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ARTICLE I.—*Education; Intellectual, Moral, and Physical.*  
By HERBERT SPENCER, Author of “Social Statics,” “The Principles of Psychology,” &c. New York: D. Appleton & Company. 1861.

THIS book is a reprint of four articles first published by the author in different British Quarterlies. The first, entitled, “What knowledge is of most worth?” was published in the *Westminster Review*, nearly two years ago, and was immediately reprinted in this country, both in the *Eclectic Magazine*, and the *New York Times*, thus showing its decided power to command attention. The second, on “Intellectual Education,” was first published in the *North British Review*. The third and fourth, on “Moral Education,” and “Physical Education,” were first published in the *British Quarterly Review*. It is only necessary to read these works to see that the author is furnished with various and affluent knowledge, is a clear and vigorous thinker, and is master of a simple and nervous style. He has already distinguished himself by works on “Social Statics,” “Principles of Psychology,” and “Essays: Scientific, Political, and Speculative.” He is now about publishing a sort of encyclopediac survey, or what may perhaps more properly be called a fundamental and comprehensive out-

line of philosophy, which already numbers among its subscribers some of the first names in literature, science, and philosophy, in Britain and this country. Its main topics are, "First Principles," "Principles of Biology, Principles of Psychology, Principles of Sociology, Principles of Morality."

While the ability and eminence of the author are thus unquestioned, we feel bound to add, that the volume under review (the only one of his works we have had time or opportunity to examine) betrays certain vicious principles which we cannot pass by without a word of protest and warning. His philosophy, so far as it crops out here, and in the programme of the projected work to which we have adverted, is deeply tinctured with sensism, utilitarianism, and positivism. The knowledge which is "of most worth," he maintains, is physical science. Compared with this, he disparages all other studies as "flaunting their fripperies," and about to "sink into merited neglect;" while "science, proclaimed as highest alike in worth and beauty, will reign supreme." P. 96. "For purposes of discipline—intellectual, moral, religious—the most efficient study is, once more, science. . . . To the slowly growing acquaintance with the uniform co-existences and sequences of phenomena, to the establishment of invariable laws, we owe our emancipation from the grossest superstitions. But for science, we should still be worshipping fetishes; or, with hecatombs of victims, propitiating diabolical deities." Pp. 94, 95.

The positivism, even to the extent of an infidel and materialistic drift, of all this, is too obvious to require comment. Again: "Though, according to their popular acceptations, *right* and *wrong* are words scarcely applicable to actions that have none but direct bodily effects; yet, whoever considers the matter will see that such actions are as much classifiable under these heads as any other actions. . . . The happiness or misery caused by it are the *ultimate* standards by which men judge of behaviour. We consider drunkenness wrong because of the physical degeneracy, and accompanying moral evils entailed on the transgressor and his dependents. Did theft uniformly give pleasure both to taker and loser, we should not find it in our catalogue of sins. Were it conceivable that benevolent actions multiplied human pains, we should condemn them, should not consider

them benevolent." Pp. 173, 174. At the close of this article on Moral Education, he says: "We have said nothing in this chapter about the transcendental distinction between right and wrong, of which wise men know so little, and children nothing. . . . Nor have we introduced the religious element." P. 217. These extracts fully sustain the objections we have indicated to the author's philosophical and religious standpoint.

They do not, however, render the work, in other respects, valueless. If Mr. Spencer ignores those higher and more momentous departments of truth, and elements of humanity, which he is pleased, with an adroit dash of his pen, to turn aside as "transcendental," he examines what he does recognize with proportionate thoroughness, and sets forth the result with extraordinary force. Whatever pertains to the physical side of humanity, whatever bodily organs and phenomena manifest the energies and properties of the soul, these philosophers analyze and classify with the utmost fulness and accuracy. So it has been remarked that the pantheistic philosophy of Germany, amid all its pestilent fruits, has led to the most earnest and successful investigation of all the typical forms, mathematical proportions, and skilful adjustments in nature, which evince unlimited intelligence. Thus they vainly hope to identify nature with its Author. But if they are foiled in this endeavour, they unwittingly furnish the means of proving, not what they wish—that all things are God—but what they impugn, that "He that builded all things is God." So Mr. Spencer shows consummate ability, and sheds important light on those departments of our nature, which he acknowledges, and searches with his penetrating intellect. This is especially true of our physical being, and of the chapter on physical education. If he is one-sided, he presents his side powerfully. We shall, therefore, make occasional reference to this volume, in some observations we shall soon proceed to offer in regard to what we will denominate,

#### THE PHYSICAL ELEMENT IN LIBERAL EDUCATION.

The training of the children and youth of any Christian or even civilized country for the high, or even the ordinary

spheres of life, involves so large and constant an outlay, mental and material, together with consequences so momentous, that it is the theme of constant discussion. Education in all its grades, liberal, common, intermediate, professional; for every department of the mind, intellectual, moral, and religious; in the family, the school, and the college; has been ably, variously, and continually treated by experts, masters, empirics, and pretenders, in addresses, lectures, pamphlets, periodicals, and massive books. The extent of these discussions by no means exceeds the importance of the subject. It never has been, and probably never will be exhausted. There are certain aspects of it, especially relative to liberal education, on which we are ready, on some opportune occasion, to show our own opinion. Our college systems are, in many cases, susceptible of improvement, not so much in the mere extent of their curriculum—for we believe that they rather overtax their best students with excessive application, than fall short of a reasonable demand upon their diligence—but in the relative proportions allotted to the different branches, the methods of teaching them, the modes of discipline and training, and, as the result of the whole, in the symmetry, completeness, and effective power of the education thus imparted. But it is not our purpose to deal with these matters now, unless in a very subordinate and incidental way. We only remark, that one of the most serious evils connected with these departments of education, as well as that which we propose now more particularly to discuss, lies in the ultra and one-sided views often maintained, alike by radical reformers of education and their extreme antagonists. The human mind, here as elsewhere, is prone to lose its central balance of moderation, and oscillate like a pendulum from extreme to extreme.

The old system of commencing the study of language by enforcing with the rod a mere rote-learning of all its grammatical formulas, inflexions, and rules, before putting the pupil upon any practical exercises which exemplify and explain them, was appalling enough. But, on the other side, is not Mr. Spencer more extravagant when he pronounces “the teaching of grammar to children an intensely stupid custom”? He quotes, in support of his dictum, M. Marcel as saying: “It

