An introductory lecture to the course of lectures on diseases of infancy and childhood, delivered on May 1st, 1890 / by J.W. Ballantyne.

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Diseases of Infancy and Childhood.

DELIVERED ON MAY 1st, 1890.

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The Health Aspects of School Life.

GENTLEMEN,—Students of medicine, as a general rule neglect to acquaint themselves with a knowledge of the diagnosis and treatment of infantile diseases whilst they are pursuing their course of study at College or in the University, and as a result young graduates spend many anxious hours during the first few years of their professional life in endeavouring to treat successfully the maladies which are peculiar to infants and young children. It must not hastily be concluded that medical students are altogether to blame in this matter: for the fault lies rather with the examining bodies, who require no special evidence of the study of pediatrics from the candidates who apply for their degrees, and who do not make compulsory the examination of undergraduates in this branch of medical study. The fact that the examining bodies are wrong will not, however, shield the graduate from the indignation of parents whose children he has unsuccessfully treated, and the fact that pediatrics is not a compulsory subject of medical study does not in the slightest degree lessen the load of responsibility which falls upon the shoulders of the

medical student who deliberately neglects to avail himself of the many facilities now afforded him for the acquisition of some special knowledge of diseases of infancy and childhood. Dr. Ryan, lecturing on this subject many years ago, said: "I need scarcely observe that it would be no excuse to offer to an affectionate parent on the death of a favourite or only child were a medical practitioner to say, 'I am sincerely sorry for your affliction; diseases of children are not properly studied; in fact, the profession in general know nothing about them; in truth, there is no examination in them.' Well might a parent stare with astonishment on hearing such a declaration." To study specially the diseases of children is, therefore, in the first place, a duty we owe to society at large, and to our patients in particular; for there can be no reasonable doubt that the great mortality which at present exists amongst young children is in great part due to the lamentable ignorance upon the rearing of infants which exists in the popular mind, and to the fact that many medical men employ methods of treatment in the care of infantile maladies which are almost as empiric and irrational as those used by the laity. In the second place, the acquisition of a knowledge of diseases of infants and children is a duty which we as medical men owe to ourselves. A very large number of the patients whom a general practitioner has to visit every day will of necessity be children; and in not a few instances medical men can state that the commencement of their success in practice dates back to the first sick child whose life they were fortunate enough to be able to save. If you can save an infant's life, you will in ninety-nine cases out of a hundred become the family medical attendant. But, in the third place, pediatrics is a branch of medical study which is both very difficult and extremely interesting. It still offers a wide field for original investigation; and, since

the phenomena which are to be studied are simple compared with those seen in the adult organism, such investigations must necessarily have an important bearing upon the study of all the mental and physical processes which are met with in the full-grown man or woman. A well-known author has expressed his feelings upon this matter in the following sentences, which I cannot do better than repeat:—"I possess," he says, "profound tenderness for infants. The passions are first observed in them, and it is in them that it is useful, as it is curious, to study their mystery and labyrinth. If we wish to know the medical condition of man in a savage state, it is in infants we find it. It is in them alone we can mark the anatomy of our faculties; these only demonstrate the origin and first essays of sentiment, and our first sensations. In these we see how gradually the wants, feeling, idea of existence, and sensations are developed, and we cannot know their origin unless we return to infancy. It is therefore the infant that enables man to know himself. Infancy is a mirror in which we can see ourselves at all times, great and small."

The reasons stated above are, I think, amply sufficient to prove that the study of the diseases of infancy and childhood is an essential and important part of the medical curriculum. Let us now look at the position which the subject of pediatrics has occupied in the history of medicine. Not more than forty years ago throughout the whole of England and America there was not one single hospital set apart for the treatment of diseases of children. "It was," as Dr. Charles West said at the Medical Congress in 1881, "but rarely that one saw them, little waifs and strays, in the wards of our general hospitals, for the maxim 'De minimis non curat lex' held good in medicine as in law." France stood alone amongst the countries of the world as

a land in which great attention was paid to the maladies of early life, and the best text-books upon diseases of children were all written by Frenchmen practising in the Parisian hospitals. At the present time, to the credit of the medical profession and of the public generally be it said, a great change has taken place. Admirable hospitals for children, well manned by experienced physicians and surgeons, exist in most of the large towns of the world; reliable text-books upon pediatrics are constantly issuing from the press in Germany, France, America, and in our own land; journals specially devoted to the diseases of children appear weekly or monthly in many different languages; and medical students and young graduates are in increasing numbers applying themselves to the clinical investigation of the diseases peculiar to infancy and childhood. A great diminution in the mortality amongst children has already taken place, and with an advance in our knowledge of the physiological and pathological processes of infancy and childhood, with an improvement in the methods by which pediatrics is taught, and with an increase in the facilities granted to the student in order that he may satisfactorily study this subject, we may confidently look forward to a still greater reduction of the number of deaths and serious illnesses amongst infants and children.

