frequently cause distinct harm to the body by depriving the delinquent of fresh air and exercise, and are, therefore, unless judiciously adapted, a hindrance to the legitimate work of school. It seems to be entirely forgotten that the troublesome and lazy pupil requires as much fresh air and exercise as the tractable and industrious one, and to deprive him of this simply renders him still more unfit for his duties.

School impositions are of various kinds; but the one that concerns us most to-day, and the one chiefly in vogue, is that senseless plan, unworthy of teachers, of writing *lines*. It does not improve the mind or elevate the character. It certainly spoils the handwriting; and is physically harmful to the body, in that it deprives the culprit of requisite fresh air and mental rest. I would earnestly appeal to this influential body of teachers to devise some punishment more worthy of an intelligent and noble profession, and more in harmony with common sense. The regular school routine is already, by its frequent excess, detrimental to the brain, without this senseless addition, which has no redeeming feature except its ease of application.

School punishments are necessary; but the taught have a right to claim that the already overworked brain should not have its power of application injured in this fashion. Would it not be beneficial

if the penalty assumed the form of some distasteful exercise in the open air, and thus replace the more genial recreation of games? In this way the delinquents would not be deprived of the air and exercise necessary for work, and this adventitious work would not then interfere with the performance of the regular routine essential to education. The one plan would improve the health, and therefore the work; while the other entails ill-health, impedes growth, and prevents efficient work. I would, further, point out that it is not always the pupil who is at fault; sometimes it is the teacher. Else how shall we account for the fact that some can teach, and maintain discipline, without punishments; while others can neither teach, nor keep order, without continual resort to this pernicious support of their incompetence? Why is it, again, that the same pupil with one teacher will work well without punishment, while with another his imposition never fails? Is the pupil or the teacher at fault? Is it a question of tact, sympathy, and affection? Is it compatibility or incompatibility of temperament? I do not hesitate to say that the teacher is sometimes more at fault than the taught. And it seems to me to be the stern duty of a headmaster or mistress, however inconvenient, to remove a pupil from such an influence whenever it exists, and thus obviate a great wrong to the pupil.

The very facility of giving "lines" encourages the practice. It would be interesting to analyze the hours when these "lines" are most frequently set.

I have not a doubt that they are administered chiefly in that hungry hour before breakfast, and during that still more hungry hour before dinner, when reflection is in abeyance.

I am so convinced of the evils of this system of accessory work, that I would suggest that no "lines" should be set without a minute being entered in a public punishment-book, with the name of the teacher, the name of the pupil, the number of lines assigned, the day and hour on which they shall be shown, and the reason for their imposition. And, further, that no pupil should be called upon to write his "lines" until the entry had been made. How strange some of these reasons would appear when deliberately expressed in writing, and open to the public gaze! In this way the teacher who is always punishing would be known; the pupil who is frequently in disgrace would be detected, and perhaps some other means might be devised for obtaining the desired end. It might be found, for instance, that if a name were reasonably entered more than three times in a term, a little corporal punishment, which would not entail extra mental work, or forfeit exercise, would have a salutary effect. And if this corporal punishment were suitably administered, by a teacher who was neither angry nor hungry, the maintenance of school discipline would be aided.

I would point out that it is the *certainty* of punishment that alone produces a wholesome influence. And here it is that the qualities of the teacher come

into play. For in no case is the character of a school exhibited more clearly than in its system of levying impositions. The greatest nicety of adjustment, a perfect patience, judgment, and knowledge of a pupil are necessary in according his just penalty. The strong and capable headmaster knows that when the majority of the pupils abide by school rules, and lead upright lives, he can afford to be less severe than he otherwise would be towards the few who transgress. The rise of a nation in culture and refinement is essentially accompanied by a mitigation of its punishments. The same law is true of schools, where a teacher can so elevate the general tone, that personal influence and persuasion will supersede most forms of punishment, and render the wholesale employment of line-writing unnecessary.

2. *Examinations.*—The next form of adventitious work to which I would refer is that of examinations. The work is a very large and important item in the school curriculum, and is not counted in estimating the amount of work at school. Yet it is largely to the influence of internal and external examinations that overwork is due. Examinations not only entail additional labour upon the regular school course, but also increase the standard of the normal school work. Examinations have various objects in view; and while necessary, and excellent in their aim, they require constant watch that their tendency does not err on the side of excess. Where

the hours of regular school routine are justly assigned, the extra application involved in what I have termed adventitious work is incapable of harm; in fact, allowance for it is implied. But where this additional toil so seriously tells is, when the regular routine is so hard, and the hours so long, that the pupils are always on the borderland of overwork, so that the entire strength of the growing child is fruitlessly consumed, and either impaired health or a complete breakdown ensues.

The subject of school examinations is a wide one, and can only here be briefly discussed, and only so far as it affects the mental and physical health of the pupil. I am sure no one will contest the propriety of testing, from time to time, the solidity and progress of the individual at school; since the process reveals not only the ability and advance of the pupil, but no less the capacity of the teacher.

School examinations are of two kinds — *test-examinations*, and *competitive examinations*. These may be kept perfectly distinct, but the former too frequently merges into the latter.

a. Entrance Examinations.—The knowledge of a child requires "testing" when he enters a school, in order to ascertain the nature and extent of the education he has already received. In this way the teacher is enabled to place him with schoolfellows of equal attainments, and in a suitable class, where the lessons will be accordant with his capacity.

In a school which is popular with parents, the

entrance test-examination may prove a severe competitive examination if the applications greatly exceed the vacancies; and this keen contest of able pupils with their equals, who only attained the position by such application that necessitated strain, continues at the examination at the end of every term throughout the school, and tends to a continual raising of the standard in every class. If this tendency be not watched by an able headmaster, all the pupils may be unwittingly pushed at work in advance of their years and ability, and the strain may cause permanent damage to the immature brain-tissue.

β. The advantages of *Term-Examinations* at school, when wisely arranged, consist in preventing overwork by the classification of pupils according to ability. By this means the teacher is enabled to judge the expediency of transference to a higher form, or retention under the drill of the lower form.

γ. *Competitive Examinations.*—Wisely conducted competitive examinations—when the regular school work has not attained its limit, when unaccompanied by mental anxiety and worry, and when the examiners are not too young—are no more injurious than reasonable competition in games. For individual to compete with individual, and school with school, in games, has no other than a salutary effect, provided the competitors are well trained and in vigorous health. But where insufficient and irregular exercise has preceded, an attempt at any feat of strength is very dangerous. For a pupil, again, who has worked steadily through

a term, or through his school-life, to compete with his equals at the end, stimulates ambition, and produces other results of a beneficial character. If, however, the pupil has been idle during a term, or during school-life, and attempts, in this undisciplined state, to make up lost time by dint of sitting up at night, and doubling his hours of work, the result must be injurious to mind and body, and, if frequently repeated, permanently disastrous. Unused brain-tissue becomes as limp as unused muscles.