may without hesitation be affirmed that grammar is not the stepping-stone, but the finishing instrument." Still further, he adopts from Mr. Wyse the following language: "Grammar and syntax are a collection of laws and rules. Rules are gathered from practice; they are the results of induction, to which we come by long observation and comparison of facts. It is, in fine, the science, the philosophy of language. In following the process of nature, neither individuals nor nations ever arrive at the science *first*. A language is spoken, and poetry written, many years before either a grammar or prosody is even thought of. Men did not wait till Aristotle had constructed his logic, to reason. In short, as grammar was made after language, so ought it to be taught after language; an inference which all who recognize the relationship between the evolution of the race and of the individual, will see to be unavoidable." Pp. 105, 106. It is hard to say whether such language is the more shallow or pretentious. Because men reason before they study logic, and irrespective of such study, does that prove that they may not be assisted in reasoning, and made more prompt, sure, and vigorous in their thinking, by the mastery of the laws of thought, and of the criteria which distinguish genuine from spurious thinking? Are they to throw up the aid of grammatical guidance, in the study of language, till, groping through a wilderness of vocables, they evolve some crude rudiments of grammar for themselves? Is not this very much as if the locomotive builder should ignore the discoveries already achieved by scientists and machinists, and start from the crude iron and the steam-lifted lid of the tea-kettle, to contrive and construct the stupendous machine which is instinct with the powers of a thousand giants? This would be no more "intensely stupid" than a like casting away or ignoring of the treasures accumulated by the labours of the past in the study of language. The truth is, the grammar guides and facilitates the study of language, while language, in turn, explains and confirms the grammar. They should go on together, and interpenetrate and vitalize each other. Because poetry and eloquence appeared before rhetoric and criticism, are rhetoric and criticism therefore useless to the young student who is seeking to make himself master of those

arts? There is no doubt that the ante-Baconian tendency was to an undue exaltation of formal logic in neglect of facts and inductive generalization. This may explain, but cannot excuse John Locke's flippant and vulgar thrusts at logic, which are still more extravagant in the contrary direction. He tells us, "God has not been so sparing to men to make them barely two-legged creatures, and left it to Aristotle to make them rational. . . . God has been more bountiful to mankind than so; he has given them a mind that can reason without being instructed in methods of syllogizing." Many of our readers will recollect a passage in Lord Macaulay's *Essays*,\* in which he vents a like disparagement of the utility of grammar or rhetoric. The answer of Whately to such flimsy sophistry is alike pointed and conclusive: "All this is not at all less absurd than if any one, on being told of the discoveries of modern chemists respecting caloric, and on hearing described the process by which it is conducted through the boiler into the water, which it converts into a gas of sufficient elasticity to overcome the pressure of the atmosphere, &c., should reply, 'If all this were so, it would follow, that before the time of these chemists no one ever did or ever could make any liquor boil.' "

We do not, however, now purpose to dwell on intellectual education. Our object has been mainly to illustrate the tendency to extravagance, and, in reaction from one extreme, to swing over to the opposite, which has prevailed in these matters. If characteristic of the human mind generally, it is eminently so on this subject; and, as we think, will appear especially so in regard to that branch of it now before us.

It is only within a recent period that the attention of thoughtful men, or even of professional educators, has been decidedly turned toward the physical part of education. Nor has the subject been pursued, for the most part, in any continuous or systematic way. Occasionally, the appearance of a sort of epidemic debility or disease among students, or the sudden prostration and early death of gifted ministers and other professional men, rouses the public mind to some fitful earnestness

\* See his *Essay on Lord Bacon*.

in regard to the academic hygiene. The remedies and reforms proposed or initiated, have been proportionably ill-adjusted, and, therefore, ephemeral. Some thirty years ago, the wide prevalence of dyspeptic, pulmonary, and nervous disorders among students, which rapidly became developed into bronchitis and other disabling maladies in young clergymen and other professional students and speakers, awakened wide and profound attention. A celebrated American *savant* published a book on *Dyspepsia*, which recommended that we weigh our food before eating, in order to avoid gorging the stomach, and paralyzing digestion. A very short trial, or the merest modicum of common sense, would show that such a dietetic regimen would turn the healthiest men into dyspeptics, or invalids of some sort. Nothing is a more certain sign of disease, present or impending, than such a distempered consciousness as renders us habitually suspicious, that every morsel administered to the cravings of a healthy appetite is freighted with dyspepsia, unless it be weighed in the balances. Such prescriptions, for the short period and few subjects of their influence, produce unmixed evil. They only breed disgust and contempt for matters of the highest importance—the promotion of the health and vigour of students and educated men. Closely akin to, and almost simultaneous with this, was the extensive drifting towards vegetarianism; running into abstinence from all food except the most unpalatable, innutritious, and unwholesome, and even this in quantities the most attenuated and infinitesimal. This tendency took its start and impetus from a far worthier example, the Temperance Reformation. As if, because men had experienced great physical and moral improvement from the disuse of alcoholic stimuli, which fire, consume, madden, and shatter the whole man; therefore, whatever exhilarates, energizes, or gratifies us, among the creatures of God, were to be refused as not good, (1 Tim. iv. 3,) branded as in the same category with fiery and adulterated stimulants. The radicalism which ran riot about this period, favoured such ultrasims. But, in proportion to the extravagance of this tendency, was it sure to be transient, and to avenge its own excesses, by enforcing a proportionately violent reaction, which brought the whole subject into ridicule with those who most

needed to regard it in sober earnest. The young looked upon it as the wretched imposture of charlatans and empirics, and too often rebounded to the opposite extreme of unlimited self-indulgence.

The Manual Labour system also came to the birth during this period, and, with scarcely an exception, speedily died out. Seldom has any scheme appeared, of brighter promise as a grand economic and sanitary agency in education. It was to ensure the health of the student, while it would defray his expenses, and invigorate his thinking powers, by invigorating his brain and whole body. The system perished almost without a trial, for the few students who could be persuaded to try it, found that, after exhausting their strength in the shop or on the farm, little or no spring for study remained. The working energy used up in one way, cannot remain to be exerted in other channels. The most absurd climax known to us, in these schemes of economics for the body and the soul, with which the church and country teemed a quarter of a century ago, was that of a Christian physician personally known to us, who, from seeing the evils of excessive drugging in medication, sprung to the opposite extreme of giving no medicine at all, in any disease whatever. The project to which we refer was this. He proposed to have the tables in the dining-halls of our large literary institutions made circular, with a lecturer's desk in the centre. Thus while the pupils were eating, they could at the same time hear lectures, and save a prodigious waste of time. Other essays in the same general direction, sometimes judicious and reasonable, and sometimes otherwise, were made about this time by the erection of gymnastic apparatus, or instituting military drill, or some rude mimicry of it. But they mostly fell into speedy disuse, because they were too violent or toilsome, and had too little in them to amuse and divert, to refresh and exhilarate. The consequence was, that, for a long time, and until a recent period, the whole subject fell into neglect in our higher institutions of learning. The consequences were disastrous, but inevitable. The shattered health, the early debility or death of great numbers of American students, have again roused public attention to the subject. Extensive preparations have