It has been customary to look upon pediatrics as a speciality, but it is far more than a speciality in the ordinary sense of the word, for it does not deal solely with one organ of the body, but with the whole organism at that time of life when the interesting changes incidental to development and growth are going on. It does not, like the special study of the eye, the ear, the throat, the skin, or the uterus, tend to make us take a one-sided view of medicine; it should rather lead to a more comprehensive grasp of all the subjects of medical study than is possessed by many

of the medical men of the day. One department of our subject, concerning which most inadequate, if not actually erroneous, ideas prevail, both in the profession and amongst the laity, is that of infantile hygiene. I can scarcely find language strong enough to characterise the practice of the great majority of the people of vaunted civilised lands in the matter of the physical education and rearing of their progeny. I do not now specially allude to those grosser evils which require the institution of Societies for the Prevention of Cruelty to Children and the passing of Bills in Parliament for the regulation of child labour, nor to the shameful practices connected with infant life assurance, concerning which the Bishop of Peterborough recently said that "he thought that the person who, in a fit of passion, suddenly and swiftly terminated a child's life was innocent compared with one who let it waste away day by day until its miserable life was ended," and all for the sake of insurance money, more often spent in drink than on the funeral. No, I rather allude in this relation to the hygienic mistakes made in the feeding, clothing, and in the education of children which are so prevalent at the present time. I have always thought that the health aspects of education ought to find a place in a course of lectures devoted to the study of diseases of children, and I gladly avail myself of this occasion to discuss this topic.

The education of the young people of a nation is to that nation a subject of vital importance. This fact has been clearly recognised at all periods of the history of the human race. Great reformers, seeing how futile are all attempts to turn adults from their fixed modes of thought and acquired habits, have endeavoured to instil into the young and growing mind of the nation new and presumably better ideas, and thus gradually effect a revolution in society, displacing by the new Utopia the old *régime*.

Thus strove Socrates and Aristotle, and by this means the followers of Plato hoped to see his peculiar tenets accepted and acted upon wherever Greek was spoken. Into the hands of the children at present in our schools we must in the near future place the fortunes of this great Empire. With them it rests to decide the question whether our national greatness, wealth, industry, goodness, and well-doing shall continue—shall not only continue, but increase mightily. From all points of view—religious, social, moral, utilitarian, or political—it is necessary that young England should be well educated ; surely it then behoves us carefully to consider how we may best impart the requisite knowledge with the least detriment to the health of both teachers and taught. There can, I think, be little doubt that children during their school hours live an artificial existence, and it ought to be the endeavour of educationalists, legislators, and the like to bring this artificiality down to a minimum. The natural, and probably the primitive, method of education was a constant *vivâ voce*—word of mouth—imparting of knowledge from parent to child. In this manner, for example, our ancestors handed down to their posterity many of their customs and habits and an outline of their history. This method, however possible and even satisfactory it may have been in patriarchal times, has, from the immense increase in human knowledge, and the exigencies of modern life and thought, become well-nigh impracticable, if not quite impossible. Neither is it possible for our scholars to adopt the modified archaic system of Plato. However pleasant and healthful it might be for our children to wander in bands through the leafy groves and by the rippling brooks of countless Akademes, listening with rapt attention to the wise sayings of some great teacher or professor, still the plan is in this the nineteenth century, quite out of the question—quite absurd.

For such or kindred reasons our present immense and unwieldy educational system has come into existence—a system in which an increasing importance is given to the training of the mind often at the expense of, and to the detriment of, the education of the body. A child is nowadays sent to school to acquire certain mental accomplishments, to pass so many standards in the code, but the physical side of its education is little looked to. It is true that in some schools gymnastics are taught, but the course is usually non-compulsory, is carried on outside school hours, and is charged as an extra, so the children are generally left very much to educate themselves for the physical part of their duties by games, races, trials of strength, &c., carried on outside the school premises, and often without any encouragement from their teachers. Now this method has, perhaps, no bad effects in our large public schools of Eton, Rugby, Harrow, and the like, where we have abundant recreation ground, flourishing cricket and football teams, and healthy surroundings generally. No, it is in our Board Schools, especially in our city Board Schools, that we are witnessing the combined effect of too much work and too little play, and it is mainly in behalf of the mentally exhausted children in such schools that medical men ought to speak. It may not be possible to provide playgrounds for all schools; but it is certainly possible, and, indeed, absolutely essential, that our schools and school appliances should be perfect from a health point of view.