Where a pupil has not sufficient ability to compete, and his tutor, failing to recognize the fact, enters him for the examination; or where a parent, in his ambition, greed, or penury, urges an incompetent child to this mental trial, a necessarily harmful issue can readily be foretold.

To demand, again, hard mental labour of a starved brain—a starvation arising from overgrowth, no less than from actual deficiency of food—is cruelty to children, and fraught with permanent damage to the nervous system.

δ. *Examiners.*—The questions set for school examinations should obviously be appropriate to the age and the ability of the pupil. I have seen questions placed before *children* to which, I feel confident, many examiners themselves could not have written adequate answers. This is not an encouragement to the pupil, as all examinations should be; and many an intelligent, industrious, and sensitive child, galled at his incapacity to answer well, is thus rendered

miserable, downhearted, and sick of work. The examination, instead of realizing its true function as a healthy stimulus to faculty, is thus converted into a moral scourge to character. Will it ever be realized by teachers that school troubles leave an indelible impression for life? It seems scarcely yet understood that a judicious ability to examine is as essential as the capacity to teach.

ϵ. *The Harm occasioned by Examinations.*—There can be no possibility of doubt that examinations sometimes occasion grave harm at school. This arises in most cases—

i. Where a pupil is urged beyond his capacity.

ii. Where a boy is pushed on for examinations when he has outgrown his physical strength, and has really no surplus brain-power with which to work. The period of greatest growth in the boy is from thirteen to sixteen, but especially during the sixteenth year. This is doubly true in the case of the girl, whose growth—with consequent immaturity of brain-tissue and diminished bodily strength—is far in excess of the boy's growth during the school age. The girl's growth is largest during the years from eleven to thirteen, but mainly during the thirteenth year.

iii. An ambitious, but not a clever boy, or one who is poor, and to whom a scholarship, or exhibition, is imperative for the continuance of his studies, works beyond his strength: the worry lest he should fail, the entailed sleeplessness at night, the prolonged

toil during the day, and the frequent excess of the work beyond capacity, cause a complete, and in some cases a final, breakdown.

iv. The excellent rule of "superannuation," so essential in the wise conduct of our schools, may be too rigidly enforced, and the examination of each "form" at the end of a term may then become a veritable competitive examination; for it means that the pupil who is not progressing up the school, form by form, according to his age, is compelled to leave.

Mr. Pridgin Teale[1] has so well expressed himself on this point that I cannot resist the temptation to quote. "Every term the boy's position depends greatly upon the examination, and every boy is struggling hard to secure his 'remove,' with the fear of 'superannuation' staring him in the face. 'Superannuation,' as now carried out in many of our public schools, is a very serious, and is likely to become a very injurious and unjust, factor in education. When first introduced its object was good. It was intended to weed out boys hopelessly backward, who as big elder boys among younger ones were doing no good to themselves, and harm to their classfellows. The effect, however, is insidious and progressive. At first none but idle and exceptionally dull boys fall under the rule; then, boys dull but not idle; and when all the exceptionally idle and dull boys have been cleared

[1] "The Effects of Modern Systems of Compulsory Education and Competitive Examinations on the Mental and Physical Health of the Community." By Pridgin Teale, M.B., M.A., Oxon.

out, the rule still goes on closing in upon industrious and average boys, like an elastic band, ever acting, ever tightening, ever eating more deeply. Such a rule, when once it reaches industrious boys of good character, becomes unjustifiable and a positive wrong. Boys are dismissed from the lower forms of public schools, not for any fault of their own, but because other boys more clever, or more skilfully coached, or less honest than themselves, manage to win more marks, and secure a 'remove.' Boys of sixteen are turned adrift, after going through the trials and drudgery of their freshmen's years, just as they reach the happiest, the most profitable period of public school life, and being too old to be admitted into another public school, have to run the terrible risks of a private tutor's small community. This is cruel to the boys, cruel to the parents, and unjust to the school, which loses many of the steady though not brilliant boys; such boys are the backbone of the school and of the nation, and turn out some of the best workers in after-life, often, like the tortoise in the fable, proving winners in the long run. But the effect is far-reaching. It induces a constantly increasing competition in the lower forms of the school itself, and it compels more early pressure in the preparatory school in order to secure a boy against the dreaded 'superannuation.' The immense popularity of our public schools at the present time is not an unmixed good for the community, as it compels them to make a selection from their too numerous

applicants, tempts them to resort to competition as an easy means of selection, and enables them by means of 'superannuation' to ride roughshod over the interests of dull and backward boys, who, above all, have need of the careful teaching and training for which such schools exist. Surely, in so doing, our great schools repudiate some of their most solemn obligations as national educational institutions, and whilst scrambling for the hares reject as worthless the not less valuable tortoises."

Finally, the purpose of examinations should be to ascertain the nature and extent of a pupil's knowledge, and not directly the discovery of the scope of his ignorance. Yet examiners too often merely strive to show the examinee how little he knows, by setting him catch questions, or intellectual conundrums; and it is these examiners who make the fortune of the "crammers."

3. *Holiday Tasks.*—The last section of adventitious work to which I shall refer is, that which has received the name of "Holiday Tasks," and is a very important piece of work superadded to the regular school routine.

The work of school is rightly considered so laborious to teacher and taught, that it has been found a necessity for both to have a prolonged rest three times a year, in some cases amounting altogether to one-third of the year. Without these vacations, while the work of schools is conducted as it is, the

symptoms of overwork, and want of sleep, would be terrible to contemplate; and yet the incessant work of the terms is not considered sufficient for—oh, the irony here of the expression!—the *culture of the brain.* I desire to point out that it would be far more in accordance with physiological principles, if the brain had less strain and more sleep during term-time, and if the vacations were curtailed. But if it be deemed expedient that, from all points of view, which I cannot now discuss, the work during term should be as laborious as it is at present, I think that grave injury is done to the immature brain by the encroachment of holiday tasks upon the vacation rest. For the very brain that requires the well-earned repose is the only one which this system really affects—the brain of the industrious pupil; while the indifferent pupil regards the matter as immaterial, and probably only deigns to open a book on his way back to school. Thus the pupil who has worked his best during term is the one who is shadowed with this penalty in the vacation.