been made, and are making, in many of our educational institutions, to supply this great desideratum. Many have erected buildings to afford shelter for exercise in all weather, and furnished them with more or less of gymnastic apparatus. Some have gone the length of devoting one floor to a series of bowling alleys. Sometimes military tactics are adopted. The martial routine and drill, and, in many cases, uniform, are adopted or simulated. Where waters navigable by such craft are convenient, boat-rowing and boat-racing are followed with passionate ardor, as the sure preventives of disease and debility, the conductors of vitality, energy, and buoyancy to the system. These methods, within due limits, are useful and important. It is a great error, however, to make them the exclusive reliance for health. Those who do this suppose that the development of muscle is the grand want of the student; that deficiency here is the prolific cause of his disease and debility, and that ample replenishment of it is the great resource for perennial health and vigour. A certain degree of truth underlies all these methods of insuring health by the increase of muscular development. Doubtless, muscle is an important element in the bodily texture. It cannot be seriously vitiated, attenuated, or enfeebled, without proportionate damage to the general health. But it does not follow that the special and abnormal development of muscle is the grand prescription for those whose main business it is, not to task the muscular, but the cerebral and nervous energies. So much muscular development as is requisite to a healthy vitality should doubtless be sought. To this extent, the foregoing and other analogous exercises may be practised with advantage, provided they are not overdone, or are not allowed to supplant other exercises which ensure not only this, but other important benefits. The respiratory, circulative, nervous, digestive, and cerebral functions all claim our care in any modes of exercise and recreation which we may adopt. And the undue development of any one class of functions and energies is sure to be at the expense of the residue, and of the vital powers; at all events, if this exaggerated development pertain to a class of powers not employed in our special occupation. But we will specify some points requiring attention in the premises, which have been too

much overlooked by many of our most forward and successful gymnastic and hygienic reformers.

1. In every normal human organism, the vital energies are sufficient to sustain the healthful working of all the vital functions, and to furnish an available surplus power adequate to the steady and effective prosecution of some special employment. But this vital energy is not unlimited. It varies in different persons according to constitutional vigour and vivacity of temperament. But, besides sustaining us in some regular occupation, it is not more than equal to the diffusion of that equable force through all the members and organs of the body which ensures their symmetrical and successful working, and, through their free and delighted activity, the sustentation of the vital principle itself. This is that energy of life which is expended in its own support, and which, evenly pervading the whole body, sustains those functions of digestion, assimilation, circulation, respiration, etc., which in turn build up and maintain it. Besides this vital energy, which is thus occupied with self-support, there is, as we have said, a disposable surplus, more or less in different persons, applicable to their special pursuits. Whatever such special pursuit may be, it will attract this surplus energy to those members or organs of the body which it employs. Thus the smith, the digger, the woodman, will bring all the vital energy they can spare from the vital processes themselves, if not more, to their brawny arms. The farmer usually has the advantage, over most occupations, of giving even play to nearly all the organs and functions of the body, and this out of doors, thus invigorating all, without extreme development or straining of any. The hod-carrier, and the negro bearing burdens on his head, undoubtedly show surprising strength in the muscles concerned in carrying the load. Examples of this kind might be indefinitely multiplied. But the occupation of the student employs the mind, of which the brain and nerves implicated with it are the physical organs. This is what student-life taxes, and therefore, what attracts to itself all, if not more than, the surplus energies of the system. This being so, we observe,

2. That if any member or organ be so employed as to absorb and develop any portion of this surplus energy of the system,

then it cannot go elsewhere. If it be appropriated by members of the body, not employed in our special occupation, it is so much taken from, but needed by, the parts and organs brought into play in that special occupation. He who develops and maintains the strength of the hod-carrier in his shoulders, will not develop and maintain that of the scholar and *savant* in his brain. By parity of reason it follows, that those students who make the development of muscle their paramount aim, abstract so far forth that energy from the brain which it needs for the vigorous prosecution of its duties. They enfeeble this great organ for its high work. They beget lassitude, inefficiency, and ultimate prostration in study. If the arms and chest have been anomalously expanded to gigantic proportions, the brain has, in many cases, been proportionally attenuated. The effort to diffuse that *extra* strength over several members of the body, which was needed mainly for that chiefly tasked, so far tends to break it down. It is as absurd to attempt to invigorate the brain in this way, as it would be for the blacksmith to attempt to strengthen his arms by intense study during all the intervals of labour. He may thus, indeed, if he be a prodigy, become a "learned blacksmith," i. e., he will unlearn his trade and give himself to intellectual labours. And, conversely, we believe the mania for boat-racing, as distinguished from moderate boat-rowing, *et id genus omne*, may make men of muscle, but it will hardly invigorate the intellect. Not only so; by weakening the organs through which the intellect acts, it prepares them more speedily to break down under the pressure of study. It is a good thing spoiled by overdoing.\* This is not all. We think it evident,

3. That such a disproportionate growth of muscle or other special organs not specially worked in our regular callings, is not, irrespective of its bearings on study, even in a physical point of view, wholesome. Enough is enough in all things.

\* We speak of boat-racing, not of reasonable and moderate boat-rowing, where there are proper facilities for it; although, so far as we have observed in our colleges, the latter is apt to degenerate into the former. Another great evil of boat-racing in colleges is, that it absorbs the mind and heart, as well as muscle of the students. As the spirit of boat-racing rises, the spirit of study declines. Such is the fact as shown by the most reliable information we have been able to obtain.

There is even a sense, in which we must not be "righteous over-much." Such a development may give a temporary preternatural vigour in some parts or members. So will the abundant use of narcotic or alcoholic stimulants. But it will be only temporary. It will take speedy vengeance on itself. It will prove unfavourable to ultimate health, vigour, and longevity. According to the views advanced by some, prize-fighters should attain the most hale and enduring old age, if they survive the ring. They are notoriously the contrary—victims of early disease, short-lived, and inefficient for any useful service while they do live. If this "apotheosis of muscle" is well-founded, why are not hod-carriers, miners, and diggers of railroads, the most robust and numerous of octogenarians, instead of being swept away, as they mostly are, in the prime of their manhood? We have recently seen a statement, circulating in the public prints, to the effect, that the most eminent English physicians observe that the adepts and victors in boat-racing, at colleges, or in early life elsewhere, notwithstanding their enormous breadth of chest and massive arms, generally develop formidable diseases at or about the age of thirty, or sooner. We know not on how strong authority this statement rests; but we are confident that, if such be the fact, it harmonizes with all the analogies of the case. For ourselves, we have often witnessed those who had accomplished this artificial and preternatural muscular development, becoming the victims of diseases which astonished themselves and those who had confidence in this species of training. We quite agree with the following well-considered statement:

"The conditions of bodily welfare pertain, variously, to the subjects of light, air, heat, water, diet, clothing, exercise, climate, occupation, and all the mental and moral habits of the mind. Health is the nice and even balance of many delicate and subtle elements and agencies, at work in every part of the complicated frame-work of our entire being. Some, in seeking to regain their health, attach quite too much importance to mere muscular exercise, which alone, as many well know, will do but little towards the thorough renovation of the physical system. Here, as in other things, 'bodily exercise profiteth little;' little, if not mixed largely

with other and better things."\* This is true, not only of the "renovation" or restoration, but also of the preservation and increase of health. Exercise which, as to time, place, manner, and amount, is congenial to the student, is unquestionably of fundamental importance to him; and without it, he will, in the long run, be unable to keep good health; or, if lost, regain it. But no exercise is scarcely worse than exercise which is excessive, unsuitable, and ungenial; or the exaggerated, abnormal development of the muscular system, or of particular members and parts of the body.

