

## **Home lessons after school hours / by Sir Joseph Fayrer.**

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HOME LESSONS AFTER SCHOOL  
HOURS.

By SIR JOSEPH FAYRER.

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CONFERENCE ON TUESDAY JULY 29, 1884.

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## HOME LESSONS AFTER SCHOOL HOURS.

By SIR JOSEPH FAYRER.

THE proposition which I have to submit for your consideration, as the third of four which comprise the subject-matter of this Conference, is stated in the following terms :—  
“That it is contrary to sound physiological principles that children of tender age should be called upon to perform home work after school hours.” This proposition immediately precedes another, to the effect that there is abundant evidence that the strain of so-called education is excessive, and that it acts as a pre-disposing and exciting cause of disease, of serious and occasionally fatal character. If this can be sustained, the subject of my proposition, which is essentially a part of it, must needs be regarded as contrary to sound physiological as it is to sound ethical principles.

It has already been argued that whilst the prevailing systems of schooling are too severe, and are attended by an undue expenditure of vital force, the long hours of confinement, too often spent in a vitiated atmosphere—and sometimes, it is to be feared, with insufficient food—coupled with ordinary conditions of school work and discipline, are productive of injury to physical health and due development of the frame, especially as regards the heart, lungs, and organs of vision, to an extent that must be regarded as a matter of national importance.

These statements form so grave an indictment against the present system of education, that it seems expedient the subject should be sifted, with the view of ascertaining how far the charges can be maintained and the evil rectified ; for if it be proved that such strain exists, there



is no escape from the conclusion that interference is demanded, not only by parents and guardians but by the legislature itself! I am aware that this question, like others, has more than one aspect, and that high authority and earnest persons deeply interested in education have pronounced the outcry devoid of foundation, and the charge of over-pressure to be exaggerated, if not altogether untrue. It is a difficult question to decide, for there are complications and disturbing elements in dealing with it which may render it hard to furnish statistical proof of that which is still so thoroughly impressed on the minds of many, by personal observation and experience, that it would be futile to deny there is substantial ground for alarm, inquiry and reform. It would be unfair, I think, to hold the teachers as altogether or solely responsible. The natural desire to extend intellectual culture, and the stimulus of competition, so severely the rage in the present day, together with imperfect knowledge, or at all events imperfect recognition of the physiological bearings of the question, tend to intensify a struggle in which immature brains and bodies are striving for pre-eminence, and in which it is asserted that many suffer, and some altogether break down!

The object of this communication is to show that this over-pressure, especially in young children, is wrong in principle and hurtful in practice, and that it tends, by the injury it may inflict on the general health, rather to retard than to advance education!

Charles Kingsley, a true philanthropist and friend of children, whose keen sympathy and knowledge of their nature and their needs makes all he says about them worth reading, evidently had this subject in his thoughts when he wrote in one of his charming stories:—"There were as pretty little children as you could wish to see, and might have been still if they had only been left to grow up like human beings, but their foolish fathers and mothers, instead of letting them pick flowers and make dirt pies, and get birds' nests, and dance round the gooseberry-bush, as little



children should, kept them always working, working, working, learning week day lessons all week days, Sunday lessons all Sundays, weekly examinations every Saturday, and monthly examinations every month, yearly examinations every year ; everything seven times over, as if once was not enough, and enough as good as a feast, till their brains grew big, and their bodies grew small, and they were all changed into turnips, with little but water inside, and still their foolish parents actually pick the leaves off them as fast as they grow, lest they should have anything green about them."

It is impossible not to admire or, to a certain extent, sympathise with the spirit which insists so passionately on the diffusion of education, and with the systematic efforts by which all classes of our infant and young population are brought within its influence. The machinery of our schools, from the highest, to the smallest dependency of the School Board, is so complete as almost to excite a feeling of envy for the great advantages denied to us, but which are now freely accessible to everybody's children, and we are thankful for the philanthropy which declares that no child in the state shall grow up in ignorance, because education is the means by which a nation should be elevated, and the people rendered prosperous and happy. But it is possible, nay, I fear it is probable, that by over zeal we may be doing harm ; for whilst, for education, conducted on sound principles, we can only express appreciation and gratitude ; of a system of competitive brain forcing any cramming, we can only say that it is worse than and neglect of schooling which may have preceded it. It is not meant that education of all young persons is of this character, but that there is great tendency to it there can be little doubt ; and whilst on the one hand we gratefully recognise the high purpose which is directing national education, we must hope, on the other, that the defects may be remediable by a better appreciation of important physiological considerations hitherto perhaps too much overlooked.