Of what avail is this "pious fraud"? Does it benefit the teacher? Certainly not. Is it of advantage to the parent? I doubt it. What is its effect upon the pupil? With an experience as a school physician equalled by few and exceeded by none, I most emphatically affirm that the plan involves positive harm to the pupil, inasmuch as it simply irritates and prevents him following his own bent—for which too little opportunity is already afforded—

at a period when he needs the whole time for rest and recuperation. There is, however, one to whom the plan is of signal benefit—the bookseller!

I have never yet heard a sensible argument for the system. I sincerely hope, therefore, that this great meeting of teachers will raise its voice so decidedly and unanimously against these tasks as to lead to their total abolition.

I would, finally, reiterate that an unjust and incomplete view will be obtained of the amount of work at school, and an effective remedy accordingly fail to be devised, unless the two descriptions of work which I have mentioned be both kept in full regard.

IV.

The Brain Capacity of the Pupil in Relation to Amount of Work.

The specific intellectual aim of the teacher's work is the development of the brain of the pupil, the tissue of which consists of cells and fibres of nerve-matter, which are as capable of increased growth under exercise as are the muscles.

If this work be unwisely assigned, the growth of the brain is stunted; for it is an infallible law that immature tissues are incapacitated and deteriorated by excessive labour. The younger the child, the more disastrous is the effect of pressure. Moreover, a certain indefinable flavour is usually wanting in fruit ripened by the forcing process. Some call it folly to force the mind during childhood and adolescence: I call it wicked. For by so doing a sure foundation is laid for the development of neuroses, which mar not only the whole life of the individual, but also that of those dependent upon him.

Yet what are the arrangements in vogue in our schools of the present day? In some, the pupils are only in school for an hour at a time; in others for two hours, and then a break of fifteen minutes; while

in others the plan prescribes the period of 9 a.m. to 1 p.m., and then again 2.30 p.m. to 5 p.m. With what result? Can efficient teaching continue for four hours without harm to teacher and taught? Both tend to become torpid and flaccid, quite irrespective of the work performed, owing to the poisonous state of the atmosphere; for we are not sufficiently advanced in sanitary science to regard it as loathsome, no less than noxious, to rebreathe prebreathed air. Until we reach this height, let teachers learn the unprized value to themselves and their pupils of a frequent break in school at every change of lesson. This break should be frequent in order to avoid satiety—say three minutes—to enable the teacher to yawn unobserved, and the taught to run and shout and inflate the lungs to their full extent, and thus avoid that inattention and restlessness which are nature's cravings in the young for healthful change. The windows and doors could be meantime set wide open for the purification of the air.

Even at the age of sixteen, children are permitted by, and not as an infringement of, school rules to continue at work until 11 p.m. In other cases the work enacted is so laborious that pupils, *sub rosâ* I grant, resume their work in bed—certainly not from love of their lessons—and persevere with it until twelve o'clock and after, in order that they may complete their allotted task. I feel confident your answer will be, that, in so doing, they are disobeying stringent school rules. But remember, that it is the severity of the ill-judged tasks assigned by you,

which necessitates such a course, and that the teacher is more in fault than the taught. Would that these long-suffering children were less docile, and claimed, as their birthright, a smaller tale of bricks as their legitimate task until growth is completed.

These excessive hours of work are not confined to primary or secondary education; or to one grade of schools for boys or girls; or to one country: they are world-wide in their prevalence. Referring to overwork in Italian schools, Signor Martini, the Minister of Public Instruction, in the recent debate in her Chamber of Deputies on the estimates for public instruction, very pithily remarked that—"We are forgetting division of labour. In our schools we are swallowing much and digesting little. The secondary school ought to stir the intellect and inspire the soul with the love of culture. We have enlarged our programmes, but the cerebral convolutions have not enlarged *pari passu*. Whilst the able-bodied artisan demands the restriction of his labour to eight hours, we exact from our boys of ten a labour at once more prolonged and more severe."

In those schools where a fresh "professor" teaches the "class" at every change of hour, it reminds me most forcibly of a drive on the "Brighton Stage-coach," where the driver is changed at each stage instead of the horses.

The hardship entailed on children through the enthusiasm of the teacher, or the severity of the

examinations for which they are being prepared, is sometimes so oppressive as almost, to my mind, to call for the attention of the Society for the Prevention of Cruelty to Children. I know of children of seven years of age spending five hours a day in school; and others of fifteen to eighteen having so much regular and adventitious work set, as to prolong their working day to eleven and twelve hours, with incalculable evil consequences.

Moreover, it is an established fact, that the best work is not obtained at school where the hours are longest, and the pressure greatest. Some time since, Mr. Charles Paget, M.P.,[1] tried in the village school on his estate at Ruddington, a very interesting experiment. He was not satisfied with the general progress made by the boys, and accordingly provided them with a large garden. The school was then divided into two similar sections, one of which was kept to the ordinary school work for the usual number of hours; the other for half of those hours only, the rest of the school-time being devoted to garden work. At the end of the term, the half-time, or gardening boys, had excelled the others in every respect—in conduct, in diligence, and in the results of study.

This fact has been proved also by Sir Edwin Chadwick,[2] from the experience of half-time schools,

[1] "Overwork in Schools," by R. Brudenell Carter, F.R.C.S.

[2] "Overpressure in Elementary Schools:" The Health Exhibition Literature, vol. xi. p. 389.

where the children actually excelled those in the Board School. He gave a prize to those who got first through the fourth standard, and it was found, that the prize children gained it at seven years of age, the average age of attainment of the whole school being nine years and a half; whilst in the Board Schools, and all the long-time schools, it was ten! Mr. Mundella, M.P., originally hoped that he would pass the children through the fourth standard at ten years of age, but it was generally eleven and twelve.

Whatever subject is being taught, the 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 acquire readily; then gradually induce him to face work which is distasteful; and with each step of happy advance will come an eager desire for progress.

The brain, as I have shown, is of most delicate organization, and is formed of a tissue which, being immature, requires the gentlest moulding. Yet the work assigned is sometimes too severe for age and capacity, so that it is not grasped and mastered, and progress remains in abeyance, or, generally, is converted into retrogression; at other times it is too long, and amounts to an everlasting grind, which always tells its tale in weakened brain, body, and interest.

I would suggest for your consideration the following scale of work, as that most applicable to all ages;

and even this will require alteration for individual cases, especially for girls.

TABLE OF SCALE OF WORK FOR SCHOOLS.

