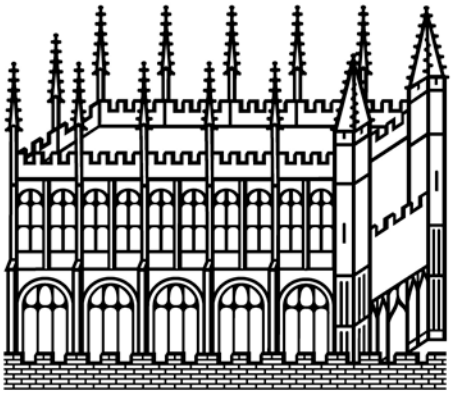

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THE

LAWS OF LIFE,

With special Reference

TO THE

PHYSICAL EDUCATION OF GIRLS.

BY

ELIZABETH BLACKWELL, M.D.

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TO ENGLISH WOMEN.

It is with much hesitation that I have consented to publish an English edition of this little book.

Being written in the form of Lectures for an American audience, it is in some respects unsuited to English readers. Feeling, however, a profound conviction of the importance of the subject, and believing that the principles laid down in the work are of universal application, I venture to offer it to my fellow-countrywomen, asking their indulgence for its imperfections.

London, 73, Gloucester Terrace, Hyde Park,
May, 1859.

PREFACE TO THE AMERICAN EDITION.

TO AMERICAN WOMEN.

THESE Lectures were delivered to a class of ladies during the past Spring; the wish of the class, and an earnest desire to call attention to a much neglected part of education, have induced me to publish them.

I present them as outlines of Truth and as indications of the right method of education, rather than as a full discussion of the subject.

They are the first fruits of my medical studies —I would offer them as an earnest of future work.

NEW YORK, 44, UNIVERSITY PLACE,
June, 1852.

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THE LAWS OF LIFE.

INTRODUCTION.

Six thousand years ago, a vision of beauty gladdened our earth. In a new world, surrounded by the freshness of a young creation, with hope, and joy, and the glory of Heaven around them, stood the first man, male and female, the image of God on earth, the parents of the human race.

Beautiful exceedingly was that first pair, made after the Divine likeness, strong and wise also, for forest and plain, and every living creature, were subjected to their dominion; they ruled over land and sea, holding their commission from the Deity. Heaven and Earth were one, for they enjoyed direct communion with the Divine Father.

The traditions of all nations point to a primeval grandeur of the human race, whose glory shines through the mist of ages; a golden age, when the gods visited mortals; when wisdom and innocence were one; when there was no discord in our nature, but freedom was order, to know, to will, to do, were one; when human brotherhood was a

present fact; when there was harmony between man and creation, between man and the Creator.

A gleam of this bright vision shines through the mystic writings of the East, through the poetic fables of the West, through the wild sagas of the North; and the eye of faith gathering up these scattered rays, bends them on the Garden of Eden, where in beautiful radiance we behold the first man, Adam and Eve, Heaven-crowned; and in them we may incarnate our ideal of the Human race; harmoniously blending beauty and strength, lofty intelligence, powerful action, and purity of soul.

Connected with this universal tradition, of the lofty origin of Humanity, is the conviction which is cherished by every people of the latent power of our nature—the excellence to which it may attain. The evils and poverty of daily life have never annihilated this aspiration; there is an abiding consciousness in the heart of every people, that at some future time, they shall reach a higher condition than their present one. Thus we behold the effort of man in every age to express his own ideal, to develope the highest faculties of his nature, to realize fully the profound truth expressed in these sublimely simple words,

"So God created man in His own image, in the image of God created He him, male and female created He them."

Our earlier ancestors saw, what this industrial

age has too much lost sight of, that the condition of our present life is the union of body and soul, that we cannot live as disembodied spirits, but must necessarily express ourselves through a material frame; that our aspirations are often limited by the body, and that the condition of our material organization reacts most powerfully upon the soul. They saw that weakness, ugliness, and disease, deaden our power, cripple all our activities, and render our lives discordant; and they therefore represented their gods, goddesses, and heroes under forms of surpassing beauty, with regular features, and well-proportioned bodies, in which every faculty possessed a vigorous organ. And these representations were infinitely varied—the beauty of Juno was not the beauty of Diana—the perfection of Jupiter differed from that of Apollo —it was not the beauty of material form as an end, that they aimed to reach, but the important truth that the loftiest qualities of the soul find their highest expression in corresponding beauty of form.

The harmonic development of one phase of womanhood was beautifully expressed in the ancient myth of Athena, the stately deity of Attica. Her mother was the wisest, her father the most powerful of the deities of Olympus, and the attributes of wisdom and power were blended in her character with that benignant protecting care which marks the maternal character in woman.

She was the protectress of the state and of social institutions; of all that gives to society its highest prosperity. She was the inventor of the plough, the rake, the bridle; she created the olive-tree, instructing men in the cultivation of the land, and the taming of animals. The inventions ascribed to her, were such as required thought and meditation; the science of numbers, the art of navigation, the use of fire, were taught by her, and the elegant works of women. She maintained law and justice, and when judgment was divided in the case of an accused person, she gave a casting vote on the side of mercy. She was the protectress of the defences of the state, the walls, fortresses, and harbors, her warlike character being assumed for the welfare of the people, and she is represented as sitting by the side of Jupiter, assisting him by her counsel. Her face is oval, with luxuriant hair flowing back from the temples, and floating freely behind; the expression of her countenance is thoughtful and earnest, her figure is majestic and strongly built, clothed in the Spartan tunic and cloak.

The infinitely varied and beautiful allegories of the ancient world were the exposition of their idea of what mankind should be, and in every age our prophetic poets and artists have preached the same faith, the noble possibilities of human nature —the high standard to which it may attain. "Be ye perfect, even as your Father in heaven is per-

fect," is the Divine command which enjoins upon us the use of every means, in our daily life, which may enable us to attain to the highest perfection of our double nature, of our soul and of our body. Can the noblest dream of the poet propose a higher standard than the glorious ideal laid down in the Old Testament, and enforced in the New, of "Man in the image of God?" The highest aspiration we can form is thus seen to be the truest also, for revelation supports reason in the conviction that we shall reach a state for which all past attainments will have been only the preparation. Let us then cherish this aspiration, and believe the Divine words which tell us, that man, at first made in the likeness of God, is destined again to attain to that perfection. Let us shake off the faithlessness which is our bane, and rise above the narrow view which can see nothing but present imperfection and suffering. Let us feel that it is at once our privilege and our duty to work for that future, when man shall again be "the image of God;" that the effort of every individual is needed in the work, that the Providence of God uses human means, and that every man or woman who will not turn his talent to account, delays, according to the measure of his power, the advent of that Divine Future!

It is then a sacred duty—the first duty of life—to gather light from every source, that we may improve our own condition, and the condition of

the race; and ascertain by what steps—slow perhaps, but ever onward—we may tend towards the ideal perfection.

Let us now endeavour to form to ourselves a more definite conception of the perfection after which we are to strive. Our religious teachers point to the redemption and purification of the soul; a fundamental truth, but is it the whole truth? Schools and colleges, libraries, lectures, museums, and mechanics' institutions, provide for the elevation of the mind through the dissemination of scientific truth. We trust to the organization of representative government for the removal of political evil; and to the spread of the principles of justice, freedom, and order, throughout the world, as the great social regenerators of mankind. These are great truths; but are we not something more than soul, or mind, or universal principles? are we not also substantial, material, living bodies, bodies of most strange and complex structure, wherein all sorts of manufactures are carried on; bodies composed of an infinite multitude of busy workmen, governed by their own laws, and full of imperious wants, which must be satisfied, that their work may be carried on well; bodies so important to our welfare, that, if we neglect them beyond a certain point, we die, and yet so willing to help us, that every little component worker will do his utmost, and each part will help the other parts, and they will seek even to change

the great laws of their organization, in order to accomplish our will. If we injure one part, another will seek to supply its place. If a large blood-vessel be obliterated, the smaller ones will enlarge to convey the needed quantity of blood. If one part of an organ be hindered in its functions, the remainder will take on increased activity, and try to perform itself the full amount of work. If we take poisonous food or air into our bodies, they will warn us of the mischief by pain, by spasmodic closure of the orifices, and will set to work at once, by the stomach, the skin, in every possible way, to get rid of the dangerous visitor. If we wish to call one part into special exercise, if we need the active use of our brains, Nature will endeavour to aid us—she will send more blood, to supply the waste of material, and will accommodate the rest of the economy to this predominating exercise. But who seeks to comprehend this lovingly obedient organism, to understand its wants, and place it in the condition to render us the greatest amount of aid? What class is there that cares for the Body? We leave it to our butchers and bakers and grocers, and their great desire is to sell and make money, no matter whether the blood is poisoned, and the stomach disordered by their diseased and adulterated goods. They do not even dream of the delicate and wonderful organizations they may injure when they dispense unwholesome articles to their customers.

In practical life, in the education of children, in the construction of cities, and the arrangements of society, we neglect the body, we treat it as an inferior dependent, subject to our caprices and depraved appetites, and quite ignore the fact, that it is a complex living being, full of our humanity, and capable of doing us immense service, if we would reverence it as our friend and equal.

In our deeper thoughts, we unconsciously render it homage; for the perfection of body and soul is as necessary to our ideal, as it was to the ancients. Who ever imagined Adam suffering from dyspepsia, or Eve in a fit of hysterics? The thought shocks us; our Eden becomes a hospital. And yet in our daily life, we never provide for this essential harmony, but treat our bodies like poor overdriven hacks.

We often do our bodies great injustice by attributing to them the low appetites and perverted passions, which really belong to a degraded spiritual state. We are shocked by the vices of gluttony, intemperance, &c., for which the body becomes an instrument; we see how indulgence in these vices degrades a human being, and deadens all the higher faculties of his nature, rendering him incapable of the exercise of those powers of which the body is not the direct instrument, and we conclude therefore that the body is the cause of this vice, that if we could subdue or destroy it,

these evils would no longer exist, that the spiritual nature would triumph in proportion to the annihilation of the material form; but this is a mistake. In the unseen world, the unholy will be unholy still; the vices that stained the earthly life will remain, when the body that was degraded by their practice has returned to its original elements.

Let us remember that when we cover our table with all the delicacies that money can procure, and expend time and thought on the subject of eating; when we build magnificent houses and furnish them with every luxury; when we consume life in devising elegant garments, and spend our nights in crowded ball-rooms, that it is not the body which tempts us to the destruction of our own health, and to the neglect of higher duties; but appetites and desires which belong to the inner nature, and which manifest themselves through the body.

Our material nature will minister to the noblest aspirations of the soul, if our souls are noble—they will become instruments of degraded passions if our hearts are base.

'It is this fact which renders the art of the Middle Ages so false. By representing the tortures endured by martyrs, and the agonies of penance undergone by aspirants to a holy state, it sought to glorify the spiritual life through the annihilation of the body. But as we gaze at the

sinking, emaciated form, the ghastly paleness of the suffering saint, we shudder at the sight; we reverence the spirit which triumphs over physical pain, but we are conscious that this is not its highest expression—that suffering and struggle must pass away, and a noble harmony of all our powers exist, before mankind will have attained its ideal.

We see by examples which I shall lay before you in detail as we proceed, that what are styled bodily indulgences are not good for the body, are not what it demands; that simple, even coarse fare, much active exercise, and exposure to what we might consider hardships, suit the body much better than luxurious habits and dainty fare, for it will grow strong and handsome, and obedient to our higher nature under the former, while it will suffer in innumerable ways, and lose all its proper life, under habits of false indulgence.

The ancients, in respect to our double nature, were wiser than we. Not only did they distinctly recognize the necessity of a strong, healthy, and beautiful body as the continent and expressive instrument of all that was lofty and admirable in the spirit, and celebrate in song and painting the swift-footed Mercury, the blue-eyed Minerva, and the strong arm of Jove, but they set themselves earnestly to work to acquire that foundation of noble human life, an harmoniously developed body. The education of the young was a subject of earnest

thought to the wisest men of ancient Greece. It was carefully provided for, and strictly regulated in all its details by the state; throughout Greece the basis of education was one, viz. physical training—the development of a healthy, strong, and beautiful material organization. This same necessity was perceived in warlike Sparta, where men of action, strong rulers and soldiers, were demanded, and in polished Athens, where cultivated intellect, grace, and refinement were sought for; their first effort was directed to the education of the body, in a system of remarkable regulations, to which I shall call your attention, on a future occasion.

We gaze with astonishment and curiosity upon the lances and swords of the ancient Teutonic nations—upon the rude enormous monuments of architecture which they raised, the rocks which they rolled to the summit of the hills in honor of their gods. But when we turn to the history of those stout ancestors of ours, we learn the secret of their strength. From the most tender age they hardened their bodies, and accustomed them to cold, fatigue, and hunger; the sports of childhood were all directed to a warlike end; dangers were intermingled with their play, for it consisted in taking frightful leaps across the chasms of their snow-covered mountains, in climbing up the steepest rocks, in fighting naked with offensive weapons, in furious wrestling. Their diet was extremely

simple, often consisting chiefly of milk. They grew up in wild freedom; early marriages were strictly prohibited; indeed the warlike women of those times disdained a husband who had not distinguished himself by victories.

When we read in the chronicles of past ages, the many feats recorded of physical power, of bodies that knew neither weakness nor fatigue, of an iron force of endurance and of action, it seems to us like the echo of some remote age with which we have nothing to do. We can hardly understand the strength of the beautiful Cymburga, wife of the stalwart Duke Ernest of Austria, who could crack nuts with her fingers, and drive a nail into a wall with her hand, as far as others with a hammer. When we hear of the lofty Brinhilda, who bound her offending lover with her girdle, and slung him to a beam of the ceiling, we do not perceive that the myth which represents the wild strong life of that distant age has a lesson for us, and that we should ponder the question whether in our modern days we have not lost much stout virtue, with the failure of our bodily powers. The breakfast feats of good Queen Bess and her maids, on rounds of beef and mugs of ale, seem incredible in our poor dyspeptic days; what would not our delicate ladies and gentlemen give for that vigorous life, which could spring out of bed at five o'clock, full of energetic activity, digest and enjoy plain substantial fare, and pursue

every occupation of the day, with the power of robust health?

We could hardly sit at the breakfast table of the old Earl of Northumberland, of whom we read, "My Lord and Lady have for breakfast, at 7 o'clock, a quart of beer, as much wine, two pieces of salt fish, six red herring, four white ones, and a dish of sprats!"