It would be impossible in the short space of time at my disposal to state all the anatomical and physiological arguments in support of the proposition, nor is it necessary. It is sufficient to say that this is based on the intimate co-relations subsisting between nutrition and growth of the body and brain and intellectual development. The necessary conditions for the well being of the body are, we know, pure air and water, appropriate food, with due intervals of rest, and such exercise of the various parts and organs as to fit them for the due performance of their functions; so it is with the brain and nervous system generally, and a brain, however gifted or powerful it may be potentially, will fail, unless the conditions of healthy physical life be observed. It is to be remembered also, that during the rapid growth of infancy over-exercise of the cerebral functions, by creating a greater demand for increased blood supply, tends to interfere with the due nutrition of the body and to entail disease. It has been observed that during sudden and rapid growth in young persons the brain power has been diminished to a state of apathy or even of abeyance, whilst on the other hand it has been remarked that the lethargy, the clouding or weakening of mental energy, in such young persons has cleared away as the growing fit has ceased, and the general vigour of body been re-established. Needless to insist upon the great care and discretion with which young brains should be worked at these critical periods. Let me, for the benefit of non-medical hearers, mention one or two anatomical facts which have an important bearing on these questions. The brain of a child at birth weighs about twelve ounces; it grows so rapidly, that by the age of three years it has attained to three quarters of the full weight. It continues to increase rapidly till about the seventh year, when it has attained to nine-tenths of its complete weight. Thence on to twenty it still increases, though slowly, and again slower still it grows, till it attains the full measure of its size and power at from thirty to forty years of age. Brains vary in different individuals in



size, texture, specific gravity, and quality. They *may* attain, as in the case of Cuvier, to sixty-five ounces, or they may never surpass the average of the European standard of from forty to fifty ounces. The mass and weight of the brain have a certain but not absolute relation to the bulk of the body as they have to the amount of intelligence; this seems to depend on the relative proportions of grey and white elements as well as on the texture and molecular arrangement; and on these depend also its aptitude for development by education. It is during the rapid and early period of growth and development that its susceptibilities are most acute, and are most severely tested, whilst its due evolution is most seriously affected for good or evil.

The question therefore is, how much work is compatible with the welfare of a young growing brain? There is a just medium between too much and too little, which, whilst on the one hand it shall not overtax functional, on the other shall favour physical development. In short, how train these young brains so as to obtain the best results—not such results as are represented by early precocity and premature exhaustion—it may be by some form of encephalitis—not the production of an instrument which will act as a temporary receptacle for the registration of facts and figures which are lost almost as soon as attained; but an organ which, being susceptible of progressive development, shall be an instrument throughout life of larger and ever increasing powers.

The antagonism between growth and education may be seen in the stunted physical frames and feeble health of some in whom intellectual powers have been over pushed and prematurely developed, and it is the business of the physiologist to point out that an essential condition of healthy mental development in the young child, is healthy nutrition and growth of the physical organ by which mental activity is manifested.

Dr. Fothergill gave a lecture a few years ago on the relations of growth to education which I recommend all



concerned in teaching young children to read. I quote one brief but forcible passage from it. He says :

“The physiologist finds the subject come within his province, the physician has it before him in cases of illness brought about by over-taxation of the system from educational efforts. At the time that the tiny child is conquering the difficulties of the alphabet, its tissues are growing rapidly ; and its nutritive powers have to meet the demands of its tissues, bones, and muscles, as well as those of the brain. It has to grow as well as to furnish nutritive material to the expanding brain, and there is also the increase in bulk of the brain to be met, as well as the wear and tear of functional activity. When the brain is insufficiently supplied with blood its power is cut down and limited. The brain requires nutritive material as well as any other organ for its active functional manifestations. It is as dependent on the body commissariat as the muscles of the legs ; consequently, an essential point in all education of the young is to see that the nutrition is kept up by food suitable alike in quantity and quality. If this be not attended to, growth and education will be alike retarded. The child must have nutritive material for the needs of each.”

It should be understood that to overtax the growing brain of a child is as erroneous, nay, more so, than to overwork or exhaust its body ; either course is liable to entail penalties. Far more severe are those which avenge the over-wrought brain than the exhausted body !

In a recent admirable article, Dr. Crichton Brown has so clearly pointed out the evils of the form of overwork to which my proposition relates, that I venture to quote his remarks, as they forcibly express my own views on the subject. He says :—“School hours fall mostly in the early part of the day, but a little enquiry will reveal that the heaviest part of school work is not generally performed at that time. If any boy or girl be asked ‘What is the most trying part of your school work?’ the invariable answer is



'Preparation;' and if the further question be put, 'When do you do your preparation?' the almost invariable answer is, 'In the evening.' This is a state of matters that is to be condemned from a medical and from an economical point of view. The most severe brain effort that the child is called on to perform, that which involves most strain and concentration of attention, that opening up of new ground on which progress must greatly depend, is reserved for the period when brain function is almost at its lowest ebb, and when all the vital powers are exhausted by the exertions of the day. The most severe and important intellectual labour is undertaken just when it is sure to be most injurious and least remunerative. Evening preparation of lessons, if faithfully performed, must be prejudicial to the fatigued brain, and is not even rendered innocuous by a long interval of recreation between it and school work. It often induces sleeplessness and a long train of attendant evils, and contributes largely to the nervousness and debility which are becoming so common amongst school children, particularly in towns, while it fails in securing advancement at all equal to what might be got from a much less strenuous and protracted study earlier in the day.