Ages.	Hours of work per week.
From 5 to 8 years of age	12 hours per week
„ 8 „ 10 „	18 „
„ 10 „ 12 „	21 „
„ 12 „ 14 „	25 „
„ 14 „ 15 „	30 „
„ 15 „ 16 „	35 „
„ 16 „ 17 „	40 „
„ 17 „ 18 „	45 „
„ 18 „ 19 „	50 „

On Sundays and half-holidays there will be a less number of hours of work than on other days, so that some days would be harder than others. These hours should rarely be exceeded—never by regular routine, and only under influence of special stress of work, such as preparing for examinations—a strain which should be immediately followed by complete rest and extra sleep, in order to restore the mental and bodily elasticity.

It should ever be borne in mind that the young child should never be permitted to compete; yet one hears of scholarships for children between seven and nine years of age. Such children are without the power of sustained endurance. This is only educed towards the end of education, and it is one of the chief functions of the competent educator to gradually train the brain, so that it may be physically able to

bear prolonged mental effort, not only without detriment, but with positive benefit to its structure. At some schools, at the present time, the work is so severe and prolonged, and the sleep so deficient, that the pupils become so dazed as to be unjustly regarded as stupid—the fault being traced to the wrong source. Children too frequently return home for the holidays looking jaded, not from illness or ill health, but simply from unwise and unreasonable school arrangements.

V.

The Effects of Excessive Work, or Overwork.

We are now led to discuss more minutely the subject of overwork, and, for an adequate presentation of the case, it must be borne in mind that intellect is simply brain function, and that for every brain a high-water mark of effort naturally exists, which it is unsafe to exceed.

Sometimes it is the brightest and most promising scholar who is worked at too high a pressure, and, if not checked in time, his health, or even his life, may be the forfeit demanded. But it is not always the bright, clever pupil who is capable of being overtaxed.

Sometimes it is the dull, but conscientious pupil, whom one is apt to term the stupid boy. Alas! how often one misjudges the boy concerning whom the teacher is apt to think, harass him as he will, that he, at all events, cannot be overstrained, as he apparently learns nothing! Yet this is the one who may suffer the most severely from overwork, since he labours beyond his feeble mental capacity. The anxiety attending such work, when the child realizes that he cannot remain at school, is sometimes most pathetic, and a complete breakdown ensues. He works thus, either for his own advancement, or from love of his parents, or because he is pressed by his tutor or parents, or by reason of the rule of superannuation. It is this stamp

of boy, with his imperfectly formed embryonic nervous system, who succumbs most readily. Such a type of child is apt to be damaged the most seriously, because his nervous tissue is more easily overtaxed, showing itself, in the early stage, in the form of hysteria—that sure sign of over-tension and nervous exhaustion, whether proceeding from overwork or disease.

Do not for one moment think that, when I speak of overwork, I mean only that form of overwork through which a boy or girl completely fails. Although I know of many individual cases, occasion for such an event should never exist. Those responsible should detect the overstrain long before this disaster is reached, and work should be absolutely prohibited until recovery is beyond dispute. These cases, sad as they are, are eclipsed by a far graver form of overwork—graver by reason of its frequency and of the multitude affected by it—which passes unobserved, because through the natural elasticity of youth the immediate effects soon subside, and the remote results are never witnessed by the teachers who occasion the evil. Its results, however, are detected by the medical profession (which is sometimes thought incapable of forming an accurate opinion upon the subject), whose whole life is spent in the study of the human being under every phase of its existence.

I do not wish to imply that *all* schools overwork their pupils. I venture to say, however, that a large proportion of schools not only commit this error, but the still graver one of excessive number of hours of work, and unreasonable restraint, which are especially

injurious to the younger members of a school. And I desire to point out to you that they are sources of great evil to the unfortunate pupils who are subject to these conditions. Nor do I desire the implication to be inferred that pupils frequently suffer from a complete breakdown—that is, comparatively, a small part of the general question; for, were this to occur, parents would soon enforce the reformation of such schools by the never-failing remedy of avoiding them.

There is sufficient scope, however, for overwork short of this result, as I shall show presently when I record the symptoms which indicate its existence. If pupils leave school at the end of term worse in health instead of better, it is clear that they are being wronged by some of the school arrangements. Yet it is quite common for boys and girls not only to look ill at the end of term, but, even in the case of robust children, to lose weight, although having concurrently increased in height. Weight should have increased in a corresponding ratio. Loss of weight—and even stationary weight—during the years of growth invariably mean overwork, under-feeding, incipient disease, or recent illness.

I even hear of children who, while suffering from illnesses, and well-marked functional disturbances, are kept fully at work exactly as if they were in perfect health. Surely the strain of these ailments upon the constitution is sufficient without lessons being superadded.

So far from all schools being tainted with overwork, it is a well-known fact that schools exist where the pupils are practically taught nothing. It is difficult

to discover this fact at first, except when several pupils are transferred to a higher school, all of whom are ignoramuses; for if only one pupil be transferred, he may be regarded as merely a dull or backward boy. The pupils from these schools usually go home happy, cheerful, and sleek in skin; and parents pay their cheque with pleasure, and recommend the schools to friends, little realizing the true state of the case.

There are other schools—all honour to them—where the principal not only recognizes, but performs his duty to those placed under his care, during this most critical period of life; where the work is suitably arranged; where sufficient sleep is provided for; where all are compelled to take exercise adapted to their size and strength; where the food is ample and appropriate, above all, where the cooking is well done; and where the pupils consequently return home in increased vigour of body and mind.

There are other headmasters who, in their desire to excel—and I believe there are no schools in the world equal to our English schools of all grades, though many faults still require rectifying—fail to measure the material with which they have to work, and hence do harm. Incalculable harm, I mean—not physical only—for such masters frustrate their own desires by piling on work *ad nauseam*, until a distaste is engendered which lasts with life. And what total advantage has been gained? Perhaps two per cent. secure scholarships at the university, while ninety-eight per cent. of the boys have been taxed beyond their powers without compensating gain.

If there are any present who question my facts about overwork, let them make a careful investigation themselves, and I can confidently predict their concurrence. I maintain that if schools were to continue their work for a whole year, except for the month's holiday which usually appertains to most workers, both teachers and taught would break down palpably. Yet, if the present *régime* were a healthy and appropriate one, this result could not occur. To employ a rough illustration, the process of education at present in vogue resembles, in a large number of instances, a game of skittles: parents stand their children up in health, and in three months teachers bowl them down; the parents set them up again, and again they fall.