4. Violent, toilsome, or burdensome exercise is injurious. It is undue and inappropriate. It wears, debilitates, and exhausts: but it does not refresh or invigorate. As to violent exercise, it is, of course, exhausting. It often produces injurious strains, fractures, ruptures, or dislocations, either immediate and palpable, or partial and latent, which gradually manifest themselves at a later period. Of this the witnesses and the monuments abound. Toilsome and burdensome are relative terms. They have reference to the previous strength, habits, and aptitudes of individuals. What is laborious and severe to one, is easy and pleasant to another. But there can be no doubt that the student who habitually takes exercise, that in kind and degree is irksome and wearisome, will find himself the worse for it. Instead of refreshing and invigorating the vital powers jaded by study, it is a further tax upon them, and still further reduces them. We have known many dyspeptics whose prostration was due to the lack of exercise *inter alia*, aggravate the distemper by suddenly betaking themselves to dumb-bells, gymnastic frames and swings, wood-sawing, and other laborious exercises. On the other hand, one who had gradually trained and inured himself to the moderate use of these modes of exercise, might suffer no injury, and experience decided advantage from their continued use.

5. Beyond all question, other things being equal, that exercise is most beneficial to the student which is most in the open air, which best brings the various parts of the body into

\* "The Higher Christian Education." By Benjamin W. Dwight. New York: A. S. Barnes & Burr. 1859.

due exercise, and gives the most of exhilaration with the least of weariness or exhaustion. This is one of those propositions which scarcely needs proof. Its very statement is its evidence, not only because it seems reasonable on the face of it, but because it is an echo of the consciousness and tried experience of all whose pursuits are sedentary and intellectual. Hence, so far as the body is concerned, that exercise is to be preferred which requires scope for the free activity, and spontaneous spring of all its parts and members. This unforced play and elastic bounding of the limbs and organs, is, in any degree short of being tiresome, alike inspiring and invigorating, beyond the finest cordial, to both body and mind. Another condition of the utility of exercise is, that it be of a kind to cheer, divert, and amuse the mind. What is requisite is not merely a cessation of mental labour, but an interval of mental play—of free, buoyant, glad activity, that makes the whole man sparkle and glow with genuine recreation, and hearty diversion from severe studies. This indeed is the true amusement, *a musis*. It is needless to discuss the philosophy of this. It is enough that all experience shows such genial, mentally exhilarating exercise, to be vastly more restorative and invigorating than that which, whether toilsome and drudging or not, is performed with aversion or indifference, and from a mere leaden sense of duty or necessity.\*

\* It should not be forgotten by educators that, in many branches the thirst for amusement may be made subservient to, and coincident with the passion for knowledge and study. This is peculiarly true of Botany, Mineralogy, Geology, and that class of sciences, in which the specimens may be found in out-door rambles. As illustrations, we quote the following from a vigorous little tract on "Agricultural Geology," by Josiah Holbrook.

"A teacher in Philadelphia once said to his pupils; 'Boys, all who have their lessons to-day at eleven o'clock may go with me on a geological excursion.' Every boy had his lesson thoroughly at the hour named—the first *thorough* lesson ever got by several of his pupils. Similar experiments continued changed his worst scholars into his best.

"In one of the New York Public Schools the teacher was greatly annoyed by several truant boys, drawn to the docks of the city by the attractions upon the wharves. He at length offered to the punctual scholars exercises in drawing, also an opportunity to form cabinets of Geology for the school, their homes, and sending abroad. His incorrigible truants immediately became his most punctual scholars, and the very worst boy in school was soon known as an artist, and, as such, invited by a clergyman of the city to become the

The drift of our remarks, as has doubtless already struck our readers, is to show that the out-door games and sports of childhood, together with walking, and riding, as far as possible with genial and vivacious companions; the family and social recreations; the out-door movements incident to the requirements of the household and the profession pursued; in the country, supervising the garden, grounds, or farm; and any out-door games which may not be unbecoming one's age and position;—these and other things the like, are more trustworthy and invigorating modes of exercise than the more formal, constrained, and tiresome methods. Gymnastics should be used to supplement, but not to supplant or overbear them.\* They

associate and the teacher of his children. Do not 'working schools' and houses of refuge forcibly illustrate the adage, that an ounce of prevention is better than a pound of cure?

"Some boys in a New York school, much in a mutinous state, were invited by a visitor to take an excursion to collect minerals to be distributed among the pupils in the several departments—girls, boys, and primaries. The proposal was, of course, most gladly acceded to, resulting in specimens showing the elements of the globe, all labelled, and taken at the close of the school, on the same day, by the hands of every pupil, from the largest to the smallest, numbering more than three hundred, for the beginning of 'FAMILY CABINETS.' The same school soon stood among the first in the city in scholarship and orderly deportment."

\* The following remarks of Spencer, in regard to the practice of forbidding school girls free out-of-door play, and putting gymnastics in lieu thereof, have a broader application, so far as the principles are concerned.

"In this, as in other cases, to remedy the evils of one artificiality, another artificiality has been introduced. The natural spontaneous exercise having been forbidden, and the bad consequences of no exercise having become conspicuous, there has been adopted a system of factitious exercise—gymnastics. That this is better than nothing, we admit; but that it is an adequate substitute for play, we deny. The defects are both positive and negative. In the first place these formal, muscular motions, necessarily much less varied than those accompanying juvenile sports, do not secure so equable a distribution of action to all parts of the body; whence it results that the exertion falling on special parts, produces fatigue sooner than it would else have done; add to which, that, if constantly repeated, this exertion of special parts leads to a disproportionate development. Again, the quantity of exercise thus taken will be deficient, not only in consequence of uneven distribution, but it will be further deficient in consequence of a lack of interest. Even when not made repulsive as they sometimes are, by assuming the shape of appointed lessons, these monotonous movements are sure to become wearisome, from lack of amusement. Competition, it is true, serves as a stimulus; but it is not a lasting stimulus, like that enjoyment which accompanies varied play. Not only,

are also better than those aquatic or other contests, which over-task, and in the end debilitate, by intensity of exertion and excitement. As to the ten-pin alleys, now so fashionable on the premises of gentlemen, and becoming so prominent in some of our leading colleges, they doubtless meet many of the conditions we have specified. But we confess they have not yet overcome our repugnance to making them academic institutions. The objections to them are, 1. Their association with places of dissipation and gambling, and the tendency, in such a community as a college, to pervert them to such service. 2. They are in-doors. This, indeed, is a recommendation of this, and of housed gymnastic apparatus, in inclement weather; but ordinarily, and as a main reliance, they do not minister sufficiently to that vital want of the student, fresh outer air. 3. They excite to excess. They, so far as we have observed, tend so to enlist the mind, and excite the passionate fevered interest of the young student, as to tempt him to continue at the game till it intrudes upon study hours, and they are exhausted and unmanned for study. If we mistake not, those colleges that were first to introduce them, and have longest tried them, will take good care not to enlarge, if they continue the experiment.