"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."

And, with regard to the important subject of rest, the great restorer of exhausted nerve force, and the invigorator of continued and sustained effort in education, that which is necessary not only to mental but to physical growth—sleep,—I quote again from the same eminent authority, my own experience most thoroughly endorsing the views he expresses:—"It is needless to insist on a sufficiency of sleep for our juvenile toilers, that is of primary importance; and long hours of rest are requisite for the brain which for many hours has to maintain a condition of high functional activity, for it is during the hours of rest that the organ itself is nourished and grows."

Again, Dr. C. Brown says:—

"Some statistics which I have collected in girls' high-schools give these results. In answers to the question, 'Which is the hardest part of your work?' sixty-five per cent. of the girls reply, 'Home work.' In answer to the question, 'When do you do it?' fifty-seven per cent. of these reply, 'In the evening.'

"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?

"Quite recently a medical man told me this story. 'I was called to see a girl of fourteen, and found her in bed, pale, with dilated pupils, displaying great muscular tremor and much mental disturbance. Her pulse was 120, and her general condition convinced me that she was on the verge of a serious cerebral attack. On making inquiries I discovered that she had been up till one o'clock in the morning of the day on which I was called to her, preparing her lessons for a high-school; and that, being an anxious ambitious girl, she generally worked till 11 P.M., and once or twice a week till one or two in the morning. I procured



a list of the lessons which she had had to prepare on the previous night, and it was as follows :—

“1. Write the story of Touchstone, giving quotations.

“2. Commit to memory twelve general questions in geography, each involving at least twelve particulars, such as courses of rivers, products of towns, positions of capes, &c., &c.

“3. Write out six quarto pages of French grammar and construction.

“4. Learn, so as to be able to write out in class, all the verbs in a printed page of Picciola.’

“Having to attend a music lesson in the afternoon the girl was unable to settle down to this work until 6 P.M., and from that hour until 1 A.M. the following morning she worked at it steadily. Little wonder that she couldn’t sleep when she went to bed, and ‘little wonder,’ said my medical friend, ‘that I found her on the verge of phrenitis.’ Numerous cases more flagrant than this one might be collected.”

On referring to Dr. Langdon Down as to the influence on young persons of home work in the evening after school hours, I received the following reply from that high authority ; and I can only say that his opinions and experience seen confirm my more limited observations. I, too, have cases of a similar character to those he reports, and it is not unlikely that others are in the experience of many medical men. The expression of such opinions founded on observation, are more valuable than any statistical information, and cannot be set aside as evidence that some change in the mode of education should be effected. He says :—

“My practical experience is quite in harmony with your thesis.

“I have seen several cases where serious brain disturbance has been the outcome of over pressure.

“I find that the two most dangerous periods are those of second dentition and the period just anterior to puberty.

“I have met with children, and specially remember two cases, who lost speech between seven and eight.



"I have seen several cases of serious mental breakdown from having work to prepare out of school-hours. It begets over-anxiety, sleeplessness, talking and muttering during the diminished time of sleep, and finally hallucination of sight and hearing.

"I have recently had under my care a typical case in the Kensington district; before the boy returned to school I gave a certificate, pointing out the peril to him if there was any return to such practice.

"The payment for results is, I conceive, one very strong inducement to the evil.

"I have now under my care a boy of fifteen, who has shown very grave symptoms during his struggle for preparation for the matriculation of the University of London; and another, in his trials for Sandhurst, came home with symptoms which were at first taken for typhoid, but which proved, as I feared, to be cerebritis, and terminated fatally. I am quite satisfied that over pressure is very common, and specially perilous at the developmental epochs I have mentioned.

"I have had cases from public schools; several from the board schools; and formerly I used to see a great many pupil-teachers, as well as the unfortunate mistresses who had to prepare the pupil-teachers, but for some cause or other they have been less frequent of late."

The especial point of my thesis is, that evening work, i.e. preparation at home after school hours, is prejudicial to children of tender age; and from what has been already said, I think it must be admitted that it is so. For it has been shown that whilst a moderate amount of work in the early part of the day, say of two to three hours, under the guidance of the teacher, in which the mental efforts are not overstrained, is not only harmless, but necessary for the due development of the brain and its functions; yet that evening work is injurious, for the reason above defined. I venture to suggest, therefore, that it would be well for those engaged in teaching, or interested in education, to reconsider the question, and having in view the physio-

logical bearing of the subject, recast the methods of educating young children, especially in reference to the expediency of confining the intellectual training of those under ten or twelve years of age to work done in the early part of the day, and with the aid and supervision of masters ; and that with regard to young people after that age, that the evening or preparatory work should generally be diminished below its present standard.



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