The ease of childbirth in many of those hardy races would seem to us incredible, did the statement not rest upon testimony too strong to be shaken. We are told of the Celtiberian women, that when surprised by the pains of labor, no matter where, they retired to a secluded spot, wrapped the infant stranger in a warm covering, and returned to their occupation as though nothing extraordinary had happened.

"Arabsah, in his Life of Timur, tells, that among the wandering Tartars nothing is more common than for a woman on a journey to descend from her horse, retire a short distance from the path, give birth to her offspring, suspend it by a sort of shawl from her neck, remount and proceed onwards. And all this without the least assistance from any living creature. The Syrian doctor's statements have been abundantly confirmed by subsequent travellers."

Similar accounts are given of the ease of labor amongst the Scandinavian women, and many Indian tribes.

It is a deplorable fact that our age has lost in bodily strength while gaining in associated mental strength; science and the arts of social life have received an immense impulse in modern days, but our bodies have become enfeebled, new forms of disease have appeared amongst us, our lives have become shorter, and increasing suffering follows in the train of this physical degeneracy.

The reason of this will become plain to us if we reflect for a moment on the change in our social habits. The early life of a nation is a life of the woods and fields, scattered over the country, ranging freely in pure air, hunting, fishing, felling forests, building cabins, or erecting castles; training warlike retainers and engaged in wild forays; the people fulfil many of the conditions essential to physical well-being, and these rough and active employments absorb the physical activities and direct the mental energy in the same channel. Thus we find nations, in this early stage of their life, strong and active, free from disease of body, and without those vices which are created by a more artificial state. But this early state of a people, though it presents certain conditions of freedom, of air, exercise, food, &c., which conduce to the health of the body, is by no means the ideal state for which we are looking, and which requires the full development of the mind as well as of the body. In this early state the mental and spiritual life of man is neglected; the nation

has no respect for its neighbor's rights, or even for the rights of its own members; it has no lofty religious faith; art and science are almost unknown; and the vast domain of the heart and the reason, are as yet entirely uncultivated. Such being the case, even the bodily condition cannot have reached its highest development, for the body demands the kingship of the soul; it is not intended to lead, and it is not capable alone of unfolding its vast powers. Digestion is strong, the muscles are powerful, the nerves are calm, the body has done its very best, and carries on all its operations with perfect order, but it needs the power of the soul to give it an aim, to make it beautiful, expressive, true to its destiny, which is to incarnate a lofty spirit. The perfect state of the organic life, of digestion, nutrition, innervation, and all the secretions, is the foundation-stone of our ideal; we might as well attempt to build a lasting edifice on an unsound foundation as strive for perfection with a disordered stomach or weak nerves; but this organic health is not the end, even of our bodily life, and thus the early state of a nation is only an imperfect development even of our external condition.

The mind grows and demands the exercise which can only be found in associated activity; cities are formed, the arts and sciences are cultivated, poetry and painting and architecture elevate our daily life, the social affections are deve-

loped, the activity of the intellect expresses itself in railroad and telegraph and printing press, a great and powerful nation arises, and modern civilization diffuses its blessings around. What wonderful triumphs of the intellect are represented, for instance, by the comforts and appliances of our homes. We live in palaces that our ancestors in the woods and fields never dreamed of. The decoration of our houses, the way in which they are warmed and lighted and furnished, would have seemed to them miraculous; we are clothed in elegant fabrics, our food is daintily prepared, and we lie down on soft convenient beds. We have formed various theories of education for our children, and built up various institutions in which it is carried on. To train their intellect we send them to school, where they study the wonderful things in heaven and earth, the nature of distant countries, and the history of past nations, learn to converse with strangers in their own languages, and are initiated into all the mysteries of science, literature, and art. At home their affections are to be cultivated, and the principles of a high morality inculcated. At church they are duly instructed, week after week, in the theories and duties of religion, and as they grow older breathing-in the air of free institutions, they are to learn the lessons of freedom and progress, and share in the responsibilities and duties of the state.

What a vast improvement would this be over the early mental and moral condition of a people if the apparent gain were always real. We might indeed be tempted to exclaim—At last the actual condition of mankind is approaching its ideal standard of excellence! But unhappily the bright picture is not a reality. There is a fearful amount of vice, misery, and disease existing under the fair outside of society, from which we should shrink with horror if we saw it in its naked truth. And this vice grows with our growth. 'The larger our cities become, the more densely their population is crowded together, the more deadly becomes this pestilence of evil which spreads through every rank of society, and reaches, under different forms, from the lowest to the highest. 'We find hypocrisy under our lofty pretences, falsehood where we should meet truth, cunning instead of honor, frivolity instead of earnestness, corruption instead of purity, till the noble ideal of the past, which should become still nobler in the present, is almost lost under the existing evil.

The intellect has received a remarkable development in the present age. It has taken the lead in every department of human interest; our whole practical life, business, education, government, proves the predominance of the active faculties of the intellect over the other elements of our nature.

It is not my purpose to show how necessarily false and evil that state must be in which the

moral and religious nature, and consequently the highest mental power, Reason, are thus made subservient to the merely logical powers of the mind; my object is rather to dwell upon the sins of this age in relation to the body; to show how the later stage in the life of a nation, going to the opposite extreme, and tending to dwell exclusively in the intellect, neglects the physical frame, thereby producing immense evils, both spiritual and material, and to pave the way to the important conclusion, that as the body cannot attain its highest development without the aid of the mind, so neither can the soul of man unfold its sublime capacities unaided by the body.

It is a most striking feature in our present condition, that we pay so little attention to the direct welfare of the material organization, which forms the essential condition of our present existence. I do not mean to say that we pay no attention to eating, drinking, dressing, and making the money which is to procure us every sort of material gratification. These pursuits form the staple of our life; and proceed, as I have already remarked, from the necessities of our inner nature, from spiritual wants, manifested through the body, and for which we make the body an instrument of good or bad, according to the quality of our souls; but the neglect which is so striking a feature in our society results from our ignorance of what this physical nature in itself demands, what are the laws of its well-being,

how we may make it healthy and strong, what the perfection of this nature really is, whether it possesses powers which are not yet unfolded, what it was meant to do for us, and what we ought to do for it. We find the body in many respects quite independent of us: it has a life of its own as well as a use as our instrument. It is therefore of the utmost importance to study this independent life, that we may understand more thoroughly the relation which the body ought to sustain to us, and that we may learn how to place it in the best conditions for serving us.

But such thoughts seem hardly to belong to our time; they never occur to us. Former ages having made the fatal mistake of attributing sin to the body instead of to a corrupt heart, we continue to despise it, to neglect its separate life; we forget the wonderful fact of the Incarnation, the sanctification of the body, the Divine Humanity.

We say the body tempts us to sin, but this is an error, for the healthy body is an aid to virtue. Let me here refer to one striking fact, which I shall enlarge on in a future lecture,—it applies to the dark social evil which corrupts our manhood and destroys our youth, the wide-spread evil of licentiousness; it is supposed that this evil can only be overcome by the subjection of the physical nature. Now the fact to which I would call your attention is this, that the physical education of the body, its perfectly healthy development, delays

the period of maturity, and that a true education, in which all the bodily powers should be strengthened as well as the mental and moral ones, would be the most effectual means of outrooting this evil, which now proceeds from a diseased mind in a diseased body.

Our neglect of the material organization is productive of innumerable evils. It produces, first, that degeneration of the race, in point of physical beauty, which is so strikingly exhibited in the external appearance of any assembly of individuals.

When we walk along any crowded thoroughfare, we cannot but observe how unbeautiful, ungraceful, unattractive the human race has grown, what plain, mean features, what faded, ignoble, vacant expressions of countenance, what shuffling, awkward, unstable gait! Pretty faces are rare; beautiful faces are hardly to be seen; and could we view the figure unconcealed by art, the shrunken limbs, crooked spines, weak joints, and disproportioned bodies, that would greet our eyes would appear like a caricature of humanity; we could scarcely believe that so dreary a distance existed between us and our Adam and Eve.

This neglect produces, secondly, a rapidly increasing list of diseases. It has been said, that if a wag in Broadway should suddenly cry out, "Doctor!" half the men in the street would turn in answer to the title. Certain it is, that the

large annual lists of medical graduates, testify to the immense amount of disease existing amongst us. The number of our doctors measures the number of our diseases. How many individuals can say, I am thoroughly well at this moment? How many can say, My health has been perfect for years? Yet we ought all to enjoy such a condition of uninterrupted health; it should be our natural heritage, the foundation of our daily life.

It is a terrible fact, that insanity has greatly increased in modern times; and the horror of this disease, so fearful in itself, is enhanced by its tendency to transmit itself from one generation to another. This malady being of specially mental origin, we find in the neglect of physical development, and the excessive mental excitement of modern times, one prolific cause of its great increase.

Disorders of the stomach have greatly multiplied amongst us. Dyspepsia is lamentably prevalent; and this distressing disease interferes with the process of digestion, impairs the quality of the chyle, and consequently of the blood, gradually affects the various parts of the organism, till the health and efficiency of the individual are destroyed.

Another large class of diseases—a most afflictive growth of modern days—is the class of nervous diseases. Many of these are definite affections,

producing violent pain in a particular spot, or some special local derangement; but the majority assume the most protean forms, simulating all manner of organic diseases, but without producing any perceptible organic change. There is no kind of malady which the nervous person will not imagine herself to have—scarcely any which the physician may not be induced to suspect, from the presence of diagnostic symptoms, till the non-appearance of certain results proves that the suffering is only nervous. But is this suffering any the less real, because the victim of nervous disease lives on, and the body preserves to some extent its integrity? All the nameless horrors and the tortures of morbid sensation, are terrible realities to the sufferer; and when, after trying in vain to obtain relief from doctor after doctor, and resorting to every new system, or to every quack, till the sympathy of friends is exhausted, and hope is gone, she finds nothing left but to endure existence till she dies, is it not a mockery to tell her that she is "only nervous?" These extreme cases are no fancy picture; they are the terrible products of our unwise neglect of the laws of the body in early life, whereby, in every sphere of society, an immense number of women find their usefulness and their happiness impaired for life.

But there is still another class of maladies, to which, from its great importance, I must particularly direct your attention, viz., diseases of the

reproductive system; and I urge this subject upon your attention, not merely on account of the rapid increase of these maladies, but because the only hope of their effectual cure rests with you, through a more rational system of physical education which shall give greater strength and tone to the rising generation.

It is a startling fact that should be known to all, that the necessity for the special study of these diseases, for forming them into a special branch of practice, is of modern date, and has been produced by the rapid spread of these diseases amongst young and old, and in every rank of life. A famous German professor, whom I met in London last year, told me that they were only beginning to institute professorships for instruction in the diseases of women, in Germany, and seemed surprised to find that they had already existed for some time in London. The want had not been felt before; it is the sad necessity of our own time.

I will not attempt to paint the moral as well as the physical sufferings of those who labour under these diseases. To the unhappy victim, the treatment often seems almost worse than the disease; and the results of medical treatment are necessarily very unsatisfactory, as they must be, whenever disease proceeds from the systematic neglect of Nature's fundamental laws; for, even if the physician's skill cure the evil for a time, the cause

remains, and the evil returns, and grows continually worse. In fact it is too often found that the mischief done to the growing girl, by the infringement of physical law, can never be repaired in after life, no matter how great the skill of the physician.

Nor must it be forgotten that this rapid spread of the diseases of women must necessarily result, through the weakened and diseased condition of mothers, in an increasing deterioration of the race. And surely the consideration of the injury which is thus inflicted upon children and upon humanity at large, should arrest the most earnest attention of conscientious and tender parents, and of all who take an interest in the welfare of mankind.

For it is clear as sunlight that these diseases are no mysterious dispensation, no natural and inevitable evil, beyond our knowledge and beyond our reach. I assert, emphatically, that the diseases of women, which have so rapidly increased, and are still increasing, with such deplorable results, are directly within our own power radically to cure; for a very large majority of these cases are produced either by an irrational education, which sets at defiance all the natural laws of our being, or by acts of imprudence which would have been avoided, had the individual been acquainted with the nature and wants of her own organization.

Think of this, oh mothers! when you see your

young daughters growing up around you, remember that it is in your power to render them healthy and strong in body, and the mothers, in their turn, of a stronger race than ours, or to subject them to the disease and suffering which enfeebles the present generation. Do not continue in the fatal error of our age—forcing the intellect, and neglecting the development of the body—do not sacrifice to the false beauties of fashion the higher beauty of health, of happiness, and of usefulness.

I have thus brought before you a lofty standard of humanity, as an ideal which we should endeavour to reach; an ideal placed before us in the sacred records as a state which we may attain, an ideal which has dwelt in the heart of every age and every nation. We have seen that this ideal consists in the perfection of the compound nature of man, and that in the present age we make the fatal mistake of neglecting entirely one of the essential elements of this nature; and I have pointed out some of the evils to our physical well-being which result from this neglect. The consideration of the mental or moral disease springing more or less directly from our ignorance of physical laws not falling within the scope of the present lectures, I propose in them to call your attention to the physical education of the young, and to urge upon you the means by which our present degeneracy may be checked, and a steady progress

made in the improvement of the condition of the race.

To do this, I shall, in the first place, point out the general principles which govern existence, and according to which the material life of our bodies is carried on. I shall show the way in which these wonderful bodies of ours grow, and what they require for their perfect growth. I shall indicate what nature has to do for us, and what we have to do in order to co-operate with her, and by an examination of our present habits of life, I shall endeavour to ascertain the way in which we defeat the designs of nature, and produce our present condition of suffering. In the course of my remarks, I shall notice some of the important functions of our economy, and state the conditions of their normal action, dwelling on such points of physiology and hygiene as bear directly upon our subject. And lastly, I shall consider the means by which the truths we shall have arrived at may be made useful in practical life, so that we may attain to a more harmonious action of all our powers, and may thus approach more and more nearly to the image of our Creator.

GENERAL PRINCIPLES.