If I were requested to inspect a school for the purpose of ascertaining whether overwork prevailed, I should require to view it at the commencement and at the end of term. I should then compare the pupils at these epochs. I should not select isolated cases; for in all schools there are individuals who, under all conditions, look ruddy and healthy, while others, however well cared for, always resemble ghosts. These extreme cases are not to be taken as types of underwork or overwork. But I should gauge the average. After an inspection of twenty schools, I believe I could tell the number of hours the pupils were worked, especially if I could ascertain their hours of sleep, and be present at their meals.

I fear that there must always be a certain amount of overwork in schools so long as teachers are

inadequately equipped with the necessary professional skill of disciplinarians, and trainers of children; for they cannot but lack the requisite judgment until they are experienced in the ways of children.

i. *The Effects of Overwork on the Pupil.*

The *symptoms* of overwork in the young are many and various. Some are palpable enough on the surface; others equally so on search. I shall now classify these symptoms, as I desire the evidence to be unmistakable.

1. *The Character and Disposition* can be best gauged by comparing the individual with his former self. In this way even trivial symptoms are a valuable index. Under this head I would include restlessness, inertness, mechanical obedience to orders, absence of power of origination, spirit and pluck vanished, answering in monosyllables, learning lessons as automata, without intelligent interest, returning home perfectly apathetic, even if they escape a breakdown.

2. *The General Appearance* is sallow, aspect unhealthy, a dark tinge under the eyes, dull-eyed, eruptions frequently on the skin.

3. *The Muscular System.*—Muscles flabby and wasted, without elasticity; and gait, consequently, without the spring and vigour of youth.

4. *The Nervous System.*—Headaches, stammering, sleeplessness, talking and walking in sleep, inability to fix attention, hysteria, shirking society, neuralgia, earache, brain-fever, and mania. Looking to the number of hours some children, especially

girls, are compelled to work, their brains must of necessity be pretty well addled, and this condition is quite sufficient to account for the curiously muddled answers they give to school questions, which are often quoted as amusing, but which, on the contrary, to my mind are appalling in significance.

5. *The Circulatory System.*—The pallor of countenance, arising from deficiency of the red corpuscles of the blood, is one of the most marked symptoms, and, as I have already pointed out, prevents the effective nourishment of the brain. Feebleness of pulse, too, is apparent.

6. *The Respiratory System.*—Shallow breathing, imperfectly inflated lungs, poor health, wasting, and subsequent death record.

7. *The Digestive System.*—One of the commonest results of overwork is constipation, the *fons et origo* of endless evils in the young; fœtid breath, loss of appetite, and, in consequence, fastidiousness in the matter of food.

8. *The Urinary System.*—An exceedingly frequent effect of over-pressure is albuminuria, which entails many discomforts. This is a common cause of rejection at the medical examinations for the various Government services, as many as ten per cent. of the applicants failing from this defect alone.

9. *The Generative System.*—These functions become disordered in girls, entailing in consequence marked ill health, and their general condition prevents work that is of value.

10. *Loss of Weight.*—Of all the symptoms of

overwork, the most characteristic is loss of weight, showing that a crime is being committed against the body—a crime which leaves its permanent stamp upon the constitution.

But there are some who, while recognizing the fact, satisfy their consciences with the assertion that loss of weight during term arises from the greater amount of exercise taken at school, and that it is in reality a healthy sign. Were such the accurate interpretation, these weight-losers would concurrently improve in healthy appearance; while the contrary is true. Besides, if the proportionate height and weight tables be consulted, it will be found that the "vacation" weight is the normal, and the "term" weight abnormal.

Further, loss of weight also occurs in day scholars, who eat from the same table throughout the year, so that it does not always arise from deficiency of food, as others assert.

I do not affirm that overwork is the sole cause of loss of weight at school; for improper feeding doubtless claims its share, as well as excessive physical exercise, insufficient sleep, and, finally, illness, which still largely consists of unprevented preventible diseases. But it is impossible to speak now of these causes separately. Suffice it to say, from whatever cause this condition arises, so grave a wrong is committed, that you must forgive me if I use strong expressions, for serious evils demand vigorous language.

Thoughtfully consider the question! A child is

placed at school during the years of growth and development. If it be justly cared for in all respects, its height and weight should annually increase—not, it is true, with steady regularity, for in the autumn and winter the advance is less than during spring and summer; and in certain years, as I have already mentioned, the height increases more rapidly than in others. But the weight always bears a certain ratio to the height, as will be seen from the following tables, so carefully and laboriously worked out by Dr. Charles Roberts.

TABLE showing the average and mean height and weight, and the annual rate of increase, of 7855 boys and men, between the ages of 10 and 30, of the *artisan* class—town population—

Age last birthday.	Height, without shoes.				Weight, including clothes of 9 lbs.			
	Average.	Growth.	Mean.	Growth.	Average.	Growth.	Mean.	Growth.
	Inches.	Inches.	Inches.	Inches.	lbs.	lbs.	lbs.	lbs.
10	50·52	—	50·50	—	66·31	—	66·0	—
11	51·52	1·00	51·50	1·00	69·46	3·15	70·0	4·0
12	52·99	1·47	53·50	1·50	73·68	4·22	74·0	4·0
13	55·93	2·94	55·50	2·50	78·27	4·59	78·0	4·0
14	57·76	1·83	58·00	2·50	84·61	6·34	84·0	6·0
15	60·58	2·82	60·50	2·50	96·79	12·18	94·0	10·0
16	62·93	2·35	63·00	2·50	108·70	11·93	106·0	12·0
17	64·45	1·52	64·50	1·50	116·40	7·66	116·0	10·0
18	65·47	1·02	65·50	1·00	123·30	6·97	122·0	6·0
19	66·02	0·55	66·00	0·50	128·40	5·08	128·0	6·0
20	66·31	0·29	66·25	0·25	130·60	2·20	132·0	4·0
21	—	—	—	—	—	—	—	—
22	66·60	0·29	66·50	0·25	135·40	4·81	136·0	4·0
23–30	66·68	0·08	66·50	—	139·00	3·58	138·0	2·0

TABLE showing the average and mean height and weight, and the annual rate of increase, of 7709 boys and men, between the ages of 10 and 30 years, of the most favoured classes of the English population—public-school boys, naval and military cadets, medical and university students—