Some time ago the startling statement was made by Professor Pflüger that of 45,000 children examined in Germany more than one half were suffering from defective eyesight, while in some schools the proportion of the short-sighted was seventy or eighty per cent., and, crowning all, was the Heidelberg gymnasium with 100 per cent. This

large amount of bad sight is by Pflüger ascribed to insufficient lighting of the class-rooms, to the use of indistinct print and bad paper, to the method of writing in vogue, and to improperly fitted up desks and forms. The *Times* said in a leading article, called forth by the above investigations: "It is now an old story that schools are absolute manufactories of the short-sighted, a variety of the human race which has been created within historic time, and which has enormously increased in number during the present century." For although matters are not quite so bad in Great Britain as they are on the Continent, still there exists in our schools an alarming amount of myopia—a percentage, too, which is increasing yearly. Very few schools are insufficiently lighted, but nearly all are badly lighted. This sounds like a contradiction in terms, but it is not so. The window space is large enough, but the windows are badly arranged. It has been laid down as a rule by the Education Department "that the windows should be so placed that a full light should fall upon the faces both of the teachers and the children." This demonstrates the fallibility of the Education Code, for while light from behind is bad, because the head and shoulders throw a shadow on the book, that from the front is far worse, for it is hurtful to the eyes and does not even attain the object intended, which is to make the fully illuminated faces of the children visible to the master, for the children instinctively avoid the full glare, and turn themselves in such positions as allow the light to fall on the book held in front of them, therefore turning their own faces away from the teacher, or bending their heads closely over the book so as to get a shade for the eyes from the projection of the eyebrows. It is to Dr. Liebreich that we are indebted for these valuable remarks, and he goes on to say: "The light must be sufficiently strong, and must fall on the table from

the left-hand side, and as far as possible from above." The children ought to sit straight, and not have the book nearer to their eyes than ten inches at the least. The proper light is most easily obtained if the class-room be of an oblong shape, the windows being in one of the long sides and the tables arranged parallel to the short walls, so that the light falls from the left-hand.

In considering the subject of the health aspects of school life, we must clearly recognise the fundamental fact that a sound mind and a sound body must go together; we must have in our schools the *mens sana in corpore sano.* It is, for instance, quite absurd to imagine that the mind can work well when the lungs are having an insufficient amount of fresh oxygen supplied to them. How often do we hear a jaded schoolmaster say, "The children were insufferably tiresome this afternoon, and the room was very warm." To him I say, "The room was badly ventilated; therefore, the children's minds were not active, and, therefore, also, your power of control over them and over your own temper was weakened; therefore you spent a miserable afternoon." The children were tiresome because the room was close. More might be said with regard to the lighting, warming, and fitting up of our schools; but medical men will only in exceptional cases have a voice in the matter of the hygiene of the schoolhouse, and I therefore pass on to the question of physical exercise during school life. The playground is part of the school, an essential part, and ought to be double, that is to say, a covered space for wet days and an open one for fine. Dr. Clouston remarks, in his paper on education, alluding to girls' schools—but the same holds equally well with boy's —"A school without a playground, a gymnasium or public park near, I look on as a garden without sunshine, or a boat with one oar. It is deficient and one-sided; it is a

machine for production without sufficient provision for the renovation of tear and wear." The exercise in the playground also should be free and spontaneous. I do not at all agree with the plan lately advocated in Germany, that, namely, of a wholesome return to the old Greek method of racing, wrestling, throwing the discus, &c., as a sole means of physical education. Such are very good in their way, but can never equal in excellence the games we have in vogue in our public schools. The training of the muscles, eyesight, will, and all the bodily functions in cricket, football, rackets, lawn-tennis, hare and hounds, &c., is unequalled by any stereotyped exercise in running round a race course, or swinging rhythmically backwards and forwards on a bar for a certain time every day. No; our old games are manifestly superior to any such cut and dried exercise. Let all our sports and pastimes be encouraged in schools. We do not want complete book-worms nor yet trained athletes, but rather children with body and mind equally developed. Certainly, far more attention is being paid to physical education than formerly, and this is as it should be. The sooner we get rid of the idea that schools are for the sole purpose of educating the mind the better. Education is concerned with the "leading out" of the mind and body equally. It is a drawing out or directing of all the best mental and bodily attributes of the embryo man. I feel inclined to go in for the half-time system—half work, half play, half mental education, half physical,—but perhaps this is too much to advocate, although the idea has found many supporters.