I WAS once travelling through one of the most beautiful districts of the south of England in the inside of a stage coach. I had heard much of the loveliness of the country, the perfection of its cultivation, and the admirable idea which it would give to a stranger of the peculiar beauties of an English landscape. Accordingly I set off full of eager curiosity, and with my eyes wide open. But unfortunately, I was inside the coach; the miserable little windows confined my view to a most limited scrap of landscape. If I put my head out of the window, I was jerked to one side, or blinded by dust from the coach wheels, so I was forced to sit still, and content myself with details; now an ivy-covered cottage, now a wall, and then a bit of distant mountain. But coming back, I was resolved to take a different course—so availing myself of English usage, I made a bold effort, and mounted on top of the coach. Then all was changed in an instant; the landscape lay, a beautiful living map all around me; the eye took in at a glance all the features of the scene; the distant lines of blue mountains, the winding river with its craggy

banks crowned by an old castle; the wide expanse of forest and rich pasture land. The details which had confused me before, assumed their true relations; the ivy-covered cottage joined itself to the village, clustering amongst the trees; the garden wall no longer hid the beautiful park and gardens; in short, from my elevated position, I could take in the whole, and consequently understand fully all the parts.

Now this little travelling experience may serve to illustrate our present position, and show you why I would invite your attention to-day to laws and general principles, rather than to what might seem at first sight more practical matters. It is because in this way alone we can arrive at that clear understanding of our subject which its immense importance demands, and give to the details of practical application their due position and effect.

In our daily life we deal with facts, with the specialities of knowledge; but it is only by knowing the general laws and principles which govern these facts that we learn their significance, ascertain their bearings, and are thus able to guard their truth from mistake and misdirection. We might inquire into the best method of feeding and training the young, of meeting disease, and the many formidable evils of society, but the lesson would be confused and soon forgotten, if we did not first study the principles which will include all facts,

and in accordance with which all permanently useful action must be carried on. These principles will be our observatory, our coach-top, from which we will view the prospect before we attempt to enter a cottage, or visit a country-seat. Let me invite, then, your earnest attention to those laws which will so greatly aid us in our practical studies.

The first one, which is the foundation of all, is the law of exercise. Movement and existence are identical, or at least inseparable. The new-born child wakens to life with a cry. The planet revolves unceasingly in its orbit. And every star, though parted from us by a space which the mind fails to comprehend, displays to us through that immense distance, by its changing light, the same lesson which we learn from the tiniest blade of grass, that motion, action, exercise, is the universal law of every existence, however organized, and to whatever end, destined in creation.

Movement is exercise in its largest sense, working its appropriate effects, according to the constitution of each being. It is preparation for a use. Though working in modes as various, as varied as the subject, it is fundamentally the same in all. It is not necessarily connected with volition. Look at the child sleeping in its mother's arms—it lies so still, so very tranquil in its rest, that the mother in sudden fear lays her cheek to its lips, to assure herself of its gentle breath. Yet

every part of that small frame is at that moment subject to the law of exercise; each organ is busy with its own proper life, collecting its materials, forming its products, appropriating them to their uses, and growing by its work. Idle as that little child seems to be, it illustrates most fully the lesson taught us in every sphere of existence, that exercise is the great law of life.

The history of nations illustrates, on a larger scale, the action of this law, which we see ruling the whole creation. The conscious exercise of power, increasing activity, widening aspiration, mark a living race of men. They may sleep for a while, but underneath the veil of seeming sleep new powers are growing, new thoughts are germinating, and the nation is preparing for a new outbirth of visible life, which is but the result of that long and invigorating repose, a repose in which there had been no languor, no cessation of the great law of movement, but only the concentrated and hidden action of the period of preparation.

This principle of activity being the law of the universe, must necessarily be also the law of the human being, for in the individual man is gathered together every law and every department of life. He is the mirror of creation, and its head; capable of supreme dominion by representative possession of all the natures put under his control, and qualified for this benign office by his universal

sympathies. In him, therefore, should be found the highest expression of every law, and, acccordingly, nowhere do we find more beautifully exhibited, or in more complete and varied form, than in the human economy, the fundamental use, the imperative necessity of exercise.

It is only by exercise that man grows; it is only by the activity of each function of his body, of each faculty of his spirit, that he recognizes its life; for until these faculties are manifested by use, they may be in preparation for life, but can hardly be said to live. Every act of daily life is a perpetual illustration of this truth; we cannot cease to act, even if we would; the organic life of the body goes on whether we sleep or wake, the heart continues to beat, the chest expands, the nerves convey their penetrating influence, the busy thoughts flit through the brain, whether we will or no, and while life remains there is no possibility of avoiding this overmastering necessity of movement. And how varied and striking are the results which flow from the operation of this law, when directed by the conscious energy of man. Look at the growth of certain special faculties when actively exercised, as, for instance, the precision with which the connoisseur in wine will discern its age and country, by simply tasting a few drops of his favorite beverage; and the deaf or the blind will recognize their friends by the sense of touch, or by that of smell. The pen of the

ready writer, the tongue of the fluent speaker, the ear of the conductor of an orchestra, are examples of the wonderful increase of mental and physical power under appropriate training, Go into the work-room of some poor tailor, with pallid face, weakened form, and bent and trembling limbs; then turn to the finely-developed frame of the accomplished gymnast, with his inimitable grace, vigor, and dexterity, and the sovereignty he has acquired over his movements, and learn in this strange contrast between two human brothers, endowed with the same original powers, the same capacity of development, the mighty power of the law of exercise. These men belong to the same race, and hold their existence under equal laws; the difference between them illustrates the rewards and penalties attached to these laws. The genius of the artist, the orator, the mechanician, does not spring fully formed into existence. The impulse is there; circumstances may favor its development; but it is only by perpetual exercise, by lending the force of his life to his special purpose, by gathering wisdom from every failure, and strength from every success, that his powers are unfolded, and that he reaches, through repeated efforts, the perfection of skill at which the world gazes with wondering admiration.

The infant man is born meet for the inheritance of this life; but he is subjected to a long infancy of discipline for the duties of his existence; and

must gradually acquire this inheritance through self-culture; his faculties must enlarge, and then be tasked again for still further growth. Indeed, this indefinite development is the proper end of his existence. Rather what he shall become, than what he shall do, is the aim of all achievement; for his works must perish to make room for better works continually, but he must live for that better work.

This consideration of exercise, as the only means of growth, as essential to the development of every faculty of body and soul, leads me to the second great principle to which I would call your attention, viz., The law of Order in Exercise. This principle is of immense practical importance; it is the fundamental law of harmonic growth, for though life may be carried on, and the powers unfolded, under the general law of movement, yet life will never reach its true end, the faculties will never attain their due power, imperfection, disease, and vice, will appear, if the Divine Order of Exercise is not observed. And the study of this principle is the more pressing, because those faculties in which order may be neglected, that range of our being, viz., wherein the free will of man rules, are the highest, the crowning parts of our nature. To a certain extent, the world and our own humanity are placed beyond our direct action. Our organs will act, our brains will think, as the earth continues its revolutions, independently of

our will, because Nature has taken care that the movement necessary to existence shall go on; but the great object of our life is not simply to live, but to live well, to attain perfection of body and of soul, to destroy discord and sin, and become an element of harmony in the great universe of worlds. Now this noble object, this highest end of life, is subjected to our will; not our life, but the purpose of our life, is under our own control. Subject to the universal law of exercise, it is for us to determine, whether we will establish the Divine Order of Exercise, in our most important relations; and as, in all things which are subject to our will, knowledge does not come intuitively, but through study, observation, and the teachings of experience and reflection, so, in the knowledge of the true order of growth, which is essential to our well-being, we must seek in order to find, we must recognize the law, and intelligently apply it.

We have learned that ceaseless activity is the law of life in every realm of Nature. We have seen the celestial bodies revolving in their mighty orbits. How came they there? The astronomer, gazing patiently night after night into the distant heavens, attains at last even to the birthplace of the stars, and reads to us the lesson of order in their growth. There, in the immeasurable realm of space, he points us to a faintly-glowing mist, thin, uniform, unchanging, we cannot guess its mean-

ing; he directs his telescope to another point in the heavens, and again we see that pale, wide-spread mist, but the circumference seems more transparent, the centre still undefined, but denser and of brighter glow. Again he shifts the glass, and the mystery is explained; the centre has grown dense, bright, round, the mist is becoming transparent, absorbed in that bright centre, that new and rapidly-growing sun, and brighter it will continue to grow, the movement impressed upon it become more decided, till fully formed and subject to its law, it starts majestically upon its appointed course.

How did our earth attain to its present beautiful form, and become so admirably adapted to the wants of man? Layer after layer was formed; the solid ground, the water was there, but no organic life; the time was not come. The work continued slowly, steadily, but the sun shone down, the stars continued their silent watch, for thousands of ages, before the first blade of grass, the first tree, the first insect appeared on the silent earth. But even then the end was not reached; ages had still to roll on, the wild gigantic forms of plant and animal must change, and earth harmonize her products, her climate, and her soil, before the crowning glory, the master of all—Man—could appear. Thus, upon the imperishable tablet of the mountains, in the solid layers of our globe, the geologist reads the lesson of order in growth, of steady

progress towards a definite end, and the impossibility of accomplishing that end prematurely.

In the moral world we mark the operation of the same law. We feel the penalty of its violation as we stand before that noble picture, The Martyrdom of Huss. Why does the noble martyr kneel there chained and vanquished? why were the voices of Wickliff, of Jerome, hushed and forgotten, while Luther's rang through the world, and every country still feels the throb of his heroic heart? Men as truthful, as impatient of sham, as he was, more beautiful in Christian life, had been lost to the world, for the right moment had not come. The Divine order of development must be obeyed; the age was not ripe for Wickliff, therefore he failed; the age was ripe for Luther, therefore he succeeded.

In individual existences, as in the life of nations, throughout the wide realm of Nature, every where we behold a method of growth, an order which cannot be violated with impunity. We may then with full certainty look for the exemplification of this law in the life of the human being, the centre of creation. It is a truth so clear, so imperative, that we act upon it necessarily in a general way. No mother goes to her infant daughter for advice in household difficulties, the problems of the state are not given to the child to solve; we know that our children will become housekeepers, and citizens, and statesmen, in due time. Nature, by

throwing the mantle of incapacity around the child, has guarded her work from the fatal consequences that would ensue, were we able to convert the child into the housekeeper or the politician. We cannot feed men upon milk, nor babes upon strong meat; we must guide the infant steps, and wait patiently year after year, for the bones to harden, the muscles to grow strong, and the brain to enlarge. We know all this, and are forced to conform to our experience; but still the grand law of Order in Exercise, for the life of each individual, is not clearly understood by us, nor its supreme importance felt and acted upon. Nature compels us to its observation in those departments of life which are not subject to our will. Let us follow her indications, and harmonize alike our voluntary and involuntary life, by the intelligent adoption of the natural order of growth, the only method of life by which we can carry out the design of our creation.

We have thus pointed out the great object of man's life upon earth; we will now examine certain facts of the human constitution, which, illustrating the conditions of growth, will enable us to understand more clearly what is the law of Order in Exercise for the human being.

The first of these facts which strikes us, is the double nature of man, the spiritual and the corporeal, intimately united but always distinct. Differing in functions and in objects, though harmo-

niously blending for one great end, they require separate care, and distinct education, an education that allows of no antagonism or injury to either nature, but should be harmonious as is this double nature.

We next remark that there are three distinct periods in the development of this double nature; the period of growth and preparation, the period of maturity and active use, and lastly the period of decline and incapacity. From the consideration of these three periods, epochs so well marked as to be generally recognized, we draw a most important practical conclusion, viz., that the second period of life, the age of strength and use, can only be attained, by the orderly and wise discipline of the period of preparation, and that the slightest infringement of this natural order, will inevitably draw down the double penalty which guards the natural laws, viz., loss of all the power and excellence to be gained by conformity, and the pain, infirmity, and evil, inflicted upon disobedience.

We have thus far noted the exact correspondence of the two elements of our double nature, in their blended existence, and periods of development; I must now call your attention to an important difference in their order of development; a fact which complicates our inquiry, but which, when ascertained, will be found to point out its own requirements so clearly that he who runs may read. Did the soul and body keep pace step by

step through life, and grow with uniform rapidity, then the law of order would require that the same care, the same favorable conditions, the same education should be given in corresponding adaptation to soul and body, day by day, and year by year. But in the nature of man there is never a dead level between soul and body, the specific needs of each predominate at different periods of the human life, and most beautiful that arrangement is.

Each human body has its type of form and size, to which it must attain; it may reach its maturity at different ages, 15, 20, 25, no matter; at a certain age the body ceases to grow, it has reached its standard, the period of preparation is finished, it enters upon a new epoch. But the mind by no means conforms to this standard, the cessation of the body's growth does not mark the completion of the growth of the mind. At the period of physical maturity, the body has acquired the command of every function, it has consolidated its power, it is fully developed; but the mind is in the full vigor of growth; the thoughts, aspirations, and understanding are expanding, though judgment has not yet begun to ripen; for the growth of the mind is much slower than that of the body, and attains its maturity at a much later period of life.

Here then is a marked difference in the mode of development of the elements of our double nature,

and a clear indication of the Divine Order of Exercise, affording a practical lesson which may not be neglected. Physiology teaches us that two organs do not act with equal energy at the same time, that while the stomach digests, for example, the brain must rest, and the muscles be in abeyance. When we would reflect deeply upon any subject, we endeavor to escape from all external distractions; we close our eyes, and allowing the other faculties to rest, obtain the greatest force of those which we would employ. It is because the body, and most of the mental faculties are quiescent during sleep, that our dreams have often in them such surprising energy, acuteness, and range of thought and fancy.

In the natural method of Providence the faculties of human nature are not all manifested simultaneously; some, both of mind and body, appear early; others later in life. In infancy we have the appetites and affections which serve for the nurture and culture of the individual; but not till the period of mature life do the faculties and sentiments appear, which establish the relations of the man to the race.

This periodicity obtains also in the aggregate life of a people. While a nation is young, it has one definite object, self-preservation; it must dig, and plant, and sell, and concentrate its energies, on its growth and material consolidation; no entangling alliances, no enthusiasm for principles, must lead

it to the fatal neglect of the essential elements of its prosperity, the foundation of its future greatness; but when its fields are planted, and its manufactories are built, when its railways cover the land, and its ships whiten the sea, when its stature is complete, and its arm strong, then another object is presented for its attainment. Then its light may shine forth, and its influence be felt by the world, its voice may cheer, and its wisdom guide, for its material prosperity will support the spirit of its people. The Divine order has been observed; the time of preparation is completed, and the time of fulfilment has arrived.

Thus, from every sphere of existence we gather analogies which confirm this essential truth, that the sovereignty of the body must be established, before the sovereignty of the soul is possible, for the one prepares for and is the continent of the other.