Age last birth-day.	Height, without shoes.				Weight, including clothes of 9 lbs.			
	Average.	Growth.	Mean.	Growth.	Average.	Growth.	Mean.	Growth.
	Inches.	Inches.	Inches.	Inches.	lbs.	lbs.	lbs.	lbs.
10	53·40	—	53·00	—	67·4	—	67·0	—
11	54·91	1·51	54·50	1·50	72·9	5·50	73·0	6·0
12	56·97	2·06	56·50	2·00	80·3	7·39	80·0	7·0
13	58·79	1·82	58·50	2·00	88·6	8·27	88·0	8·0
14	61·11	2·32	61·00	2·50	99·2	10·61	98·0	10·0
15	63·47	2·36	63·50	2·50	110·4	11·21	110·0	12·0
16	66·40	2·93	66·50	3·00	128·3	17·92	126·0	16·0
17	67·84	1·46	68·00	1·50	141·0	12·69	140·0	14·0
18	68·29	0·43	68·50	0·50	146·0	4·97	146·0	6·0
19	68·72	0·43	68·75	0·25	148·3	2·20	148·0	2·0
20	69·13	0·41	69·00	0·25	152·0	3·87	150·0	2·0
21	69·16	0·03	—	—	152·3	0.27	152·0	2·0
22	68·93	—	—	—	154·7	2·44	—	—
23	68·53	—	—	—	151·7	—	—	—
24	68·95	—	—	—	149·2	—	—	—
25–30	69·06	—	69·00	—	155·2	0·42	154·0	2·0

Is it not justifiable to speak in unmeasured terms when we see that, while under the teacher's care, and as the result of overwork, over-exercise, or under-feeding, a child, though increasing in height (which, moreover, from the same causes, is below the normal rate), either remains stationary in weight, or, as is actually the case, during every term year after year —I could record endless instances—finishes the term many pounds in weight lighter than at its commence-

ment, regaining weight in the holidays, to be once more reduced on the return to school? I venture to state, after the maturest consideration, that this fact is an unpardonable injury to the constitution of the adolescent. And, moreover, whenever this loss of weight in body takes place, there is also, in exact proportion, a diminution of weight in brain, so that the teacher frustrates his own endeavours. If I assert that a teacher should make allowance in work for a pupil who for a season fails to grow, or for one who has grown abnormally—so that little reliable material has been left for brain-growth—I may be thought pedantic. Yet this natural concession ought to be permitted by the real educator, who thinks more of his pupils' future than his own apparent repute. Never forget that brain-growth proceeds *pari passu* with body-growth. The intellect and mind act only through the brain, and it is this organ, in the highest state of efficiency, which the teacher requires as the basis of his work. It is mental and bodily exercise alone that can produce a symmetrical development of the mental faculties. And, further, whatever is taken from the brain in the form of work must be at once replaced in the shape of sleep and food.

The symptoms of overwork amongst girls are greater than those amongst boys, because in the latter case the long hours of work are compensated to some degree by exercise; while this is not the case in girls' schools, as little exercise is afforded beyond an occasional walk when the weather permits. In girls'

schools the various "systems" should not take the place of games; they require the recreation of games, not systems of exercise. If, at present, there be really no place suitable for play out-of-doors, then a bear-garden should be made of the schoolroom during play-time, so that the children may have their romp.

It may be asked, then, what I regard as the functions of a school. Candidly I reply, that I hold the highest ideal—and an ideal not beyond your compass—of the school-life of a nation; for, in that stage, it is mainly that a nation is created in physical development, in nobility of character, and in mental power of achievement. On teachers the serious, but happy, duty rests of realizing this possible ideal. And it is in the hope of stimulating all to look duties and responsibilities fairly in the face, and reviewing their position, under the enlightenment of the close of the nineteenth century, that I am addressing this society to-day—sometimes, it may be, in scarcely measured terms, but in terms that I should employ irrespective of the character of my audience, and as justified by the nature and imperious importance of the subject.

From my point of view, a school, in its ideal form, is a place where the young are sent for the purposes of a liberal and humanizing education, from about the ages of seven to nineteen; sometimes earlier, sometimes not so late, the rule being altered rather from necessity than choice.

It is a place where everything is regulated to

such a nicety, that the most perfect health possible is attained in mind, body, and character, since no effort is relaxed to render the mode of life accordant with the realization of the highest ends: where *work* is sufficient, but not excessive: where the natural bent of the individual mind is to some extent consulted, without the lassitude of persistent monotony: where *sleep* is ample, sufficient for the restoration of wearied, as well as the daily growth of fresh, brain-tissue: where *exercise*, while compulsory, is adapted to the various ages, sizes, and strength of the pupils, and varied as much as possible, with some reference to the personal choice of the individual, and sufficient time is permitted for recreation and recuperation: where none are *detained in school*, under any pretext, after a meal has commenced, so that the pupil has to "put up with" a cold, uncomfortable, and, too frequently, uneaten meal; but where all sit down to well-served meals punctually together. In this way only will the wholesome food *necessary* for work be enjoyed, and the delicacies of the pastrycook eschewed. Where the *food* is adequate, plain, varied, and well cooked, with sufficient time allowed for mastication. The cooking of food at school seems to be one of the chief grievances, the complaints in this respect being incessant and reasonable. The answer of those who cater will be, I fear, the difficulty of obtaining suitable cooks. "When I asked an ironmaster," says Emerson, "concerning the slag and cinder in rail-road iron, his answer was, 'There is always good

iron to be had. If there was cinder in the iron, it was because there was cinder in the pay.'" Where ample *cubic space* is provided in bedrooms and class-rooms; and finally, where some regard is devoted to *character*, so that no child may err through lack of the supervision which is his right during school-life, while the character is unformed. For strength of character is a process of development quite as much as that of muscles and brains, and the two proceed *pari passu*. And liberty should never mean licence. Here it is that the personal character of the teacher has such influence over the pupil for good or evil, —an influence which, when of the right kind, has engendered, too, a lifelong esteem.

I fear that few schools attain this ideal, because few teachers realize *all* their responsibilities.