While, therefore, we favour the introduction of gymnastic

however, are gymnastics inferior in respect of the *quantity* of muscular exertion which they secure; they are still more inferior in respect of the *quality*. This comparative want of enjoyment to which we have just referred as a cause of early desistance from artificial exercises, is also a cause of inferiority in the effects they produce on the system. The common assumption, that so long as the amount of bodily action is the same, it matters not whether it be pleasurable or otherwise, is a grave mistake. An agreeable mental excitement has a highly invigorating influence. See the effect produced upon an invalid by good news, or by the visit of an old friend. Mark how careful medical men are to recommend lively society to debilitated patients. Remember how beneficial to the health is the gratification produced by change of scene. The truth is, that happiness is the most powerful of tonics. By accelerating the circulation of the blood, it facilitates the performance of every function; and so tends alike to increase health when it exists. Hence the essential superiority of play to gymnastics. . . . Granting then, as we do, that formal exercises of the limbs are better than nothing; granting further, that they may be used with advantage as supplementary aids; we yet contend that such formal exercises can never supply the place of the exercises prompted by nature." Pp. 256—258.

apparatus into our literary institutions which shall afford facilities for exercise in all weathers, and which shall supplement the more spontaneous and exhilarating out-of-door activity which our instincts prompt; yet it should be practised only in moderation. It should not be followed to weariness, or so as to induce an unsymmetrical development of any of our faculties or organs. It is no substitute for, and should not be allowed to supplant, the free and spontaneous activities that energize and exhilarate the body and mind. For if a sound body invigorates the mind, it is no less true that a cheerful and joyous spirit enlivens and lubricates all the activities of the body. But a wounded spirit who can bear? Dejection of spirit unnerves the body, and debilitates all its functions. "Their soul abhorreth all manner of meat."

We believe, however, that there can be no intelligent and sufficient prescription to remedy the debility to which so many students are compelled to succumb, either before or after they have completed their education, without searching out the causes of the phenomenon. It is certainly much more common and obtrusive now than forty years ago. In a proportionate degree it has challenged public attention, and called forth numerous ingenious specifics for its removal or abatement. What then are some obvious changes within that period in the condition and circumstances of the student which affect his health and *physique*? We will briefly indicate a few of the more palpable.

1. To prevent misconception, we will say that the changes in diet, dress, furniture, in many respects, are conducive to health and vigour. Other things being equal, we have no doubt that those modes of living which, being simple and not luxurious, promote comfort, do, *ceteris paribus*, proportionably promote health and vigour. There is no question that good, nutritious, savoury food is healthier than a hard, tough, indigestible diet. It is far better that men should be comfortably warm, than suffer from excessive or inadequate heat, whether it arise from unsuitable clothing, or warming, shading, and ventilation of houses. We have no doubt that the modern provisions for the nourishment and temperature of the body, are, certain exceptions aside which we shall soon point out,

more conducive to health and vigour than the more uncomfortable methods and usages which they have supplanted. We know it is a common assumption, that the suffering from cold, exposure, inadequate clothing and warming, together with the harder diet which formerly prevailed, made a tough and hardy race, capable of an endurance quite beyond the present more luxurious generation. On this we remark, first, that in advocating varied, pleasant, nutritious food, and due warmth, we are not countenancing the course of those who pamper themselves with luxury and self-indulgence. These doubtless tend to enfeeble and shatter the constitution. On the other hand, that kind of indurating process which trains us to bear exposures from which we naturally recoil, is accomplished by an advance draft on the reserved *vis vitæ*, in which lie the latent and undeveloped resources of our future life. Many succumb to this strain upon their vital resources. Those who surmount it, and are hardened by it, thus show that they had constitutions capable of bearing it. They would have been more hardy than others without the experiment. Their increased hardihood has been purchased, however, by a manifest draft upon the vital powers which will ensure payment in the earlier giving out of those powers. No doubt, children may be inured to thin clothing, bare feet, unwarmed houses, and cease to be seriously sensitive to their privations. The feeblest will sink under, the strongest will outlive, the discipline, hardened indeed for the time, but at the cost of an ultimate enfeebling and shortening of life. Sailors become inured to sleepless nights. The skin on the palms of their hands is stimulated to a triple thickness. They are proof against all exposures to climate and weather. But what of their enduring vigour and longevity? The truth is, that all painful sensations, all abnormal obstructions of the vital functions, all the struggles requisite to sear the sensibility to unnatural exposure, amount to so much expenditure of vital energy. They consume not merely the income of our vital estate; they encroach on the capital itself. While we, therefore, admit and maintain that those changes in modes of living, whereby the present generation are more comfortably housed, clothed, warmed, and fed, are, in themselves, conducive to health, we must mention

certain incidents or accompaniments thereof, which, it is to be feared, with reference to students at least, neutralize, and often more than neutralize, their hygienic efficacy.

The general improvement in clothing is qualified by at least one grave exception. Fashion is the idol to which not a few constitutions are sacrificed in their youngest, tenderest days. It would be difficult to speak in terms of reprobation too severe, of the custom of exposing the bare limbs of young children to the unrelenting cold. It is not necessary, in such a matter, to accumulate facts, or wait for the revelations of experience. The sure ultimate effect, we know *a priori*, must be to sacrifice or injure the health of large numbers. The following observations of Mr. Spencer are their own justification.

“See, then, the folly of clothing the young scantily. What father, full-grown though he is, losing heat less rapidly as he does, and having no physiological necessity but to supply the waste of each day—what father, we ask, would think it salutary to go about with bare legs, bare arms, and bare neck? Yet this tax upon the system, from which he would shrink, he inflicts upon his little ones, who are so much less able to bear it! or if he does not inflict it, sees it inflicted without protest. . . . . We have met with none competent to form a judgment on the matter, who do not strongly condemn the exposure of children’s limbs. If there is one point above others in which ‘pestilent custom’ should be ignored, it is this.

“Lamentable, indeed, is it to see mothers seriously damaging the constitutions of their children out of compliance with an irrational fashion. It is bad enough that they should themselves thoroughly conform to every folly which our Gallic neighbours please to initiate; but that they should clothe their children in any mountebank dress which *Le petit Courrier des Dames* indicates, regardless of its insufficiency and unfitness, is monstrous. Discomfort, more or less great, is inflicted; frequent disorders are entailed; growth is checked, or stamina undermined; premature death not uncommonly caused; and all because it is thought needful to make frocks of a size and material dictated by French caprice. . . . . We do not hesitate to say that, through enfeebled health, defective energies, and consequent non-success in life, thousands are annually

doomed to unhappiness by this unscrupulous regard for appearances, even when they are not, by early death, literally sacrificed to the Moloch of maternal vanity." Pp. 249—251. While this deleterious influence is not peculiar to those who, at a later period, pursue study or other confined occupations, it aggravates other debilitating influences which operate upon them.