During youth the development of the body in strength and beauty must be the first care; the complete establishment of every function, through the supply of the freest conditions for its harmonic growth, must be our ruling principle. There is no avoiding the necessity of this primary predominance of the material organization; it is a Divine Law, of which every violation will bring its own punishment. And woe to the race by whom this order is systematically inverted; disease, vice, and rapid degeneracy will inevitably mark its history.

The third great law resulting from our dual nature to which I would call your attention, is that of the Balance of Exercise, whereby each faculty of this compound nature may be duly unfolded. I bring it before you now because it is intimately connected with our last remarks, and has the following practical bearing upon education, viz., that at no period of human life may we attempt to separate the blended life of soul and body; but must satisfy the wants of the whole nature at every stage. The sovereignty of the material organization in youth does not exclude such activity of the mind as is necessary for the service of daily life, and such prospective training for its future existence as is compatible with the body's present health and complete growth. So, in the second period of life, when the soul reigns supreme, when mind and heart are fully developed, the material frame, though only of second rank, has still its rights to maintain, its wants that must be attended to. Thus every period of life, though marked by the predominance of one special principle, needs to some extent the co-operation of all other principles; the maintenance of the law of compound movement.

The last grand law to which I shall direct your attention, is the crowning law of all, the source of their existence, the centre to which they tend: —It is the Law of Use in Exercise—the universal reason, and justification of existence.

We cannot examine the smallest and most insignificant object in nature, without being lost in wonder at the rich uses which are developed from its tiny framework. The little plant that we trample under foot, contains within itself a whole kingdom of minute uses, essential to its being. It is linked by uses to its fellows, to the soil, to the atmosphere, to the animals, to man, to the universe, so that creation would not be complete without that tiny plant. Every being has its aim, its special purpose, and its universal use; and its highest welfare, its health, its happiness, is found in conforming to that use. Rank in creation is determined by use; the greatest variety of aims, the widest range of objects, and the most central nature of uses, mark the noblest race of created beings—those who bear the brightest image of the Creator.

By right of this incontestable charter, man takes his place in the scale of existences. Nature has generously endowed the human being with a body so perfect in its parts, so delicate in its minute structures, so beautiful as a whole, so powerful in its collective life, so rich in varied uses, forming such a compendium of varied laws, such a harmony of complex strains, that we can conceive of no mechanism so living, so admirable. And who shall limit the capabilities of the human mind, growing by the accumulated achievements of ages? There is nothing hidden that shall not be

revealed to the enlarged understanding of man; as there is no sphere of existence with which he is not united by the infinite network of his sympathies.

What is the conclusion, then, which we must draw from these mighty capabilities in man, as illustrated by the lesson taught us in creation? That the object of man's existence is superior to all others; that he, of all creatures, must be the richest in uses; that every faculty of his nature must consecrate itself in use. With this conclusion to guide us, we need no longer wander in the confusion of aimless details. We have a standard by which to judge every effort, the standard of use; not for a day, nor a year, nor a lifetime, but the universal use for man, the centre of creation. Guided by this Divine law of use, the life of man will no longer be degraded by selfishness, or wasted on superficial ephemeral objects. The daily life, brought into obedience to the great design, will harmonize truly with the life within, and with the life of the universe around him; and by this conformity he will accomplish his own happiness, and fulfil the idea of his creation.

I have thus laid before you the great laws of life, the clear understanding of which is essential to our purpose, because, as we have seen, they are universal in their operation, entering into every sphere of existence, and ruling alike the physical and the moral world. Being universal laws, their

violation must necessarily involve its own punishment. We know that this is inevitable. The hand thrust into the fire will be burned; the sword entering the heart will kill; dishonesty will produce distrust; there is no escaping the penalty of violated law. This is clear to all, an acknowledged fact, which I need not urge. But though the fact is universally accepted, the evidences of violation of these laws are not so clearly recognized; and as the knowledge of these evidences may aid us in the attempt to trace the connection of cause and effect in practical life, I shall now call your attention, for a few moments, to the evils which inevitably result from the neglect of the laws which we have been considering.

The first evil to which I shall advert is, imperfect development. In the life of an organized being, in which a certain order of growth is established, and special periods are assigned for special developments, each period is peculiarly adapted to its own office. In each, certain conditions are present, which never occur again, and, consequently, the opportunity once lost, is lost for ever. Thus, in the human organization, we have pointed out the period of youth as peculiarly adapted to the attainment of physical excellence. The special material conditions which mark this epoch, are strikingly shown in the reparation of injuries. A broken bone in the child will unite easily, rapidly, and perfectly, so that not the smallest inconvenience

will be felt in after life, and the surgeon might examine the bone in vain to find the spot where fracture had occurred. Not so in the adult, still less so in the aged; not only will the same injury then require months instead of days to heal, but the union of the fractured parts will be accomplished clumsily and imperfectly, or the reparative power of the system may be entirely exhausted, and the fracture may never unite. An endless variety of illustrations might be given to prove the same point, viz., that there are peculiar conditions of the physical organization in youth which are presented at no other period, and that, consequently, the work which should be done then, can never be accomplished later in life.

Again: as this is the special period of material growth, if the care and education which the physical nature then demands be curtailed, and the energies of the system be diverted to other objects, the work which should be done at this time is necessarily only partially and imperfectly performed.

In the change from infancy to manhood, there is a vast labor to be accomplished, and only a limited time to do it in. During this period Nature works with wonderful rapidity; works as she never works at any other period of life, for every moment is precious. But if the necessary conditions are not afforded, the work cannot be accomplished; the body will be unable to meet

the demands made upon it in after life; it will bend under burdens which it should support with vigor and grace; it will be weak and irritable, striving to acquire its proper strength, but unable to do so, the conditions for its growth not having been afforded at the right time. The demands made upon it at a later period of life are incessant and heavy, and it struggles in vain; it has the neglected work of yesterday to accomplish, together with the proper work of to-day. The ripening comes upon the retarded growth of spring, and imperfection, disease, is the result.

Another evil which arises directly from the imperfect development of this period of life, is the anticipated activity of powers appropriate to a later period of growth.

We have seen that it is not possible to perform two diverse actions, or strive for two objects with equal energy at the same time, without impairing the completeness of both. This is eminently true of the growth of the body; we cannot let it alone; it will be helped or hindered by our actions. There is in every individual, from the child upwards, a large amount of disposable energy, a reserve of vital force which is available in moulding the life, in directing the operations of nature, in hastening or retarding the epochs of existence. The welfare of the body requires the aid of this reserved force; but if, instead of being appropriated to its natural ends, this provisional energy be

directed to the objects of a later period of life, the nature will grow disproportionately in certain directions, and a triple evil will result; the material organization will suffer through the want of its proper elements of growth; the intellectual powers will suffer from the strain of premature exactions; and an unsound mind and an unsound body, acting and reacting on each other, will produce diseases of mind and body, corresponding to the injuries which they have received. The standard of excellence, which might have been attained, is never reached.

Another vice of growth springing from the neglect of the third and fourth general laws which we have laid down is the undue development of particular faculties. Imperfect and premature development are the peculiar dangers of youth. The undue exercise of certain faculties of our nature, is the evil to which the later period of adult life is chiefly liable. It is a vice of the spiritual rather than the material nature. It proceeds from the substitution of partial, limited aims, for the general and higher aims, which should rule human life. The housekeeper tends to become more and more a housekeeper, simply; the merchant to absorb his life in commerce, because the force of habit, and a certain truth and fitness that exist in them, have blinded them to the true range of those occupations. They are of great utility; they have a universal meaning,

when considered as parts of a great whole; but when they absorb the human being, filling his entire thought, and shutting him out from the wide range of human interests, they become degrading, and ruinous to the noblest objects of human life; they convert the soul into a domestic tool, or a calculating machine. Nor is this absorption in one subject, this excessive development of one faculty, necessary to excellence in any department of life. One law never contradicts another law. Predominance, hierarchy, is the rule of life, not exclusion; and each faculty is refreshed and strengthened by the due exercise of every other. Let individual taste and talent direct to special occupations, but let the nature remain open to the influences of the whole universe.

One more evil I have to notice, viz., the misery which must result from the entire violation of our last law, the Law of Use in Exercise. We have just considered the evil of undue exercise of any portion of our being; the conversion of a temporary object into the supreme end. We would now speak of aimless existence; of that strange anomaly in creation, a human being with nothing to do. Most miserable, worthy of most profound pity, is such a being. The most insignificant object in nature becomes a source of envy; the birds warble on every spray, in ecstasy of joy; the tiny flower, hidden from all eyes, breathes forth its

happiness in fragrance; the mountain stream dashes along with a sparkle and murmur of delight. The object of their creation is accomplished, and their life gushes forth in harmonic work. O plant! O stream!—worthy of admiration, almost of worship, are ye to the wretched idler! Here are powers ye never dreamed of, faculties Divine, eternal; a head to think, but with nothing to concentrate its thought; a heart to love, but no object to bathe with the living tide of its affection; a hand to do, but no work to be done; talents unexercised, capacities undeveloped; a human life thrown away, wasted as water poured forth in the desert. Birds and flowers, ye are gods to such a mockery of life! Who can describe the fearful void of such an existence, the yearning for an object, the self-reproach for wasted powers, the weariness of daily life, the loathing of pleasure, and of frivolity; the fearful consciousness of deadening powers, of a spiritual paralysis, yielding no response to human interests; when enthusiasm ceases to arouse, and noble deeds no longer call forth the thrill of joy—when the world becomes a blank, humanity a far-off sound, and no life is left but the heavy, benumbing weight of personal helplessness and desolation?

Oh! happier far is the toiling drudge who coins body and soul into the few poor shillings that can only keep his family in a long starvation, for he has a hope unceasingly to light him, a duty to

perform, a spark of love within him that cannot die; and wretched, weary, unhuman as his life may be, it is still separated by the immeasurable distance of life and death from that of the poor, though pampered wretch who is cursed by having no work to do.

Noble work! Welcome struggle, suffering, torture even, if our path lie through them; struggle will be bliss, suffering will be angels' food, if only so we may accomplish our destiny, and fulfil a Divine use.

I have thus endeavored to indicate in a very general way, the great principles in accordance with which all wise action must be carried on; and have noticed some of the evils which must necessarily attend their violation. The propositions I have laid down may have seemed abstract, and their connection with the subject of physical education remote; I may seem to have treated more of the mind than of the body; more of the universe than of man. But we shall find, on the contrary, as we proceed, that these laws are intensely practical in their application, that the details into which they flow are the only really practical things in existence, for actions based upon them are truths, and all else is falsity and sham. Every fact of our daily lives which is not filled with a spiritual existence, with a principle that can be carried out into universal application, is a vanishing phenomenon; it has no real exis-

tence; it can give us no aid in moulding our lives, in improving our condition. The laws which I have endeavored to lay before you are the laws by which we must eat, and drink, and sleep; and I would commend them to your most earnest thought. Their universal nature is the guarantee of their truth; for, in the wonderful whole of creation, no part is separated from the rest; mind and matter, body and soul, substance and form, are correlative. The creation is filled with the Creator.

In my next lecture I shall proceed to the consideration of special functions, and of the laws which regulate our physical life. I shall explain the marked difference which exists in our economy between the powers over which we may exert an almost creative influence, and those on which our action is but indirect. The latter will form the subject of my next lecture, in which I shall endeavor to show how far the organic life of the individual can be influenced by us. We shall then be prepared to examine intelligently those powers which are placed immediately under our control.

ORGANIC LIFE.

In my former lecture I laid before you the general principles on which all existence is based, viz., 1st, the manifestation of life by movement or exercise; 2d, the development of life in a definite order of movement, shown in the human being by the predominance, at different ages, of the physical and the spiritual nature; 3d, the compound nature of movement; and 4th, the end of all movement, viz., the law of use. I stated that it is in accordance with these principles that our human life should be regulated, and I then pointed out some of the evils that must inevitably result from their neglect, viz., imperfect, premature, and undue development, or even the complete annihilation of true life.

We have seen the supremacy of these laws in all spheres of being, but it is my purpose here to limit our inquiry to an examination of their application to the physical nature of man, the life of the body; and this order of examination is not only accordant with the plan of nature, but it is the one which my duty, as a physician, would especially lead me to adopt. And though I shall

have occasion frequently to refer to the intimately connected spiritual nature, such references will always be subordinate to our main inquiry.

It is necessary to form an intimate acquaintance with the life of the body, in order that we may realize fully its importance, the veneration which it should inspire, the attention which should be given to it. We shall examine its wonderfully complicated and delicate mechanism, and inquire how it grows, how it becomes strong and perfect, and how we may aid or injure this beautiful growth. To do this it will not be necessary to enter into long anatomical descriptions, sketches of disease, or much physiological detail. The studies necessary to the medical student, and to the woman who would intelligently perform the noble duties of a mother and a rational member of society, are widely different, and it is productive of much mischief to attempt to mingle the former with the latter. A certain amount of anatomical and physiological knowledge is both interesting and useful, and may be easily obtained from some of the many popular works on those subjects. My object, in these lectures, as I have stated, is an eminently practical one. I wish to show how the human race may be made stronger and more beautiful. Therefore, instead of bringing before you an endless multiplicity of anatomical and medical facts, my aim will rather be to call your attention to the practical conclusions resulting from those facts.

The first point to which I would call your attention is the limited range of our power over the body. Our will is able to accomplish a great many things, but there are many others for which it is completely impotent. We cannot stop the beating of the heart, nor change its method of action; we cannot alter its type; we cannot educate it; we may kill but we are unable to govern it. We cannot teach the lungs to inhale carbonic acid gas, nor can we learn to do without breathing. Yet we may remain inactive for years, the limbs that were meant for motion may be forced to constant repose, and life will still continue; the hand may remain idle by our side, or learn to move with admirable agility over the notes of a musical instrument. We may bind ourselves by a vow of silence, and permit no sound to escape our lips; or we may train our voices to the production of melodious strains. But, should we force the stomach to a state of constant repose, or provide it with indigestible materials, we should speedily pay for the attempt with our life. The first germ of life is beyond our management; we cannot change its type nor its manifestations; but our power over the intellectual and moral life of childhood is so great, that we may be said almost to create it; and on the other hand we may leave the brain in a state of inaction, and the rest of the body will grow daily towards its maturity. And yet no faculty of body or of soul is completely withdrawn

from the influence of our will. Stomach, heart, and lungs may all be injured by us, they may also be greatly aided in their work by our help, and the great fact of human generation may be powerfully affected for good or evil by the conditions with which we surround it. When we consider this confused multitude of facts, proving both the potency and the impotency of the intelligent human will to affect the growth of the body, we see of what essential importance it is to us clearly to understand the limits and nature of our power, that we may neither waste our efforts in attempts to perform what the Creator has placed beyond our reach, nor neglect the accomplishment of the part which is clearly allotted to us as free intelligent agents.