While it is pretty generally recognised that physical education is a necessity in boys' schools, girls' schools are still far behind in this matter. There is no better authority on this subject than Miss Müller of the London School Board, and this is what she says:—"It generally happens that if

we walk into a playground the boys during their playtime are in full swing, one or two of the masters half joining in and half directing the fun. There is scrambling, and laughing, and running, and shouting, and no thought of anything but play. But in the girls' playground we see groups of feeble, languid girls dawdling about. Sometimes the swings are locked up during play hours, because the teacher considers it 'unladylike' for girls to swing. The elastic movements of a graceful woman, the buoyancy of her step, and the dignity of her bearing are the results not of lessons in deportment, but of much free and unchecked activity in youth." M. Bert made a very true remark some time ago, when he said :—"When you educate a boy, you perhaps educate a man; when you educate a girl, you are laying the foundation for the education of a family." Still a certain amount of attention has of late years been paid to female physical education, partly in this country, but more especially in America. Evidences of this are to be found in the Girton tennis-court and in the Normal School for Physical Education in Boston.

With regard to over-pressure in education, it has sometimes been asked whether such a condition exists. I have no hesitation in giving an affirmative answer to this question, for, in the first place, the system of payment by results, of which the late Lord Sherbrooke was the apostle, is calculated to foster the cramming of children with knowledge to a dangerous extent; and, in the second place, medical men are constantly meeting with cases of breakdown in children and pupil teachers, in whom the breakdown is manifestly due to over-pressure in education. One of the worst cases of illness from over-pressure that I have seen was that of a young female pupil teacher. We cannot blame the schoolmaster, for his livelihood depends directly or indirectly upon the percentage of children he can push

through the ordeal of examination ; it is the system of payment by results that is at fault, and I feel sure that we shall all welcome the alteration in this system which is to be found in the Bill now passing through Parliament. When the over-strain exists, one of its first symptoms is talking of lessons during sleep. When this occurs, I have no hesitation in recommending that the child leave school at once and be sent to the country. The institution by parents of what we may call bedroom door auscultation might serve to enable us to avert the evils of over-pressure in education by giving us timely notice of the occurrence of this symptom. In addition to talking during sleep there may supervene headache, languor, dyspepsia, nervousness, neuralgia, chorea, hysteria, phthisis, and even insanity. Such cases are constantly being recorded not only in medical journals but also in the pages of the daily newspaper. It is sad but true that children have been known to commit suicide in order to escape school tasks and punishments. "All work and no play makes the Jack of the present day a very dull boy—so dull that he is apt to consider suicide a minor evil" (*Sunday Times*). How very well educated ought we to find the children whose health stands this severe strain. But are they so? Some certainly are precocious enough, but what becomes of them when they grow up? As a rule, they do not come off victorious in the battle of life. They have been crammed with knowledge to examination pitch; but they have, as a rule, never thoroughly made the subject matter their own. It has been crammed into them; but they have not assimilated it—have not made it part of themselves. They are like the Strasburg geese—each is a human *pâté de foie gras*. Their knowledge is useless to themselves and to others, because they do not understand what they are talking about. They answer questions mechanically, but by a little judicious

manœuvring one can get them to contradict themselves and exhibit in various ways their utter ignorance of the very terms they are using so glibly. The answers given to examination papers often raise a laugh, but it is rather a sorrowful laugh when one comes to think of what it really means. One boy, in writing an account of the events which happened in the year 1588, closed his narrative with the following strange statement :—"Nothing more was seen of the Spanish fleet ; hence it has ever since been known as the Invisible Armada — armada meaning a fleet of ships." Another youth states that "the Israelites, during their wanderings in the dessert, were fed in the manner of angels, and guided by day by a pillows of clouds, and at night by a pillows of fire." Still another cites as one of the most remarkable of Egyptian customs, the fact that, "as soon as a child was born, it was immediately thrown into the Nile." A monsoon has been defined as "a very contrary wind, which blows twelve months in one direction and then twelve months in another." The primeval curse has been stated to be, "In the sweat of thy brow thou shalt eat thy bread, for out of it wast thou taken, and unto it thou shalt return." Surely the master who gets such answers handed in must see that the method of teaching is at fault somewhere.