2. The improvements in the mode of warming houses, which enable us to secure pervading and equable warmth, at reduced expense, have, almost without exception, involved a change in regard to ventilation, which, for students at least, more than neutralizes the advantage gained on the score of temperature. This is a very serious matter to those who lead an in-door life, as females, merchants, and mechanics. But it is still more serious for students, scholars, and others whose occupations are not only in-door and sedentary, but mental, tasking directly and exclusively the brain and nervous system. The modern methods of economizing and distributing heat, are effected almost exclusively by preventing any free exit or adequate change of the air of the room. Nearly every heat-saving apparatus is some form of, or approximation to, "close" or airtight stoves, i. e., stoves which save heat by closing or reducing the draughts and flues that admit of that exit of the heated air of the apartment, whence arises the influx of fresh air from without, through the cracks and crevices inevitable in the best buildings, to fill the vacuum. Hence the air, by repeated breathing over, becomes rapidly vitiated—bereft of its oxygen and filled with carbonic acid gas, emptied of its vital properties and saturated with poison. The case is little better, sometimes worse, in apartments warmed with furnaces, and destitute of ventilating flues for the exit of vitiated air. As the currents of hot air from the furnace-chamber press into the room, they fill and crowd it, and prevent the ingress of fresh air through the fissures of the apartment from without. One leading cause of the oppressiveness of air heated by furnaces, is its excessive dryness, when no adequate provision is made to moisten it. Let any one, on a quiet winter's day, enter any public assembly met in a room warmed in either of the foregoing methods, after it has been gathered half an hour, and the odour of it

will evince the poisonous state of the air. Let him enter any small private apartment, warmed in the same manner, after it has been occupied a few hours, and the same thing will appear in a greater or less degree. There is a dead, stifling atmosphere, analogous to that perceived by one who comes from the fresh morning air into a dormitory that has been slept in and kept close over night. This foul state of the room, so perceptible to one entering it from the pure outer air, is usually unperceived by those who have been for some time in it, except in the dulness, languor, and prostration which steal upon them, they know not why. How often does this account for a drowsiness in church which the most vigorous and stirring discourses fail to overcome?

Let any school-room heated by steam, close stoves, or furnaces, without effective appliances for ventilation, be entered, after an hour's session, in a still day, and who can doubt that the "tainted air" thus disclosed, must tell with disastrous effect upon the minds and bodies of the children and youth who are jading their brains, and poisoning their lungs by attempts to study while they breathe these fetid gases? Who can doubt that the constitutions of our growing children often suffer serious injury from confinement and mental application in these laboratories of foul air? And who can doubt that it often tells disastrously on the after-life of the student, as he goes on to continue study in confined apartments? All this was avoided in the ruder system of open wood fires, and of anthracite coal grates, which prevailed before the last quarter of a century. The large and free draught up the chimney, which these fires secured, produced a constant change in the air of the room. Fresh air percolated imperceptibly through all seams and fissures, palpable and impalpable, to fill the void made by the suction up the chimney. And there is no doubt, that this or some equivalent arrangement, which will effect a change of air, without exposing the inmates of the room, while warm, to the danger of taking cold from open windows and doors, would be among the most valuable hygienic arrangements which the student could adopt. It would also contribute powerfully to brace and tone the mind for study. It may be deemed impracticable to warm public or other large rooms designed for assem-

blies in this way. The true method in such cases is to combine this, or some other plan for a safe and effective exit of the vitiated air of the room on one side of it, with the hot-air furnace, which will introduce an ample volume of warm air, on the other side. This warm air will thus flow across to the place of exit, and fill the room with genial currents which are both fresh from without, and warm. However, we do not wish now to extend our inquiries in this direction. We are looking after the causes that debilitate the health of students, young and old. We think we have found one of considerable importance in the close atmosphere they breathe, resulting from modern methods of warming, which economize heat at the expense of fresh air. Another source of foulness in the air of rooms, in the evening, is found in the increased vitiation of the air by the increased amount of artificial light now in use. This whole subject acquires still greater importance from being implicated with the next of which we shall speak.

3. We do not think the immense increase in the use of tobacco among students and young men, can honestly or intelligently be ignored in any presentation of the causes which damage their physique. We do not countenance any fanatic or censorious views on this or cognate subjects. We would be the last to judge those who are unfortunately addicted or enslaved to this, at least, undesirable habit. We do not presume to say that all use of the article, in severely regulated quantities, is pernicious to all men, of whatever constitution, age, occupation, or condition. But we do say that the moderate use of it constantly tends to degenerate, and in nine cases out of ten does degenerate, into the immoderate, often enormous, at all events, pernicious use of it: that in such cases, it acts first by stimulating, then by a debilitating reaction upon, and ultimate chronic enfeebling of the brain, the nervous system, and, at length, all the vital organs; that not only is the immediate stimulus followed by an immediate subsidence into languor, which in turn craves a renewal of the stimulus in order to its own removal, but that, sooner or later, and often very soon, this forced exaction upon the reserved vital resources reveals its effect in a debilitated constitution, with premature disease

and decay.\* There is not one father in fifty, who, whatever may be his own practice, does not dread to see his own sons commencing this habit: scarcely a merchant or manufacturer, who, whatever he may do himself, would not greatly prefer to see his own employees, young and old, free from it; not an educator who does not see that many students are doing themselves serious, sometimes irreparable, injury by this indulgence, and who does not know that the rigid exclusion of tobacco from every literary and professional seminary in the land, would be an inestimable benefit to our rising statesmen, jurists, physicians, teachers, and ministers, and through them, to the church and the world. There is no doubt that the great increase in the use of this article does much to unlingue the nerves and enfeeble the health of this generation of students. We have intimated that this debilitating influence combines with and intensifies that last mentioned—impure and poisoned air. It does so, first, as the use of tobacco by students is largely in the way of smoking it in unventilated rooms. This dead empoisoned vapour remains to aggravate the virus in the air, generated by its repeated respiration, of which we have already spoken. Secondly, in whatever form taken, its irritating and exhausting influence is far greater upon those who lead a sedentary, in-door life, constantly tasking the mind and brain, than upon those whose pursuits enable them largely to counteract its influence by habitual activity in the open air. It ultimately, however, shows its mischievous character, with telling, even if slight, effect upon this class. We cannot doubt, that, if it were unknown, or were utterly and for ever renounced by our youth, students, and others, the health, vigour and longevity of all classes, especially those engaged in intellectual pursuits, would be greatly promoted. It is notoriously commenced, not from any love, but in utter loathing of it, which it requires earnest and persevering effort to surmount. It is usually taken up at that period when all the passions are “fast,” springing to anticipate the character-

\* A medical friend suggests that the worst effects of this stimulant are experienced, when the conditions of youth and sedentary life, associated with a studious occupation, are found in combination, as in young students.

istics and prerogatives of manhood, and urging to this and other worse than ridiculous follies, in order to display some impressive signals of their rapid approximation to the coveted goal. Thus, too often, a bondage most injurious and tyrannical is fastened on the best of men for life. Whether they would not consult health, comfort, usefulness, long life, and duty, by speedily and for ever bursting their fetters, is a question which each one must answer for himself.