Now we shall find in the double life of the body and soul, the explanation which we need to direct us. The true life of man, the life of the soul, only proves itself by its manifestations, by speech, by action, by social and national relations, and all those various forms of incarnated soul which we call art, science, religion. All this external life is simply the expression of the relation of the inner life, the soul, to man, to nature, to God; and this inner life can only express itself by employing the body as a medium. But if we could take from man the power of speech and movement, the electric glance of the eye, the language of touch, could we even paralyze the

greater portion of the brain, and thus deprive him of every possible method of displaying the life of the soul, the individual would still live on, the stomach would continue to digest, the liver would still carry on its complicated processes of vital chemistry, the lungs would inhale the purifying air, the heart would distribute fresh blood to every part of the body, and the warm living tint of the skin would indicate the continued existence of organic bodily health.

Here, then, we have at once a broad distinction between the organic life of the body, which is self-supporting and independent of individual will, and the related life of the body, which is the necessary instrument of the mind, directly under its control, and capable of immense development. The organic life has a fixed type of its own, which we cannot modify; each organ has its special and peculiar use, with which any action of ours would be an impertinent interference; but in the related life which has our highest interests for its object, our interference is essential, and is capable of producing the most beneficial results. The reason of this striking difference is evident from the order of movement which we have already observed. The lowest and coarsest forms of being always appear before the higher. The body is first in the order of development; it has to prepare for the mind, and every function is fully and permanently established before the intelligent will makes its

appearance; the body must therefore necessarily have its own independent laws in the child, and it remains through life independent of the experiments, the mistakes, and the long-continued efforts by which alone man can acquire knowledge, a fixed point, without which we could make no exertion; a broad firm foundation-stone, on which we may build the beautiful edifice of a noble life.

By the organic or involuntary life of the body, we mean the active life of those parts of our material framework which would be necessary to keep the body alive if we had no souls; thus the action of the heart, lungs, stomach, skin, &c., belongs to the organic life, while by the related or voluntary life we indicate those parts of our physical organization which are the direct instruments of our intelligent will, the brain, senses, and muscular system.

Having thus found the first division which our subject clearly presents, you will readily perceive that my remarks on "The Laws of Life, with special reference to the Physical Education of Girls," will chiefly refer to the related life of the body, towards which we have so important a part to perform; but we have already seen that there is no such thing as simple isolated life in the universe, and that our will may powerfully influence the organic life of the body, its connection being so intimate with every part of our human nature, that I must first call your attention to this divi-

sion of our subject before we shall be prepared to take up the important second branch.

Let us now consider, therefore, the Organic Life of the body, and the way in which we can aid this life. We have seen that each organ has its own special work to do, and understands, better than we can do, the best method of doing it. In the organic life of the body we are not called upon either to furnish an object, or to educate any part to the attainment of an object. Our part lies solely in placing the body in a position to work; in other words, our duty to the organic life consist in furnishing the following conditions, viz., 1st, freedom to work; and 2dly, materials to work with. In these two rules lie our most important duties to the body. Our first duties,—for, before education is possible, the observance of these laws is essential to the life of the infant; our last duties,—for, when the aim of human life has been accomplished, when the related life of the body having finished its work, grows weak, and the period of separation approaches, it is by diligent observation of these rules that we can most effectually cheer declining life. Indeed, throughout the whole period of our earthly existence, of infancy, youth, manhood, and old age, if we would prevent sickness, promote well-being, and prolong life, we must never cease to perform our first grand duty to the body, the securing to it of freedom to work and materials to work with.

Let us examine more in detail the application of these principles, and see how clear a light they shed upon the relation of our will to every period of existence.

Look at the first faint gleam of life, the life of the embryo, the commencement of human existence. We see a tiny cell, so small that it may easily be overlooked; the anatomist may examine it with scalpel or microscope, and what does he discover? Nothing but a delicate, transparent membrane, containing one drop of clear water; the chemist may analyze it with the most scrupulous care, and find nothing but the trace of some simple salts. And yet there is in that simple germ-cell something most wonderful—life!—it is a living cell; it contains a power of progressive growth, according to law, towards a definite type, that we can only regard with reverent admiration. Leave it in its natural home, tended by the healthy life of the maternal organization, and it will grow steadily in the human type; in no other by any possibility. Little by little faint specks will appear in the enlarging cell, marking the head, the trunk, the budding extremities; tiny channels will groove themselves in every direction, red particles of inconceivable minuteness will appear in these channels, and will move towards one central spot, where a little channel has become enlarged, has assumed a special form, has already begun to palpitate; the living blood in the small

arteries now joins that in the heart, and the circulation is established. From every delicate incomplete part shoot forth minute nerve-threads, which tend inevitably towards their centres, joining the brain, the spinal marrow, the ganglia. The nervous system is formed. The cell rapidly enlarges; its attachments to the maternal organism become more powerful, for increasing amounts of fresh nourishment must be conveyed to the growing being, and as the work advances to perfection, each organ is distinctly formed, and placed in the cavities of head, chest, and abdomen, which are now completely closed; the human type is surely attained, and after a brief period of consolidation the young existence, created from that simple cell, will awake to a further development of independent life. Throughout this period of early life we remain spectators merely of the wonderful growth; it would be impious folly to attempt to interfere directly with this act of creation: but even in this stage of existence we have important aid to render. We can, only, through the maternal organization, furnish the essential conditions, freedom to work and materials to work with; but this duty is imperative, although our action is necessarily indirect. No mother can determine the sex or appearance of the child; she cannot deprive it of a limb or disfigure its body by any direct action of her will; but the state of her health, the disposition of her mind, her habits of life, will materially

affect the growth, and influence the future constitution of the child. The most powerful action is not that of sudden and violent effort; earthquakes and revolutions are destructive, not creative; all true and lasting growth is the result of long-continued action, working silently but constantly in the right direction. The young sapling may be bowed to the earth by a violent storm, and it will shortly recover its position, and shoot up tall and straight, under the genial influences of earth and sky; but plant it on the mountain side, exposed to the constant action of the sea breeze, and though no change in its position is perceptible in a single day, yet it is surely growing in the direction of the wind, and in its bent form will soon show how much more powerfully the constant invisible influence has affected its growth, than did the sudden and evident action of the storm.

The favoring influences which should surround the period of embryonic existence are found in the daily life of the mother, in the sunshine of the spirit that should naturally enfold the new centre of so many hopes, in the observance of rules of hygiene, regular habits, early hours, periodic exercise, cold bathing, plain wholesome food, and loose comfortable clothing; these rules are simple, easily understood, not difficult to be observed, and yet are they of immense importance; they are the favoring circumstances of growth, they are our part in the work of crea-

tion; and will never be neglected by the wise mother who has once recognized their high use. No frivolous pleasure, no petty cares, no serious sorrow even, will induce the true mother to neglect the healthy rule of life, or disturb the cheerful serenity of her spirit, when she is thus directly the handmaid of the Creator.

We have watched the first development of embryonic life, and its gradual attainment of the human form. But an immense change now occurs in the life of the little being; it is born; and remains henceforth subject to influences with which we are familiar, and under our immediate action. Previous to this epoch, notwithstanding the vigorous principle of life so evidently displayed, its existence was a mystery to us; we cannot understand a method of growth whose conditions are so different from our own. But when the child is born, its kindred claim is at once established; it is become one of us, and we have direct and urgent duties to perform towards it.

It is one of us, but yet how different! every part of the body has to change its proportions, and the quality of its structure, in order to attain the fulness of the human type. The head and abdomen are of undue size, the brain is soft, the liver is enormously large, the stomach and intestines are irritable, the skin is of extreme delicacy, and there is not a solid bone in its body. In every fibre of the infant organization these differences

are apparent, marking the transition epoch between two different states of existence, and indicating the plastic condition of the new being, which requires only favorable conditions to be moulded by the gentle hand of nature into the perfect human form.

Let us now inquire what are those conditions which constitute its freedom to work? 1st. Unimpeded movement of every part of the body; so that there shall be no pressure, no constrained position. In the great Lying-in Hospital of Paris, La Matérnité, the old practice of swathing the infants is still observed; the lower limbs, each one enveloped in a fold of linen, are stretched to their fullest extent, and closely bound with thick cloths, which effectually prevent any movement in them. Every mother who has watched the evident delight with which the little limbs move, under the gentle friction of her hand, and observed the instant response of every part of the body to every painful or pleasurable sensation, will feel the torture of such a method of constraint; and it has made my heart ache in seeing these poor little mummies unrolled, to observe the half-paralyzed condition of the limbs, which would gradually recover their activity with their freedom, only to be again tortured, under the foolish idea of straightening the limbs by a process which is certainly the surest method of defeating that object. For the substitution of external constraint

instead of the gradual and strengthening manner of growth by which Nature straightens the naturally flexed limbs of the infant, causes them to remain weak and imperfectly developed; and when the child begins to crawl or walk, they inevitably bend under the burden they are not prepared to support. Now though this practice of swathing will seem an unnatural and cruel custom, it should be borne in mind, that any amount of confinement by clothing or position, differs only in degree, and produces, to some extent, the same discomfort to the infant, and the same injury to growth; an intelligent care should, therefore, be exercised in the construction of the clothing, in the application of bands, and in the manner of nursing, that the perfect freedom of the body may be preserved, and no part of the soft, tender frame be compelled to bear an undue burden.

Another condition to be observed, is the warm temperature necessary to the infant. I might say the warm, living atmosphere of human affection necessary to it; for it is very certain that we cannot raise children upon chemical principles; and though it is impossible to reduce the maternal influence to vital electricity or any scientific formula, or clearly understand the peculiar action of affection on the irrational infant, it is none the less certain that human heat, whether spiritual or material, is the most genial atmosphere for infant

growth. It is the want of this which is one cause of the great mortality in foundling hospitals, where the little nurslings lie the greater part of the day in cribs. The utmost care is taken to supply every external condition on the most rational and scientific principles; the nurseries are admirably clean, and warmed with great care, but there is no home like the mother's bosom, with its living warmth and nourishment. The gentle penetrating human heat is essential to this period of life, for the infant possesses, in extreme measure, the irritability and delicacy which always attend rapid growth, without the power of reaction which belongs to consolidated strength; it is, therefore, peculiarly sensitive to changes, to violence of any kind, and is liable to be chilled with great rapidity.

Perfect cleanliness is another condition of growth. Every observer has seen how easily the skin is acted upon, in infancy, by the secretions of the body, from neglect either of thorough washing, or of change of clothes; and it should always be borne in mind that the invisible effects extend farther than the visible, and that the evils of uncleanliness are not limited to the sore on the skin, or the inflammation of the eyes, but extend by a thousand unseen ramifications through the whole economy, hindering and injuring the work of nature.

Our second rule in aiding the organic life of the

body, is to furnish materials for work; and under this head let me call your attention particularly to the life of the Lungs in the infant, and the material which we are bound to furnish them, viz., pure air. No other organ changes so remarkably at birth as the Lungs. There had previously been some degree of functional activity in every other part of the body. The stomach and intestines indicate that digestion had taken place to some extent. The heart had beat with extreme rapidity, and movements of the body had often occurred; but the lungs had remained entirely impassive, tightly folded together, and had contributed nothing to the life of the child. With the first inspiration, a new sphere of existence is opened; the lungs, hitherto useless, become at once the mainspring of life. How eagerly we await that first inspiration! The mother, forgetful of weariness and suffering, lifts her pale face from the pillow, and listens with her whole soul. The physician, profoundly penetrated with the mystery of birth, bends in suspense over the little being hovering on the threshold of a new existence; for one moment they await the issue—life or death! But the feeble cry is the token of victory; the mother's face lights up with ineffable joy, as she sinks back exhausted, and the sentiment of sympathy, of reverence, thrills through the physician's heart.

That moment is prophetic of the important

part which the lungs play throughout the whole period of our existence, for life and death wait always on our breath; not from any fear of its sudden cessation, but because, with the air we breathe, poison or nourishment enters into the most secret recesses of our organization. Vitiated air—air laden with human exhalations, with impure odors, with miasm—air overheated and deprived of its natural properties becomes poison, not to the lungs only, but to every fibre of the body; the cheek grows pale, the skin loses its healthy hue, the flesh becomes soft, the eye dim, the organs grow weak, and perform their functions imperfectly, nutrition becomes perverted, and disease inevitably appears. Such are the results of impure air on the economy, more or less slowly, as the case may be. So slowly, sometimes, that the cause of deterioration is quite overlooked; but there is no surer way of undermining the constitution, then the continued breathing of vitiated air.

When we think, then, of the extreme susceptibility of infant life, of the immense importance which the lungs have all at once acquired, of the imperfect ventilation of our houses, and the many ways in which the air is spoiled, we can understand the dangers which must arise from the neglect of this point, and the constant care with which we should strive to supply to the lungs their pure, unfailing nutriment. No one can

have failed to notice the tranquil, smiling slumber of the infant, when carried in its nurse's arms in the fresh air of park or garden; it will fret, and fume, and torment a household in-doors; but protect it well, and send it out, and the gentle air and movement will prove the most happy anodyne, a charm after nature's heart. We should do well to meditate upon that peaceful slumber.

Another duty to the infant, coming under our second head, is the supply of food; and it is well that nature has so clearly pointed out the food suitable to it, that we have only to follow her indications as closely as possible. Breathing, eating, and sleeping are the main features of infant existence; and we must provide for their due exercise with religious care. The prominent place held by the alimentary canal in the infant economy would be indicated by reason alone, when we consider that rapid growth has to take place, and that air and food are the means provided for this growth. But actual observation confirms this view; the alimentary canal, measured from its two extremities, is in the infant twelve times the length of the body, whereas in the adult it is not more than eight times that length. It is suited to the mildest nutriment, and is easily acted upon; it works and rests with equal rapidity. The rules of digestion, therefore, that apply to the adult, are unsuited to the very different organization of the infant, with whom a little nourish-

ment, frequently taken, at regular intervals, is the plan indicated by nature. The changes which occur in the alimentary canal, in the power of digestion, and the wants of the individual in relation to food, during the period of youth, form, by the visible effects which they produce, distinct divisions of this period, which aid us greatly in obtaining a clear general view of the wants of youth, and our duties in relation to it. For these material changes are more profound than the simple physical appearance which is obvious to all. The gradual unfolding of the soul is, in truth, deeper, more wonderful, than the development of the body; it is the object of the latter; these material changes are the words which the soul utters; and they become constantly more significant, as the body advances to perfection.