Of the average school, the following description is, I am afraid, the more accurate account :—

In them *work* means that all brains are ground in the same mill; that *overwork* is prevalent; that *sleep* is curtailed to a minimum, with great sacrifice to the nascent brain, where a maximum should be enforced; that *exercise* is left too much to the random decision of the pupils themselves, who, lacking the necessary knowledge, and the judgment of experience, become consequently hard taskmasters; that small boys are frequently compelled to participate in the same games with big boys; that the delicate have to rough it with the strong; that the boys themselves regulate the kind and extent of the clothing which shall be worn at

games, although they are devoid of the very rudiments of physiological knowledge; that the monotony of recreation is too oppressive and constant; and that the monotony consists of about thirteen weeks of running and fives, thirteen weeks of rowing and cricket, and thirteen weeks of football, with practically no change; that *girls* are expected to show straight backs and good limbs, where exercise is barely recognized as a necessity in development, and recreation, in its true sense, is unknown; that, while the *food* may be sufficient, plain, and wholesome, little regard is paid to the cooking; where the sameness is so assured that the food of each day of the week, and every week of the term, is known beforehand, whereas it could be easily varied by the exercise of a little more forethought, without extra expense; that the *cubic space* of dormitories, cubicles, class-rooms, and studies, will scarcely bear investigation, and rarely commendation; and that children are left too much to follow the devices and desires of their own hearts before their force of character has been sufficiently cultivated.

ii. *The Effects of Overwork on the Teacher.*

But if overwork exist amongst the taught, does it extend to the teacher? In reply, I would say, try and see if you could bear the strain of your work for a year without the long holidays. If not, then your work is unreasonably excessive. And if severe upon you, whose tissues have attained their maturity, how

much more so upon the immature brain of your pupils!

Perhaps the strongest argument I can use to influence you to desist from the present course is this: that an overworked teacher cannot teach with the requisite intelligence, spirit, and evenness of temper that are absolutely essential in dealing with the formation of character in the young. Excessive toil entails apathy, and touchiness of temper; brings out the teacher's weak points, and keeps him on the borderland of ill health, where, should illness supervene, the interval between recovery and death is approximately insignificant.

I have not, however, the same sympathy with the overworked teacher that I have with the taught, for the former can usually lighten his labour; and, in addition, he has completed his growth and development, so that the brain, like the difference between the matured oak and sapling, is more capable of bearing the strain.

I must add, however, that some of the saddest cases I have had to deal with, in the course of my professional career, have been those of breakdown from overwork in teachers, male and female; especially amongst pupil-teachers, who have to toil all day long with their children, and far into the night for themselves in preparing for their own examinations.

Of the teachers in *primary* schools, Sir Edwin Chadwick says, that it has been found by statistics that the death-rate is twenty per cent., whilst in the

army it is six per cent., in the navy four and a half per cent., and in prisons not more than three per cent.

In respect of teachers, who, being strong and healthy, fail to appreciate the value of good health as so many do, who are negligent about taking regular exercise, and who continue their work into the small hours of the morning, night after night, it only requires a slight acquaintance with their general state of health to predict, with almost mathematical certainty, when the breakdown will occur, preceded as a rule by a period of indifferent health, or a series of trivial ailments which are either disregarded, or assigned to other causes. And what is still more sure is, that work is never resumed with the same taste, care, and enthusiasm again.

And, further, the schoolmistress will succumb long before the schoolmaster is affected by the unwise mode of life.

VI.

The Necessity of Rest to the Brain.

When this world was formed, it was ordained that all living things, vegetable and animal, should have rest. Subsequently it was enjoined that "by the sweat of his brow" should man live. It was decreed that there should be a daily rest, and a periodical rest once a week, and again once in seven years.

The exercise of function involves consumption of structure. Repair demands repose. If the work performed exceed the necessary period for repair, damaged structure ensues. Hence the importance of clearly understanding that *ex nihilo nihil fit* in the education of the young.

i. *Daily Rest.*

Sleep.—No vegetable or animal tissue can perform its functions without rest. The heart itself, frequently instanced as an example of continual action from birth to death, enjoys a period of rest after every beat, equal in length to the duration of its two contractions, and amounting daily to twelve

hours. Growing tissues, again, require rest for replacing the result of wear and tear, and an extra supply to provide for growth and development. For it is a well-established fact that more sleep is required for the formative than for the intellectual functional activity of the nerve-centres. During the years of growth and development, consequently, sufficient sleep for this provision must not only be permitted but enforced. Do not, however, for one moment imagine that the deleterious effects of overwork during youth can be compensated by an extra amount of sleep, since Nature repudiates the attempt, and will not permit a forced brain to rest. In the over-exercise of the animal functions, however, she does not resent the payment of the balance due; for the more the muscles are used, the more the brain will rest.

Teachers must realize the fact that to stint the child in sufficient sleep means to stunt the growth of body and brain, and must not forget that the highest interpretation of the work of the teacher is so to work the mental faculties that the largest condition of brain development may be obtained for work in after-years.

I point out, further, that insufficient sleep for growing children practically amounts to overwork; and overwork renders the child an easy prey to disease.

The measure of the extent of sleep required at the school age is indisputable, and teachers should not only permit, but enforce it, by prohibiting sitting

up at night after hours, or rising early in the morning for completion of work at the expense of sleep. This rule should be inexorable.

"I would keep better hours if I were a boy again," declared an American writer; "that is, I would go to bed earlier than most boys do. Nothing gives more mental and bodily vigour than sound rest when properly applied. Sleep is our great replenisher, and if we neglect to take it regularly in childhood, all the worse for us when we grow up."

THE AMOUNT OF SLEEP REQUIRED AT THE SCHOOL AGE.

Age.	Hours.
Under 10 years of age ...	11 hours
„ 13 „ ...	10½ „
„ 15 „ ...	10 „
„ 17 „ ...	9½ „
„ 19 „ ...	9 „

There is one error which must be rectified in individual cases as need arises. I have constantly noticed that children are quite satisfied with the preceding amount of sleep until the advent of puberty. For some time before and after that date, perhaps a year—when the growth is so enormous, and the development of new organs entails so severe a stress upon the system—this amount is entirely insufficient. It is the failure to recognize this fact that does harm, especially to girls, whose growth is more rapid and less prolonged. For much more sleep is required for growth than for functional activity of the brain,

and much more for the nerve-centres of animal than for those of intellectual life. "I honour health," says Emerson, "as the first muse, and sleep as the condition of health."

ii. *Periodical Rest.*

1. *Half-holidays.*—These are a necessity for teacher and taught, as during them the most excellent part of education and training is carried out in the form of school games. They are as essential for the development of the body as work is for the development of the brain, and they assist largely in the formation of character. But I must not touch this question to-day.

I would again urge upon you, what I have already previously discussed, that it is unwise, nay, that it is unfair, to allot a half-holiday with the right hand, and take it away with the left in the shape of impositions. The child who suffers the most punishment is usually the one who needs the most fresh air and exercise for his work and health,—in fact, he is often lazy, troublesome, or mischievous solely through lack of it.