4. The last cause of deteriorated health in modern students, which we shall now mention, is of a very different character, although, as related to the last two, they reciprocally aggravate each other. We refer to the increased requirements for mental application in the established curriculum of liberal education, and in subsequent professional or literary life. This pertains, in no small degree, to all the spheres of life which mainly work the mind. The competition of modern business is so intense, success is so dependent on the magnitude, the complexity, and the closest economy, in the minutest details of its operations, that the wear and strain upon the cerebral functions, often display melancholy signals of their depressing influence. Mr. Spencer states that he had not credited the common saying, that the young men in England, of the present day, were feebler than their fathers, till he made it a subject of rigid inquiry. He had referred it to the disposition which is, in all things, so prone to count the former days better than the present. It is a very common idea that men are not now as long-lived as formerly. The tombstones of almost any cemetery in England or America, will show that if we compare the last thirty with the previous hundred years, the reverse is true. Notwithstanding, Mr. Spencer assures us that, after rigid inquiry, he came to the conclusion that the prevalent idea of the greater slenderness of constitution in the young men of our day, as compared with the last generation, is not wholly without foundation. And he attributes it to the extreme mental tension to which the strenuous competition, now prevalent in business, urges all aspirants for the prizes of life. Our own observation confirms this view; which indeed must force itself upon all who know much of our great cities and manufacturing towns, or of the men who move in, and try to impress

into their own service, the impetuous currents of modern business life.

We apprehend that an analogous evil has been insinuating itself, almost unnoticed, into the course of liberal and professional study now established in the institutions of this country. The requirements of the college course have been steadily increasing without a proportionate advance in the requisitions for admission. In the early days of the older American colleges, the curriculum was mostly filled out with the study of the ancient languages, logic, ethics, some rhetoric, and the elements of divinity. The commencement bills of a century ago are largely made up of some of the tangled questions of casuistry, metaphysics, and theology.\* The course in mathematics was slight, and in physical science, then comparatively undeveloped, merely nominal. As the immense departments of modern science have been opened, they have been of necessity, wedged into our college courses. Natural Philosophy, Rational Mechanics, Pure Physics, Chemistry, Geology, Mineralogy, Physical Geography, Botany, and Zoology make large demands on the time and intellect of the student. The first effect of this expansion of the department of Physical Science, was a proportionate decline in classical studies, logic, &c. During most of the earlier half of the present century, the whole course in logic, in most of our American colleges, was some half-dozen recitations in Hedge—what would now be barely respectable in a young misses' boarding-school. We have had personal knowledge of classes going through one of the very foremost of

\* The following is from the commencement exercises in Princeton College, September, 1764, as given in Dr. Green's Historical Sketch of the Institution.

“Prima Disputatio syllogistice tractanda—

Thesis est,

Mentiri, ut vel Natio conservetur, haud fas est.

Qui hanc thesin probare ac defendere statuit ascendat. *Foster.*”

“Thesis proximè discutienda, modo pœne forensi,

Lux rationis sola, incitamenta ad virtutem satis efficacia, non præbet.”

“The next thesis is,

Nullam veram virtutem habet qui omnes non habet.”

A series of like theses and questions may be found in the scheme of one of the early commencements at Yale, lately published in Professor Fisher's Historical Discourse.

New England colleges, within the last thirty years, with scarcely a grammatical question put to them in classical recitations after Freshman year. Of course, this decline in the study of the "humanities," could not endure. They were bound to re-assert their place as an integral and fundamental part of liberal education. Accordingly, all these departments, including metaphysics and rhetoric, have been working up, not to their ancient relative and exclusive position, but to more than their ancient absolute position, i. e., as to the thoroughness with which they are taught and studied. All this makes a great demand upon the close application of the student, a demand that has grown much beyond the preliminary preparation as yet provided to meet it. The consequence is, that, under the prompting of the principle of emulation, (which is an indispensable motive power in college government and discipline) many tax their minds to an extent that makes serious inroads on their health. Especially is this so, when combined with the causes already specified, with inferior preparation for college, with habitual or frequent encroachments on the hours which nature requires for sleep, or with other irregularities.

Of course the extent to which this becomes an evil, depends much on the judgment and tact of teachers in the different departments. They may so adjust their instructions, as to quantity and quality, ease and difficulty, to the capacity of the student and the time at his command, as to make no hazardous demands upon him, while, at the same time, he is stimulated and encouraged to his utmost healthful activity. Or they may, as so many are naturally and unconsciously tempted to do, attempt an order of training so high as to overshoot, or so formidable as to discourage, baffle, and paralyze all but the fraction of pupils who have a special genius for the department, or are willing to sacrifice sleep, health, and everything for college honours. Others again, without overflying their class in the grade or manner of their teachings, overdo as to quantity, in the laudable ambition to give their departments the utmost significance and efficiency compatible with the time they are allowed to work them. Now, suppose all the teachers in an institution actuated by this honourable desire, it is easy to see that the total tendency must be to a constant and hazard-

ous overtaking of the pupils. Of course, there are those whose faults are in the opposite direction—whose exercises are nominal, either in themselves, or because of utter inability to stimulate the minds or command the exertions of the students. There can, however, be no doubt that the tendency in our foremost institutions has been towards overtaxing the most thorough and faithful students. The forcing, hot-house system, which a generation since ushered into being infant schools, has long since given way before the pressure of common sense and dire experience. All agree that the confinement and forcing of infants or very young children, in schools, is dangerous; that it does unmitigated evil; that, if it make an occasional prodigy of precocity, it is at the expense of full normal development, of ultimate strength of body and mind. A worm-eaten apple ripens sooner than a sound one. But it also decays sooner, and never attains its normal size and flavour. While this is conceded with regard to young children, have we not been unconsciously moving in the opposite direction with regard to students at a more advanced age, but still “in the gristle”—not developed or hardened into maturity? In other words, has not the range of studies and the amount of mental labour demanded, greatly increased without proportionate increase of preparation for them—without its having sufficiently attracted the attention of our Faculties of instruction, and leading them to re-adjust the different parts and proportions of their course to the health and capacity of the student on the one hand, and the requirements of a rounded liberal education on the other?\*

We wish not to be misunderstood. On the one hand, we think it evident enough from what has been said, that a given collegiate curriculum is not necessarily most perfect, because it is the most extended, lofty, and varied. The question is, how far it is even with the capacities and attainments of the student, and fitted to enlarge and invigorate them, without sooner or later debilitating both body and mind. To enervate

\* We have already heard the purpose expressed, on the part of some of the most distinguished educators in our American colleges, to resist all further changes in their courses of study which involve any increased demand upon the student.

the constitution in order to furnish and adorn the mind, is like undermining a house for the purpose of replenishing and decorating it.