Now, in pursuing our inquiry, viz., our duty to the organic life of the body, we need to cast a glance over the whole period of youth, in order to see how far the duties we have already pointed out are modified by the different stages of growth. Let us see what are the distinct epochs of youthful existence.

We observe, first in order, the early period of infant life, when the delicate being seems just learning to live, striving to strike its little roots into our soil. The next epoch is marked by the appearance of the first teeth;—a new instrument is then given, a wider range of life allowed, and

thus with the first teeth appear the first harmonic movements, the first attempts at walking; a period of rest, of consolidation, follows, during which preparation is made for new efforts. At seven years old the provisional teeth begin to make way for the permanent and more important set; but this set cannot be so quickly completed, for they have much weightier duties than the milk teeth to perform, must last through life, and be strong for the service of manhood as well as of childhood; the greater part of them may be changed by the tenth year, but the completion of the permanent teeth may be delayed till the seventeenth or nineteenth year. The last epoch in the period of material growth is that of puberty, which, involving the change of most importance, is also the longest in preparation and in completion, so that it is, in fact, only from the twentieth to the twenty-fifth year that the body has finished its growth, become strong in all its parts, and fit for the exercise of all its functions.

We have, then, four distinct epochs in the youthful life of the body. Birth, first dentition, second dentition, and puberty; each epoch being preceded by a time of preparation, and followed by a time of consolidation. These are the successive waves of growth, before high water-mark is reached; each succeeding effort being of far greater importance in the scale of existence than

the preceding one. It is more lasting in its effects, and wider in its range of action.

Besides the progressive importance of these epochs in the growth of the body, there is another point to which I would direct attention, viz., the successive excitements to which the body is subjected. Growth is not one slow uniform progress, but a progress with frequent accelerations; and at these special periods of excitement, the body is peculiarly susceptible to good or evil influences. Let me illustrate this point, which is of great importance. If a finger be burned, the effects of the injury are not confined to the burnt spot. The pain and heat extend, the whole hand, or arm, becomes exquisitely sensitive, and shrinks from the slightest touch; accidental circumstances which, in the ordinary state, would not be noticed, are magnified into causes of annoyance or alarm; changes of temperature, a sudden noise, shock the system and jar the nerves, in a manner quite unusual to the individual; and if the accident be of considerable severity, this sympathetic excitability will be raised to an intense and dangerous pitch. A knowledge of the injury is thus telegraphed through the body, and preparations are made to remedy it. So a fall on the ice, or a narrow escape from being knocked down by an omnibus, will arouse every sense into unusual and unnatural activity; we concentrate our energy

into an exaggerated carefulness of tread on the slippery pavement, and employ eye and ear, and the quick movement of the head, in nervous anxiety, as we cross the street.

Now this same increased susceptibility is present at the various marked epochs of growth; it seems to be the condition of any unusual or special action of the body; an impulse is given, an important work is to be done, and the vitality of every fibre is raised to the highest point to give its aid. There is only this difference between the excited sensibility caused by accident, which we have just noticed, and that which accompanies growth; it is that the former accompanies a morbid condition, while the latter is the attendant of normal, natural action, requiring no remedial means, and, if guarded by a strict observance of the laws of health, will aid the progressive development of the body.

From these two facts in the history of youth—1st, its division into marked and increasingly important epochs; 2d, the heightened susceptibility peculiar to those periods of growth, we derive fresh confirmation of that law of Order in Movement, which necessitates, as the first step in life, the unfolding and consolidation of the material frame; and of the importance of the duties which we have to perform to the organic life.

We have spoken of freedom of movement, an appropriate temperature, and cleanliness, as ne-

cessary conditions for the life of the infant; and of the essential importance of providing the best food for the lungs and the stomach. We now see that throughout the whole period of youth, these conditions become increasingly necessary, as changes of increasing importance take place in the system. When the period of infant life ceases, and the child is able to run about, to eat a variety of food, and to be in some degree independent, the maternal care instead of diminishing, should take a wider range; it should increase with the growing necessities. That would indeed be a narrow and unworthy view of maternal duty, which should limit its tender solicitude to the direct dependency of infancy; for the duties of the mother become nobler, and more important with every step made by her child in the scale of existence. This will be felt with greater force, when we come to examine the life of relation, as widening with the growth of the child. I urge now the increasing importance of the mother's care, because it should be felt as applying also to the organic life throughout the whole of youth. Our two great principles of duty to this life must never, for a moment, be forgotten. Freedom to work, and materials to work with, must always be provided, with at least as anxious a care for the growing girl of fifteen, with her expanding frame and enlarging desires, as for the little sleeper in the mother's arms. It is quite as cruel to compress the chest,

to weigh down the form, to impede the movements at thirteen years of age, as to swathe the infant of thirteen days; quite as wicked to slowly poison the body with close, vitiated air and unwholesome food, when the mind is rapidly unfolding and the individual is beginning to sustain wider external relations, as to injure by the same means the unopened life of the infant. Throughout the whole period of youth the watchfulness of intelligent maternal love must enfold the organic life of the advancing being, and provide for its necessities.

Another principle which should be distinctly understood in relation to this stage of life, is the vast difference that exists between the period of active growth, and that of complete attainment, between the physical condition of youth, and that of manhood. The excitements, the privations, the subjugation of the body, that may be borne without injury in healthy adult life, would be keenly felt, and highly hurtful in youthful life. Consider for one moment the difference in these two states. In the first period, there is a regular succession of marked and most important physical changes, affecting sympathetically every portion of the organization. In the second period of life there is no marked physical change; the body, strong and useful, quietly performs its part, as a perfect subordinate instrument. In the first, the mind, though growing, by no means keeps pace with the body, but remains unformed while the ma-

terial organization is attaining its perfection. But during adult life, the mind is supreme, it is strong and active, and its action is the object of life. Here then we see a total difference of method and aim; an harmonic connection exists between them, the first being but a preparation for the latter; but in actual condition there is an immense difference. The same fact may have a totally different significance, in the two ages, and the rules for the promotion of the material well-being must be different. I would therefore call your attention to the bearing which this difference of condition has upon the organic life, because the life of youth being regulated by adult experience, the danger exists, that the habits of daily life which may be innocent to the adult, may therefore be considered as suitable to youth. The stomach and digestive apparatus, for example, occupy a different relative position to the rest of the economy in youth, and manhood. I have noticed these peculiarities in my remarks on infancy; they continue to exist, less in degree, but still strongly marked, through the whole period of growth. Food occupies a place of more prominent importance; the total amount required, is comparatively greater, but the power of digesting at one time is less; delicacy of structure, and general susceptibility, are strongly marked in youth; consequently the quality of food, the amount taken, and the length of abstinence, must differ in the two periods of

life; and errors of diet will be far more injurious to the young than to those advanced in life. Over-eating is one of the most injurious as well as most common habits of childhood. The total amount of food taken in the twenty-four hours may not be too great; but the appetite, becoming ravenous by too long abstinence, induces the child to eat too much at once. Equal mischief results from improper quality of food; heavy pastry or bread, half-cooked vegetables, tough meat, hot cakes swimming in butter and molasses, coffee, spices, pickles, and the heterogeneous mixture of articles which so often characterizes American diet, are especially injurious to children. Simple nourishing food, well prepared, in proper quantity, and given at proper times, is the necessary provision for the young, rapidly growing body. The same difference should be observed in all the habits of youthful and adult life; and the tendency which exists in the young to imitate the old, should never blind us to the injurious consequences which would result from such imitation. The freshness of the young intellect, its quick perceptions, and perpetual activity, may lead us to imagine the existence of the corresponding strength which would accompany those qualities in manhood. A child may learn to keep late hours and turn night into day; to live on coffee and wine, and spicy food; the boy may smoke a cigar, and the little girl may imitate the unnatural *tournure*, and adult airs

represented in the fashion-plates, learning with wonderful accuracy the habits and follies of an older age; but they cannot do so with impunity, for such untruthfulness to nature destroys her beautiful work. This bright young life is sparkling but not deep, and we dry up its source when we subject it to the artificial habits of a later period. The excitability of the child is surprising; the praise of a superior will stimulate to its own destruction, as with the Spartan boy, who suffered the concealed animal to destroy his life, rather than be degraded in the eyes of his companions and teachers, as an inexpert thief. This extreme susceptibility must be guarded by us, as an important means of good to the child; enabling it to draw health and life from favorable circumstances. Let it be surrounded, from its earliest days, by those agents which will conduce to its physical well-being; and let us, as the intelligent guardians of youth, provide abundantly for the peculiarities of its bodily wants. Let every organ have a full supply of the heathy stimulus peculiar to it, and full freedom to perform thoroughly its function. And let us most carefully avoid forcing upon the youthful organization, the customs, thoughts, restraints and indulgences of our own maturer condition.

Here I leave this branch of our subject. I have pointed out the peculiarities of the organic life, particularly during the period of youth. I have

shown how we are called upon to aid this life, and what are the limits of our power in regard to it. We have seen that this attention on our part, is essential to youthful well-being, the organic life being the foundation of all other life; and I have dwelt, in conclusion, upon the different habits and objects that should influence youthful and adult life. In the next lecture I shall call your attention to the Related Life of the Body, and our Duties to that Life.

RELATED LIFE.

We have now to consider the second branch of material life, viz., the Related Life of the Individual. In our last lecture we spoke of the organic existence of the body, when, like a tree in winter, the proper life is undeveloped, and concealed, and it stands bare, isolated and useless to us; now we would regard it as the same tree putting forth its leaves, fruit, flowers, beautiful to the eye, a shelter from the sun, purifying the air, and making sweet music in the passing breeze; such is the related life of the body, the instrument of wonderful and beautiful uses.

The object of this related life is to furnish the soul of man with a fitting instrument for its expression, consequently its range of action must be wide and varied; it must serve as a medium between the ever-expanding soul and the infinite universe. The different portions of our bodily frames intended for this high use, are, 1st, the muscular system; 2d, the organs of sense; 3d, the brain. By means of these, our whole external life is carried on. The soul takes possession of these organs, and with their help, conquers the

material world, and penetrates the secrets of Nature, the hidden mysteries of earth and sky; by their help, all the holy relations of the family are formed, and man learns to know and love his fellow-man; through them we explore the wonderful kingdoms of science and art; there is no limit to the treasures of love and wisdom which they open to us, for it is equally by means of these divine gifts that we raise the first humble cabin in the wilderness, or rear lofty temples to the Most High. From the noble use, then, of these faculties of our nature, we should be led to regard them with peculiar interest; but there is one quality which they share in common, which classes them together, notwithstanding their varied structure and uses, which will add a hundred-fold interest to their study, and make this study an imperative duty; it is the power of education which these faculties possess, a power of indefinite development under our intelligent action, by means of which we may exercise an almost creative power over the child, and impart to it a degree of goodness, beauty, and intelligence, which should make us tremble at the responsibility placed in our hands.

It is my purpose, then, in this lecture to dwell in some detail on those organs of the related life of the body which are particularly connected with the health, and physical well-being of the individual. I wish to show you the position which they occupy in the economy; and what our duty is in

relation to their development. I shall commence with that important structure of our body, whose object seems synonymous with life, and whose direct action marks the opening and the closing of our career; I mean the muscular system.

The great bulk of the human body is composed of muscle. If you look at the bare skeleton, composed chiefly of hollow bones, you will see how slender an outline of the human form it presents; the clothing of those bones, the closing of the cavities, the formation of the special human outline, is the work of the muscles; the weight of the individual depends chiefly on them. If we could lay aside the protecting layer of skin and fat which envelopes the body, it would make very little difference in its size, and we should then see the muscular body, red and well defined, and perceive how very large a proportion of the body is formed by muscle. Muscle is the fleshy part of animals, the lean of meat. Its structure is regular and beautiful; but we can form no idea of this structure from the meat which we cut at table, because we cut it across the grain. If we cut an orange in two transversely, that is, through the rounded circumference, we can form little idea of its structure; but if we peel it, and split it longitudinally, we then see at a glance the number of parts which compose it, the semi-transparent membrane which incloses each division, and the way in which they are united; if we then open one of

these divisions, we shall find the juicy pulp and the seed, and the pulp itself will now present quite a different aspect from that which it presented in the transverse section, for we see that it is arranged in little bundles of fibres lying side by side, and that each bundle is itself incased in a transparent membrane so delicate that it tears, and lets out the juice, with every attempt to separate it. Thus by carefully dissecting the orange, we get a totally different idea of its structure, than could be got by simply cutting it through. Now, if, in the same way, we could peel the human being of his rind of skin, we should find the muscles below as well marked as the sections of the orange; each muscle carefully enveloped in its sheath of membrane, and lying across or by the side of other muscles similarly enveloped. Of these an immense number, amounting to several hundreds, are spread over the body; and they are infinitely varied in shape and size, some being so large as to cover the trunk, while others are almost invisible; they are thick and short, or long and slender, or spread out in a sheet, or branching like pine leaves, according to the part of the body to which they belong and the work which they have to do. These muscles are mostly in pairs; thus the layers which cover the right arm, correspond to those which cover the left; so with those on the legs, and those which cover the face, neck, and trunk; they are symmetrical throughout the

body, most beautifully so, the shape of many of them being exceedingly graceful, and the "line of beauty" being illustrated in no part of the body more perfectly than in the muscles.