2. *Sundays.*—Sunday is usually called the "Day of Rest." At schools, and especially at boarding-schools, this is a misnomer; for Sunday at school is a real working day, and rightly so. Where this is not the case, and the day is an idle one, the strain

upon the teachers must be severe; for, with neither work nor supervision, some of the worst friendships are formed, and some of the greatest bullying occurs.

The ordinary worker in the world, who properly employs his Sundays, has fifty-two days of rest, or seven and a half weeks' holiday in the year, and, if Holy days and "bank holidays" be counted, over eight weeks of annual rest. The pupil at school forfeits, and justly, from thirty-six to forty-six Sundays, *i.e.* about six weeks' rest. Thus school-children who have sixteen weeks' holiday in the year (which is the maximum) lose six weeks' rest in these working Sundays, so that their holidays amount nearly to ten weeks' rest only in the year. If, then, school punishments are levied from half-holidays, and the holiday task is added to the working Sundays, how many days' rest do children really obtain? An amount entirely insufficient for the work which is demanded. To deprive them, therefore, of their well-earned holidays is a policy which needs merely to be mentioned to be stigmatized.

3. *Vacations.*—As education is at present conducted, the vacations are an absolute necessity to the welfare of the pupil. It would, indeed, not be amiss if they were, for a season, totally abolished, for the reason that schools could not continue their present vicious course of overworking the young, inasmuch as there would be, in many cases, neither

pupils to teach, nor teachers to instruct, and thus the system would necessarily become rectified to the advantage of both.

Without vacations, too, owing to excessive work, and insufficient sleep during term-time, growth would be more stunted, the nervous system more jaded, and disease more frequently generated.

Teachers, on the other hand, frequently regard them as an opportunity for extracting more work from the unfortunate pupil. Happily, however, most pupils do not rise to the occasion; while those who do, are the very pupils who most require their well-earned rest.

The purposes of the vacation are, that pupil and teacher, after hard and prolonged work, may enjoy a period of rest for their healths' sake, or at least a change of scene and occupation, which is often the greatest rest of all; and that parents may "keep touch" with their children.

But under the present *régime* I affirm that the main purpose of vacations should be to recuperate health and strength in readiness for the fray. Parents, therefore, should avail themselves of the splendid opportunities which vacations afford for counteracting, to some extent, the evil effects of the term's hard work, by inducing in their children the highest possible state of health, through resorting to the country, the seaside, a sea voyage, or mountain air. Parents do not sufficiently realize this need. They expect, and naturally, that their children should work

hard at school; and yet, when they observe a low state of health and imperfect growth, they do not themselves endeavour to provide a remedy, but satisfy their conscience by resorting to the doctor, who is, too often, powerless to mitigate the evil, except by prescribing the required rest.

Very earnestly would I impress the fact, that holidays are times for rest, and for change of occupation which means rest, and upon which no school work should encroach. As there are many teachers, however, who still believe in the efficacy of holiday tasks, and although I feel very keenly that children should be allowed to follow their own bent in vacations without the shadow of a school task upon them, may I seek to induce you to permit the holiday task to take the subjoined form as an alternative, until the fact that rest is essential is completely grasped?

I would suggest that some small prize, or at all events substantial marks, might be fairly awarded for the following holiday work:—

1. A prize for the best natural history collection obtained solely during the vacations of the year.

   α. Butterflies and moths, or insects, mounted and classified.

   β. Wild flowers, ferns, mosses, or seaweeds, dried, mounted and classified.

   γ. Shells, fossils, or minerals.

2. A prize for the best piece of turning or carpentering.

3. A prize for the best sketch from nature.

4. A prize for the best map of the home neighbourhood, or the place visited.

5. A prize for the best recitation, composition, or diary of a tour.

6. A prize for the most accurate observations in any subject that may suggest itself, with a view to fostering or exciting originality.

7. A prize for *speaking* one of the modern languages learnt from residence abroad during the holidays.

If parents would recognize that it is their imperative duty to utilize the vacations for recruiting their children's health, there would be fewer complaints of dulness in pupils.

VII.

Conclusion.

And now, in conclusion, although I have far from exhausted this all-important subject, I trust that we have not met simply to discuss this question of overwork, but with the object of educing some practical result—if not now, at all events after you have pondered over the subject. I am confident that permanent harm is resulting to the rising generation from over competition amongst schools, as well as from the impossible multiplicity of subjects in the examinations, for which schools prepare their pupils. It seems rarely to be realized that the receptivity of each brain has a standard of its own, beyond which it is dangerous to attempt to pass, and it is this which accounts for so many failures. I am even willing to admit that most of the evils to which I have referred arise literally from the severity of these examinations. But this does not exonerate teachers from blame, or shift the burden to other shoulders. For this society of teachers is a body with a potent voice. And if you can only arrive at some unanimous conclusion, which will aid in the removal of the evils I have so

feebly pointed out, I feel sure that you can influence even such august bodies as University and Government examiners.

Do not misunderstand me. I have been speaking from personal knowledge, and there is not an experienced teacher here who can deny my facts, or the interpretation I have placed upon them. Some novice at teaching may feel sceptical; another, who has done little more than teach, and has done even that unobservantly, may suggest that my facts and opinions are simply the exaggerations of an enthusiast, who aims at what it is impossible to attain. If the calling of wrongs by their right names in plain English be a sign of enthusiasm, then I plead guilty. But the matter is too important and far-reaching to quibble over; and I earnestly call for their rectification at your hands, since the health, vigour, and future of the children of this nation depend upon the issue. Parents have comparatively little influence over teachers, I know; but I appeal to your own judgment and sound sense. If you cannot see your way at present to all the reforms I have suggested, an enlightened commencement is at all events possible, which will gradually and happily change this aspect of school-life, and render the period of education both effective and pleasurable to teachers and taught.

I have laid this stress upon the adequate, but not excessive, work at school, because on your influence during school-life depend the future health and

usefulness of the young. You cannot ignore the fact that your power covers the making or marring of their future. The blessings of health and strength cannot be exaggerated; position, influence, and wealth are not to be placed in comparison. To what height might Carlyle not have attained had he not been borne down by the ever-present burden of ill health! How keenly he realized this himself, when, in addressing a meeting of students at Edinburgh, he said, "Finally, I have one advice to give you which is practically of very great importance. You are to consider throughout, much more than is done at present, and what would have been a very great thing for me, if I had been able to consider, that health is a thing to be attended to continually; that you are to regard that as the very highest of all temporal things for you. There is no kind of achievement you could make in the world that is equal to perfect health. What to it are nuggets or millions?"