The system of "cram" is founded on the non-appreciation of certain well-known physiological facts and laws. Thus, first there would seem to be a prevalent idea that children's brains are all like so many masses of clay, of precisely the same shape, material, and consistence, and can therefore all be educated to the same pitch in the same time, with the same amount of teaching. Such is the origin of the various standards in the Code, but nothing is further from the truth. Children's minds differ as much as their faces. Every mind has peculiar attributes and possi-

bilities of its own. Our minds, habits, peculiarities, &c., are the result of the lives of our ancestors, and hereditary likenesses are constantly recurring in a family. A man is not so much what he makes himself as what his ancestors have made him. All brains differ in their power of working; each has what we may call its initial intellectuality, its own quality or *timbre*. Brains also differ as to the quality of the work they can accomplish. One child can excel in language, another mathematics and arithmetic, another in reading, singing, painting and so on; one child can master a language in a short time; another child of the same age, &c., will take two or three years, and not master it then. While differing as to quality of work, brains differ much as to quantity. One child can study to advantage six hours a day; another gets no good from studying longer than four or five hours. Hence, following from the fact of each brain having a different initial power of working, we draw the conclusion that each brain has different limits within which it can be worked with safety. An amount of mental strain which would ruin one brain will only act as a healthy stimulus to another. Therefore children ought not to be forced to accomplish identical quantities and qualities of work. Children showing a particular aptitude for one subject ought to be encouraged to pursue that subject. We cannot expect Admirable Crichtons nowadays. Few girls, for instance, have a really good musical ear, yet all have to be able to play the piano, for it is a modern accomplishment; hence so much valuable time is wasted every day in practising an art in which ultimately they can only attain a doubtful mediocrity.

Again, each of us has a certain amount of mental power which is to last us during a lifetime. Now, is it not possible that some of us may be using up all this stock in our youth, living on our capital as it were? It is not the clever

boy at school who usually turns out the clever man of business, minister, doctor, or lawyer. It is rather the boy who is somewhat slow or dull at school, who is in fact conserving his mental capital, and even perhaps allowing the interest to accumulate. Following this line of argument further, is it not possible that one generation may use up the mental energy of a succeeding one? Is this generation not using up capital that should have gone to provide for a coming one? How often a clever man has regular dotards of sons! May not a clever generation likewise be succeeded by one the very reverse? Is not this generation making the following one bankrupt? We are not passing on assets to our children. I am well aware that I am treading on debateable ground here, and am not making definite statements, but merely throwing out ideas for lines of thought, and if they are taken up and thought about my purpose will be accomplished.

How, then, are we to keep our school children healthy? First, by making our schools perfect from a sanitary point of view. Secondly, by increasing the physical side of the training. Thirdly, by the hygienic conducting of the school teaching. Let there be plenty of variety; alternate standing up and sitting down; reading and writing; work and play; have arrangements for preventing the children sitting with damp feet or clothes; frequent change of class-rooms; abundant use of diagrams and illustrations; let the class-rooms be tastefully fitted up. And there is one great evil, which I mention only to condemn and warn against—that is, what is called a holiday task. Such are perfectly useless and injurious, useless to idle boys, who never attempt to do them; injurious to studious boys who, in their anxiety to do them correctly, lose a great deal of the benefit of their holiday. Fourthly, I should advocate a system of medical inspection in our schools, such as pre-

vails in France, Germany, and Austria, and which is being introduced into Russia. Fifthly, there is the very difficult question of school punishments. Tasks, impositions and detentions I should avoid, for such intrude upon the time necessary for recreation. I think, after all, corporal punishment very judiciously employed is the best corrective, The knowledge that such is occasionally resorted to has a wonderful moral effect in a school; but we must use it very cautiously, for actions for damages are exceedingly common and sentimental legislation is prevalent. Certain kinds of corporal punishment are, of course, utterly to be condemned, such as boxes on the ears, the effects of which are sometimes fatal, but I do not think any damage can result from a judicious use of the birch *super dorsum.* Sixthly, abolition of payment by results. Seventhly, by lightening the education by greatly diminishing the amount of Latin and Greek taught. Eighthly and finally, by the more liberal devotion of time to the study of physical sciences, such as botany, natural history, and physiology, as forming a relief to the studies which require memory only, giving a rational idea of the works of nature, and fitting for life's duties.