Now this whole varied assemblage of muscles, spreading all over the body, both inside and out, we class together under the term, muscular system. Its grand object is movement. Let us see how this is obtained. When we take hold of a bell-rope and ring the bell, the essentials to this action are, first, the rope, with its two attachments, one to your hand, the other to the head of the clapper, and next, the power of making one of these two attachments a fixed point towards which the other shall be drawn, thus pulling down the head of the clapper and striking the bell with the end. Now to move a human leg, the same points are necessary, the rope or long muscle, with its two attachments, one end being fastened to the trunk as a fixed point, the other attached to the leg; and in order to move the leg, the distance between the two attachments must be diminished, the leg attachment must approach the fixed point at the trunk. In ringing the bell the distance was shortened by drawing down the arm and rope; but our body would present rather an alarming spectacle, if the muscles should start out in every direction, to pull the limbs from point to point; the shortening of the distance between the two attachments is therefore performed in another

way, viz., by the shortening of the muscle itself, by means of a contractile power which is peculiar to it. If, as we have already remarked, we open the sheath of a muscle, we shall find it composed of bundles of delicate fibres ranged side by side; each of these little fibres has the power of shrinking together, and so causing the whole muscle to shrink, swelling somewhat in bulk, but shortening in length, and so moving the limb or part to which it is attached. It is not, however, one single muscle which moves a limb; not only are there many other muscles which combine in various degrees to produce the different movements of a part, but the various fibres of the same muscle, can also move in various degrees to modify these movements; thus the variety of movements that can be produced by the combinations of so large a number of muscles is immense, and the shades of movement may be of the most delicate nature, and infinitely varied. The attachments of the muscles are of a different character from the body of the muscle, particularly where great compactness of movement is requisite, when the ends of the muscle condense into strong white cords which we name tendons; a structure and method of movement which may easily be examined in the wrist, if there be not much fat below the skin. If we feel the inside of such a wrist, we can slide the skin backwards and forwards over the thick white cords, which lie below, and are

hard to the touch; these are the tendons of the muscles, and if we trace one of them up the arm, we shall feel it grow larger and softer, till it swells out into a mass of flesh, near the elbow joint. If the skin of the wrist be delicate, we can even see the dark fleshy part of another layer of muscles lying below these white cords. These tendons are attached to different parts of the hand and arm, and we can distinctly feel their movements changing, according to the part we move. If we lay the thumb of the other hand over these tendons, and move the wrist slowly backwards and

ards, and then, keeping the hand steady, move simply the fingers, we shall distinguish the action of totally different muscles; if we steady the hand and fore-arm, moving them upon the arm, we find the muscles at the wrist do not come into play at all, the action being produced by muscles placed on other parts of the arm. There is an endless variety of objects to be accomplished by the movements of the human body; force, agility, all the various impulses of the mind, have to express themselves in action. We find in the arrangements of the muscular system, a variety of method corresponding to these necessities. Thus to attain what would seem the most difficult triumph of mind over matter, viz., the expression in material substance of the feelings of the heart, of every delicate, noble, or violent sentiment, we find a most beautiful arrangement of the muscles

of the face; we find no strong tendons, as in the wrist, where great force has to be exerted in grasping, very few attachments to the bones below; but the face is covered by a layer of living contractile muscles, with their fibres arranged in every possible direction, circular, direct, oblique, running into one another, capable of the utmost mobility, and instantaneous response to the slightest change of feeling. The countenance was never intended as a mask to the soul, for every provision has been made to render it the faithful image of every changing sentiment.

Now, constituting, as the muscles do, the great bulk of the body, they must necessarily require an immense supply of blood, and consequently the largest vessels branch off in every direction to supply the necessary nourishment; and these vessels do not branch off at right angles, as they do to many of the organs of the body, but the fullest and freest communication of blood is secured, by the acute angle which is generally observed in the branching of the muscular blood-vessels. Besides the blood which is called off in such large quantities to the supply of the muscles, there is also an immense supply of nervous influence, to which I must call particular attention, for it has a most important practical bearing. We do not know what the peculiar fluid or essence conveyed by the nerves to all parts of the body may be, for we cannot demonstrate it as we do the blood, by

sight or touch; but it is essential to life, penetrates every part of the body, and is more directly under the control of the mind than any other portion of our frame.

This nervous influence has its origin in the brain, the spinal marrow, or the ganglia (which latter are little white masses found in different parts of the body), and is conveyed by white cords into every fibre of the body, producing feeling, movement, in fact giving life. The brain, as every one knows, is a mass of gray and white matter contained within the skull, and is the special instrument of the mind, while the spinal marrow is a thick cord, of similar substance, running through the bony tube of the spine. There is no separation between the brain and spinal marrow; we feel the head moving upon the spine, but there is no division between them at the nape of the neck; they are encased by similar membranes, bathed by similar fluid, and formed of similar substance; the connection between the two must necessarily, then, be very intimate. The whole substance of the spinal cord is specially devoted to supply the muscular system with nervous influence; large white nerve-cords escape from the spinal marrow along the whole extent of the trunk, and branch off, in finer and finer threads, to every muscle in the body; the largest nerves in the whole body being three-quarters of an inch wide, branch off in this way

in the lower part of the trunk, and extend to the many powerful muscles situated at this part of the body, and to the lower extremities. Moreover, that the muscular system may not be isolated from the rest of the body, but that its influence for good or ill may be felt in every organ, branches of these nerves are sent off to each one, although they are specially supplied from another source; the unity of the system is thus preserved, and the muscles, the organs, and the brain, are intimately linked together. Nor is this all; a large mass of the brain, viz., the cerebellum, constituting one-seventh of its substance, is also specially devoted to the uniting and harmonizing of movements, and thus to the service of the muscular system; we see, therefore, how very large, important, and widely connected, is the supply of nervous influence provided for this portion of our economy.

As every object in nature has its use, and the degree of importance belonging to that use is indicated by the nature of its structure, we see at a glance how highly important to our well-being must be the muscular system, which forms the largest portion of our bodies, which is arranged in the most beautiful and varied way, which is so richly nourished by heart and brain, and which, moreover, is endowed with a special power, which we find in no other part of the body, viz., the power of vital contractility. The direct object of this vast preparation is movement. Each muscle,

in order to enjoy its proper life, in order to grow by the use of the blood and nervous fluid supplied to it, must move, must contract, and thus employ its powers. We see, then, that the necessity of exercise during the growth of the body, sufficiently indicates the prominent place which exercise should occupy in our systems of education; but it will strengthen a true view of this subject, if we notice some of the minor uses of exercise, and observe the evils which will arise in various ways from inaction of the body, from neglecting to employ the muscular system.

First, then, it is intended by nature that a large supply of blood shall go the muscular system, and I have shown the peculiar provision that is made for this purpose; but if the muscles are in a state of inaction, they will not use this blood, of which only a small portion will be employed for their slow and languid growth; and as there will be but a small demand for blood in that direction, it will consequently be drawn to other parts in undue quantity, the internal organs will receive more than they need; for these organs, being always active, will attract the blood which the muscles should have used. Now, every organ is intended to receive a certain quantity of fresh arterial blood, which it uses for its own special purposes, and then sends off the refuse venous blood by the veins, to be purified. In every healthy organ there are these three elements well

balanced, viz., the arteries bringing blood, the active parts of the organ using it, and the veins carrying off the remainder; but if this healthy balance is destroyed, if the arteries bring too much, or the organ fails to use the supply, or the veins are unable to carry off the useless portion, then the part becomes overloaded or congested; and if that state continue, mischief will follow. Now, this state of congestion will arise in the internal organs, when the muscular system fails to use that portion of blood which is intended for it. The organs may all become congested; or, if any one is weaker than the rest, if there is any tendency to disease existing, it is that part which will especially suffer, and disease will inevitably be developed.

2d. Muscular exercise aids the circulation of the blood, and particularly the return of the venous blood.

We know that each beat of the heart gives an impulse to the arterial blood, and sends it on its journey through the body, while the elastic arteries, contracting upon the blood when the heart's beat is over, continue that impulse, and urge the blood on into the finest channels which it has to reach; but there is no beating heart to send back the venous blood, which has to be brought from every part of the body; there are no elastic vessels to press it on, for the veins are not formed of the same substance as the arteries. A variety of

other circumstances are necessary to aid the returning blood in its journey to the heart, and amongst these, a very important one is the contractility of the muscular tissue, which, extending as we have seen all over the body, both inside and out, powerfully aids in exciting the activity of the veins, and pressing on the returning blood: while inactivity of the muscular system is sure to produce stagnation of the blood, or venous congestion, and increase the morbid condition to which we have alluded above.

3d. Animal heat and electricity are produced by muscular contraction. I do not allude to the heat, produced by nutrition, by the change of blood into flesh, which is constantly occurring in the nutrition of every part of our body, heat being produced by that chemical change, just as heat is produced when water is brought into contact with lime. But besides this heat of nutrition, there is a special development of heat, with currents of electricity, that can be definitely measured during muscular exercise. This has been ascertained in the powerful contraction of the large muscles of a man's arm, which contraction produces an electric current, which powerfully affects a magnetic needle, suspended near the arm; and though we have not yet been able to measure the amount of heat and electricity produced in the human body by the contraction of all its muscles, we know that it must be very great; a subject

which becomes constantly more interesting and important, from the curious phenomena which science is every day tracing to human electricity.

4th. Having spoken of the important influence of exercise on the circulation of the blood: I would now call your attention to its marked effect on the nervous system, and I might define the evils which arise from neglected exercise, by the term nervous congestion, if we were warranted in regarding the nervous influence as a fluid circulating in the same way as the blood; but though there are strong analogies between the two systems, I should not be justified in using the term nervous congestion, although it would explain from analogy the evil which I wish to point out. Let me therefore refer you again to the anatomical arrangement of the nervous system, that you may clearly understand this very important point. There is in every individual a certain amount of nerve force which is essential to life; this force is generated in three centres, the brain, the spinal cord, the ganglia, just as the blood is generated by the stomach and its connected apparatus; the brain is the nervous centre for the mind, the spinal marrow is the centre for the muscles, and the ganglia form the nervous centre for the organs. Each centre has thus its appropriate objects to which its nervous force must be distributed, but if the parts which should be supplied are not called into exercise, there will be a

deficiency of nervous force in those parts, and a corresponding excess in others. The healthy balance of the system will be lost, and nervous disease will be the consequence.

We have seen that a very large portion of the nervous system is appropriated to the muscles, and that a great number of nerves are distributed all over the body, from the whole length of the spinal cord, some of these nerves being nerves of motion, others nerves of sensation. Now if the muscles remain inactive, the motor nerves of course remain so too; the sensitive life attains an undue power over the active motor life, and the body becomes the prey of morbid sensations, and of an unnatural vivacity of impressions, which mark the irritability consequent on this unbalanced exercise of the sensitive nerves. Again, the inactivity of the muscular system not calling into exercise the whole nervous force of the spinal marrow, the mind, which is always active, will call the brain into undue activity; and this evil will be increased by the application of stimulants to the mind, which will still further draw off the nervous influence to this centre and produce a premature mental development; nor is this all. The ganglia, the sympathetic nervous system, under whose influence the organs of the body grow and live, will share the undue activity imparted to the other centres by the inaction of the muscular system. The generative organs, which

are governed by the ganglia, and intimately connected with the mind, will suffer from the lost balance of the nervous system; they should be the last and slowest growth of the body; but they will thus suffer, equally with the mind from premature development, and the weakness which is its inevitable consequence. Here then are three great evils arising from the loss of nervous balance, produced by the inactivity of the muscular system, viz., the undue exaltation of the sensitive life of the individual, and the premature development of the mind, and of the generative system.

5th. The tone of the whole body is lost by inaction. By the tone of any part, we mean that natural healthy vigor, which is shown in the muscles by their perfect contraction; in the organs, by their steady normal performance of their functions; it can easily be understood, by contrasting the firm flesh of a healthy child, with the soft flabby muscles of one weakened by disease. Now this tone is lost in every part of the body, by continued inaction of the muscular system, for there exists not only nervous connection between the muscles and the organs, but direct sympathy of structure; and there is scarcely any organ of the body where muscular fibre is not found. The heart is a muscle of immense power; the stomach and whole length of the intestines possess a strong layer of muscular fibre, and it

enters into the structure of the mass of blood-vessels. The uterus is an organ of tremendous muscular force, and muscular fibre enters into every part of the generative system. Now though there are differences in the structure of this organic muscular fibre, and the fibre of voluntary life, which we are specially considering, yet muscle possesses every where the same essential character, and consequently the organs throughout the body are connected by sympathy of texture, with the wide-spread muscular system; and if the tone of the muscles be destroyed, if they are weak, relaxed, unfit for duty, the tone of all the organs will be destroyed in corresponding degree. Thus from the neglect of exercise during youth, we have this formidable result to the body, viz., weakness of the whole muscular system; and the time would fail me to trace out all the bodily evils, all the diseases, that inevitably spring from this condition of weakness. Crooked spines and distorted pelves, with other vices of growth, are often traceable to it, and its injurious influence on the functions of adult life I shall soon have occasion to dwell upon.

Let me recapitulate the special evils which result to the whole material frame when the muscular system is not called into exercise, and developed as its structure and important functions demand. I have called your attention, 1st. To the congestion of the various organs, and conse-

quent impairment of their functions. 2d. To the stagnation of the venous circulation, from the absence of muscular stimulus. 3d. To the deficiency of heat and electricity, products of muscular contraction. 4th. To the irritability and undue excitement of the nervous system, which must arise when the motor nerves are not called into action. 5th. To the loss of tone in the whole body, from the weakness of the muscular system. Now, all these evils, more and more formidable as they are seen to be when we reflect upon them in detail, will be found to be yet more formidable when we consider how utterly they defeat the great object of the muscular system, which is to furnish a varied and powerful instrument for the expression of the soul.

We need muscles that are strong and prompt to do our will, that can run and walk in doors and out of doors, and convey us from place to place, as duty or pleasure calls us, not only without fatigue, but with the feeling of cheerful energy; we need strong arms that can cradle a healthy child, and hold it crowing in the air, backs that will not break under the burden of household cares, a frame that is not exhausted and weakened by the round of daily duties. We want faces that can smile and light up with every noble sentiment, not rigidly set, vacant, or wrinkled by care; faces that may greet the stranger with a welcome that he can feel, and show to the loved ones the rich

affections of the heart; that can lighten with indignation, or glow with honest approbation: faces that know how to move and express true feelings, instead of remaining cold and impassive, an icy barrier, through which the warm feelings of the heart strive in vain to break. We need developed muscles that shall make the human body really a divine image, a perfect form rendering all dress graceful, and not requiring to be patched, and filled up, and weighed down, with clumsy contrivances for hiding its deformities. Bodies that can move with dignity, with grace, with airy lightness, or with conscious strength, bodies energetic and active, erect and firm; bodies truly sovereign in their presence, the expressions of a sovereign nature. Such are the bodies that we need, prompt to do and to feel, truly our own. And such nature intends us to have. It was in order to give us an instrument thus perfect and beautiful, that the muscular frame was constructed, so rich in capabilities, so obedient to the mind. And it is only when exercise is regarded as the means by which the muscular system is to be developed, and the body trained to its proper standard, that it assumes its true position, as the grand primary necessity of the education of youth.

We have seen that the organic involuntary life needs our aid but indirectly; but that this education of exercise is immediately under our control, and imperatively demands our direction. Let us

now consider what we have to do in this important matter.