On the other hand, we do not think that any of the studies usual in our best American colleges can well be dispensed with. Some knowledge of, and exercise in them, belongs to all symmetrical and rounded culture. But we think the evil in question may be arrested in two ways: 1. By ensuring full preparation for admission to college. 2. By a rigid determination on the part of the heads of the several departments, to proportion their teachings, as to quantity and quality, to the average powers and attainments of their pupils, and the time at their command. This will produce far higher results, every way, than to "cram" the mind with matter which it can neither digest nor assimilate. It is no part of the professor's duty to instruct his pupils in all knowledge, or to make them experts and specialists in his own particular department, or to essay to make that department the specialty of the institution. He shows himself a crude educator who tries to press his own department to a disproportionate prominence in the course, while he again shows himself unfaithful or incompetent, who does not urge it to its due limits, and, within those limits, work it vigorously and effectively. The result sought in a liberal education is not so much to store the mind with large and exhaustive information, or make it master of any single department, as to develop, and train, and refine it. Thus it will be prepared for the subsequent energetic prosecution of any special line of study. This general training is best imparted, not by pre-eminent progress in any one department, but by thorough elementary exercise, and general, or, at least, rudimentary knowledge, in all. *Multum non multa* should be the motto in each department. It does not exalt our estimate of any college to be told that it makes great geologists, or chemists, or astronomers, or logicians, or linguists, or mathematicians, while all other departments except some single specialty sink into relative inferiority. Nor, again, should we think them likely to make any the better astronomers or metaphysicians if they put the *Système du Monde* or the *Critic of Pure Reason* on their catalogue of studies. We have heard of Hamil-

ton's Lectures on Metaphysics, and his discussions on the Unconditioned, in female boarding-schools. But it did not raise our opinion of the culture given at such schools, even in metaphysics, or of the competency of their teachers.

We have thus indicated the direction in which our educators are called to look, each one for himself, and see whether he is unduly straining the powers of his pupils, or is required to relax those demands by a due regard to their health, bodily and mental. These are not antagonistic. Aside from the evils of a shattered body and diminished physical energy, there can be no doubt that he who leaves college with sound and elastic health, but with somewhat less ground drudgingly and slavishly gone over, will soon outrun in intellect, study, and scholarship, one who has gone over more minutæ or a broader range with the exactitude of a "first honour" man, and broken down, or prepared for a speedy break-down, in the effort. Here is one solution of the fact, that, along with many noble exceptions, there yet remain so many who head college classes, and are never heard of afterwards; but, in the race of life, are distanced by those whom they distanced in the academic contest. Not a few exhausted or enfeebled themselves in the early struggle, and spent their productive vitality in perfecting this one "bright consummate flower." As to substantial scholarship, and whatever discipline and development are requisite to success, whatever may be true of others, he cannot be very greatly deficient who stands among the foremost quarter or third of a large class—as large as the average among our better American colleges. With a little less of minute information in some departments, he may have more of buoyant health and effective mental vigour; in a word, more stamina for future progress and eminence in whatever field of study he may make his specialty. Says Spencer:

"The abnormally rapid advance of any part, in respect of structure, involves premature arrest of its growth; and this happens with the organ of the mind as certainly as with any other organ. The brain, which during early years is relatively large in mass but imperfect in structure, will, if required to perform its functions with undue activity, undergo a structural

advance greater than is appropriate to the age; but the ultimate effect will be a falling short of the size and power that would else have been attained. And this is a part cause—probably the chief cause—why precocious children, and youths who up to a certain time were carrying all before them, so often stop short, and disappoint the high hopes of their parents. . . . And if, as all who candidly investigate the matter must admit, physical degeneracy is a consequence of excessive study, how grave is the condemnation to be passed upon this cramming system above exemplified. It is a terrible mistake, from whatever point of view regarded. It is a mistake in so far as the mere acquirement of knowledge is concerned; for it is notorious that the mind, like the body, cannot assimilate beyond a certain rate; and if you ply it with facts faster than it can assimilate them, they are very soon rejected again: they do not become permanently built into the intellectual fabric; but fall out of recollection after the passing of the examination for which they were got up. It is a mistake, too, because it tends to make study distasteful. Either through the painful associations produced by ceaseless mental toil, or through the abnormal state of brain it leaves behind, it often generates an aversion to books; and, instead of that subsequent self-culture induced by a rational education, there comes a continual retrogression. It is a mistake, also, inasmuch as it assumes that the acquisition of knowledge is everything; and forgets that a much more important matter is the organization of knowledge, for which time and spontaneous thinking are requisite. Just as Humboldt remarks, respecting the progress of intelligence in general, that ‘the interpretation of nature is obscured when the description languishes under too great an accumulation of insulated facts;’ so it may be remarked, respecting the progress of individual intelligence, that the mind is overburdened and hampered by an excess of ill-digested information. It is not the knowledge stored up as intellectual fat which is of value; but that which is turned into intellectual muscle. But the mistake is still deeper. Even were the system good as a system of intellectual training, which it is not, it would still be bad,

because as we have shown, it is fatal to that vigour of *physique* which is needful to make intellectual training available in the struggle of life. Those who, in eagerness to cultivate their pupils' minds, are reckless of their bodies, do not remember that success in the world depends much more upon energy than upon information; and that a policy which in cramming with information undermines energy, is self-defeating. The strong will and untiring activity which result from abundant animal vigour, go far to compensate even for great defects of education; and when joined with that quite adequate education which may be obtained without sacrificing health, they ensure an easy victory over competitors enfeebled by excessive study: prodigies of learning though they may be. A comparatively small and ill-made engine, worked at high pressure, will do more than a larger and well-finished one worked at low pressure. What folly is it then, while finishing the engine, so to damage the boiler that it will not generate steam! Once more, the system is a mistake, as involving a false estimate of welfare in life. Even supposing it were a means to worldly success, instead of a means to worldly failure, yet, in the entailed ill-health, it would inflict a more than equivalent curse. What boots it to have attained wealth, if the wealth is accompanied by ceaseless ailments? What is the worth of distinction, if it has brought hypochondria with it? Surely none needs telling that a good digestion, a bounding pulse, and high spirits, are elements of happiness which no external advantages can out-balance. Chronic bodily disorder casts a gloom over the brightest prospects; while the vivacity of strong health gilds even misfortune. We contend, then, that this over-education is vicious in every way—vicious, as giving knowledge that will soon be forgotten; vicious as producing a disgust for knowledge; vicious, as neglecting that organization of knowledge which is more important than its acquisition; vicious, as weakening or destroying that energy, without which a trained intellect is useless; vicious, as entailing that ill-health for which even success would not compensate, and which makes failure doubly bitter." Pp. 272—275, 276, 277.

It is of course quite possible for those who become aroused

to this last danger to which we have called attention, to spring to an ultraism in the opposite direction, and thus furnish another unfortunate illustration of the tendency of men to rebound from extreme to extreme. As we have said, we do not deem it necessary or desirable to make any material change or abridgment of the curriculum established in our American colleges; but only to ensure a more thorough and advanced preparation for entrance, while each professor and teacher sturdily resists the temptation, on any pretext whatever, to overload his class with teachings, which, as to quality, are beyond their average power to appreciate and digest, and with requirements which, as to quantity, are beyond their power to perform well, without encroaching on the hours needed for reasonable relaxation and sleep.

When we consider how, through the organs of sense, the brain, and the nerves, the whole healthy working and manifestation of the mind is dependent on the state of the body; how even the mightiest intellect, with the largest culture and acquirements, may be practically paralyzed by a shattered or distempered body; how much, force of will, practical energy, genial and normal feeling, moral and spiritual health, are conditioned on corporeal soundness; in view of these and like considerations, it is hard to exaggerate the importance of the *Mens sana in corpore sano*.