The young infant is almost withdrawn from our control. Nature says to us, "Stand by, and watch my work!" This delicate life will admit of no trifling, no neglect, no experiment; but see how the infant kicks, and cries, and works, not arms and legs alone, but every part of its body in pain or pleasure. We smile and sit still, or weep in silence; but the baby puts every muscle in motion; if pained or angry, it will scream with all its might, contract every little fibre, and strain and wriggle in infantile rage, to the intense alarm of mother and nurse. We may leave it to nature for exercise; it will be well attended to, and carried through an efficient course of gymnastics, reaching every muscle of the body, which we should find it difficult to imitate by art. Watch also the child that has learned to walk and prattle in freedom, that has not been forced to conform to the habits of its elders, and whose organic life has been allowed to go on under the action of the laws we have referred to in a former lecture. Could we find a better illustration of perpetual motion, during its waking hours? Give it room and a few playthings, if only blocks of wood, and it will go through a series of positions, stooping, twisting, doubling, turning over, that are incalculable and unapproachable. And you cannot quiet such a child; take away its playthings and

every legitimate source of amusement, and your inkstand will be upset, your books ingeniously torn, the table-cloth dragged off, and the contents of the work-basket sent rolling; and if absolutely restrained from these troublesome devices, it will make it up by fretting and fidgetting till the older head fairly aches. And a most admirable arrangement is this incessant activity of the child, the inexorable law by which it lives, and which impels it to turn the whole household upside down, rather than sin against its own nature. For it lives by movement; fresh air and exercise are the mainsprings of its healthy physical life. Thus in the earliest years, Nature's indications are very plain; and in exercise, as in the organic functions, the most perfect freedom, under favourable conditions, should be enjoyed by the child, that its own instincts may guide it. Our direct interference at this early age would be injurious, for our intelligence has not yet supplied us with means by which we can educate the little child better than nature will do, if we only surround it with the necessary conditions; and we cannot, for one moment, doubt the superiority of the physical advantages enjoyed by the young child who can play for the whole day in the fresh air of woods and fields, to those offered by the most skilfully-conducted infant school that we have ever seen [1].

[1] This was written before the admirable idea of the Kindergarten was known to the author.—E. B.

At this age, when the instincts of nature are fresh in the child, we have little to do, but zealously to aid those instincts; and it is doubtful whether our duty to the very young child will ever extend beyond this.

With the period of second dentition, the mind of the child assumes a different character. The irrational pursuits of early infancy no longer attract it; nor can it amuse itself for hours together with the position of a few sticks and pebbles, or the manufacture of dirt pies. Exercise must now have a meaning, an object; it must be rational exercise in order to attract, and a book will be far more inviting than a game of play, if there be no intelligence in the game. The instincts of the body are no longer imperative as with the infant; they are no longer the same trustworthy guides. The child has now been for some time under the influence of social habits moulded to the wants of adult life, and nature no longer speaks through it in the same clear voice; the intelligent will is awaking, and the demands of the body are henceforth made in an humbler tone. But does exercise really become less important to the well-being of the child at this age? Most emphatically not! Every part of the body is in active growth, and exercise is essential to the perfect nutrition of active growth. The bones have not attained their due solidity, but yield to the pressure of long continued or constrained

position; the textures are soft and incomplete; the muscular system is growing, not grown, and demands imperatively its condition of growth, viz., exercise. The nervous system is so extremely susceptible, that muscular exercise is absolutely needed to balance its activity, and prevent morbid irritability. The most important physical changes are now going on in the body, preparing for its crowning work, the attainment of the age of puberty, whose effects are of vital consequence to the well-being of adult life, and which demands the most favorable material conditions, in order that it may be accomplished in that gradual and healthy manner, which can only be the result of perfect muscular development.

Most evidently, then, the freest and fullest exercise is required, until the period of puberty is fully established, and its functions are consolidated. It is only when the bodily growth is healthily completed, that the physical discipline may relax, that the object of education may change, or rather receive its completion in the full development of the mind. Until that period of perfected physical growth is reached, all neglect is dangerous; the evils to which I have alluded, will inevitably arise, and imperfection or disease through the whole of life will be the result.

Our special duties to the muscular system commence, therefore, when the earliest childhood is past; it is then that our intelligence is ab-

solutely needed, to make physical exercise intellectual, and thus suit it to the wants of the growing child; and it is at this period that we may be truly said, for the first time, to educate the body. We have to provide the object, as well as the method of obtaining it. This object is the exercise of the mind through the body, the expression of ideas by means of the muscles; spiritualized physical exercise is the demand of this second stage of youthful life.

The method by which this object may be attained is, 1st, the subjection of the muscular system to the supremacy of the will, by obtaining a perfect control over all the muscles of our body, and a knowledge of the combinations of which they are capable; 2d, the application of the power so obtained to the overcoming of passive resistance, as in climbing, running, throwing, &c.; to the overcoming of active resistance, as in fencing, wrestling, &c.; to the expression of sentiment, as in pantomime and national dances; and to special adaptations of the muscles, as to the eye in archery, to the ear in singing, to the touch in swimming. But it is not my purpose here to enlarge upon this subject. In this lecture on the voluntary or related life of the body, I can only offer a general idea of the importance of this life, and the principles which should govern it, without entering into the details of practical education. I have shown the nature of the muscular system,

the paramount importance of its development, and the rank which exercise should hold in youthful education; I must now turn to the second branch of the related life, viz., the senses.

My remarks on the senses will be few, for two reasons; first, they have not the same powerful influence on the material health, that we have seen belonging to the muscular system; they are more exclusively related to the mind, and though of great importance in education, their consideration belongs only indirectly to the branch of physical education which is properly our subject. And the second reason is, that our means of educating the senses are at present very limited, that subject being as yet not understood; we do not comprehend their full scope, and any attempt to lay down a system of training, would necessarily be very imperfect. I shall therefore content myself with laying down a few general principles which will serve as guides in the true direction, and enable us to understand the position which the senses occupy in the human economy, and what our duty to them requires.

1st. We find the same capacity for improvement which marks so strongly the muscular system, shown most wonderfully in the senses. The eye of the experienced sailor will detect the distant shore, with its lighthouse and scattered cottages, where the landsman perceives nothing but a faint mist; and the ship, which seems to the one like a

mere speck in the horizon, will reveal to the other its peculiar structure, and the country to which it belongs. The sagacity of the Indian eye which detects the trail of the enemy on the hard rock, or amongst the bushes of the forest, seems to us incredible. And how remarkable is the touch of the blind, as the finger passes rapidly from line to line, recognizing the varied forms of the letters with unerring certainty, and with an instantaneous perception, that renders it the efficient medium of thought. By the touch of the hand they distinguish instantly the stranger from the friend; and even the varying pressure of the atmosphere will guide them in directing their steps, and avoiding the contact of external objects.

The illustrations of the power of education over the senses are familiar to every one's experience; and it is their susceptibility of education which gives to them, in relation to our present inquiry, their special interest, for it shows us that they are placed directly under our control, that it rests with us to give them their due exercise, and to develope the true life of which they are capable. This educated action of the senses, the instrument through which the mind perceives, suggests to us the second point of interest in relation to this subject, viz., the intimate connection of the senses with the mind.

The senses are direct avenues to the soul; they are capable of awakening intense emotion, reli-

gious enthusiasm, every sublime or tender sentiment. The traveller as he gazes from some mountain top on the wide extent of forest and hill stretched at his feet, with the blue expanse above and the light clouds sweeping silently by, with no sign of human life, no sound to break the solitude, stands awe-struck with the overpowering immensity and spirit of majestic beauty that rests upon that scene; the eye speaks to the soul of eternity, of the Grand Spirit of the universe, with a power that thrills the heart. And as the traveller winds through some sheltered valley, and marks the thriving village, with its busy inhabitants, how different are his emotions, what thoughts of home, what warm human interests are awakened! Again, how do our hearts bound to the spirited strains of martial music; how do we thrill to the shout of the multitude; and how many a David has charmed away evil spirits by the music of beautiful sounds! Neither is it a passing emotion of little moment in our life that we receive from the senses, for they are our perpetual bodyguards, surrounding us unceasingly, and these constantly repeated impressions ennoble or degrade our souls according to the nobleness or the meanness of the objects which surround us. Dirty and slovenly dress will exert an evil moral influence upon the child, will aid in destroying its self-respect, and will incline it to habits which correspond with such a garment. The beautiful scenes through which

a child wanders, playing by the sea-shore, or on the mountain side, will always be remembered; the treasures of shell and sea-weed, brought from wonderful ocean caverns, the soft green moss, where the fairies have danced, and the flowers that have sprung up under their footsteps, will leave a trace of beauty, of mystery, and strange happiness wherever its later life may be cast. The senses mingle powerfully in all the influences of childhood. It is not merely the loving care of parents, the purity and truthfulness of the family relations that make home so precious a recollection; there are visions of winter evenings, with the curtains drawn, the fire blazing, and gay voices or wonderful picture books; there are summer rambles in the cool evening, when the delicious night breeze fanned the cheek, and we gazed into the heavens to search out the bright stars.

It is then most important in educating children to guard the senses from evil influences, to furnish them with pure and beautiful objects. Each separate sense should keep its freshness: the eye should not be injured by resting on a vulgar confusion of colors, on clumsy, ill-proportioned forms; the ear should not be falsified by discordant sounds and harsh unloving voices; nor the nose by impure odors; and not only should each sense be preserved in its purity, but the objects supplied to them should be rich with moral suggestion and true

sentiment; the house, the dress, the food may preach to the child through its senses, and aid its growth in quite another way than as shelter, clothing, or the material of the good blood which feeds its organs.

Doubtless the senses are capable of a development of which we have at present little idea. The marvellous acuteness which they occasionally acquire in individual instances, would seem to prove the crudeness of the state in which they remain in the majority of mankind. Except for the eye and ear, in painting, and music, science has done nothing for the senses; but instances of their exceptional power are sufficiently numerous to warrant the inference, that so vast a capacity for growth will not always be left unimproved.

But this is a point which must be left for future showing; it is sufficient here to have indicated the powerful influence which the senses exercise on the mind.

The third portion of our material frame which connects us with external objects is the brain, the special instrument through which the intelligence and the will manifest themselves. I would now call your attention to two anatomical facts in relation to the brain. The first of these is its soft condition throughout the period of childhood, and the greater firmness which it acquires through adult life; and the second is the longer period of growth allowed to the brain, which does not cease

to grow with the rest of the body at a definite period, but may continue to enlarge as well as consolidate during adult life. Now, this softness and high vascularity of the brain during youth indicate a period of growth, a period of comparative weakness and excitability, which is not suited to the highest functions of the mind, to reflection and calculation, to judgment, to concentrated attention. "Milk for babes, strong meat for men," is as wise a rule for the training of the mind as for that of the body. We must not force the youthful intellect by burdening it, during the limited period of bodily growth, with tasks which are suited to the fully formed brain; nor should we force it to work for a length of time unsuited to its powers, and which would interfere with the growth of the rest of the body. The lengthened period of growth allowed to the brain confirms this view. We are not obliged to hurry the development of the child; there is a regular order of growth, and the rest of the body must have attained its full strength, before the brain will be capable of sustaining the increasing demands of the intellectual nature.

Now, while I lay down the distinct rule, that in youth the mind should not be trained to the same extent as the body, it will be at the same time clearly understood that, according to the law of Compound Movement, there is no period of life when the mind is left idle, and that, all through

childhood, the intellectual faculties are rapidly unfolding. But this unfolding is not the result of direct exclusive training, as in later life. The moral nature is not formed by strict precept, by direct instruction; the child will become truthful, just, affectionate, by seeing those virtues constantly practised, by feeling their beauty and goodness, and thus learning to love them: only in this way will it grow in goodness, and it will be later in life, that the reasonableness of virtue, its universal necessity, its laws, will be understood. So, in the intellectual life, the direct and special training of the intellect should be extremely limited. The mind should grow in child-like fashion by means of the body, through the senses, through movement, through the influences which surround it. You cannot teach a child to speak grammatically when it is surrounded by those who violate all propriety of speech; the child learns best, not what it is taught, but what is caught by it in every-day life amongst companions, in its walks through the streets; and a ramble through the woods, with a wise friend, will give it more real knowledge, will teach the eye to observe, the head to think, and the heart to feel, more than a week spent in poring over books in direct intellectual exercises.

This subject is one of vital importance, and will be more fully examined in my next lecture when I shall endeavor to ascertain whether the principles

of truth which we have been considering are carried out in our daily lives, or whether we are living in the neglect of spiritual and material law. This is the great practical point towards which our inquiries have been tending, and on which the highest welfare of our race depends.

CRITICISM.

We propose to-day to examine our manner of life, with particular reference to its action on our physical well-being. We have seen the standard of excellence which Providence intends us to reach; we have considered the laws of life by which this excellence may be attained; and it now remains for us to ascertain how far our customs, which are the actions of our intelligent will, conform to the plan of Providence, and how far we live in direct opposition to the Divine laws.

Let us recapitulate the principles already laid down; that they may serve as our guide in this inquiry.

The perfection of our human nature, in its double capacity of body and soul, ready for strong and healthy action, can only be attained by the gradual unfolding of this nature, according to the Divine order of growth. This order requires that material development shall precede spiritual growth; that the education of the mind shall always be subordinate to the education of the body, until the latter has completed its growth.

We have seen that, in order to provide for the

gradual development of the body, we are bound to furnish the conditions favorable to its organic growth, by leaving each function in entire freedom to perform its work, and by furnishing the materials that are necessary to this work. Moreover, as the child grows, the necessity arises for uniting mental with bodily training; and we must therefore provide for the growth of the mind through the body, by making the exercises of the physical nature expressive of ideas and emotions.

Now, we shall find, on reflecting upon the method in which we educate our children—in examining the details of their daily life, from early infancy to the period when they leave our roof to enter on a new phase of existence, and undertake the duties of the adult age—that the whole scope of education is diametrically opposed to the true principles of growth, and that with every advancing year of the child's life, there is an increasing violation of Nature's law.

Let us consider first our system of school education, which embraces the most important period of youthful life. The great majority of children enter school about the age of seven years, and leave it at the age of sixteen. Now this period embraces, as you will remember, all those remarkable changes of bodily organization which occur, between the establishment of second dentition, and the attainment of puberty; a period of rapid growth; during which the body is enlarging its

range of action for the powers already established, and acquiring new functions of immense importance to the individual and to the race, and during which the body consequently makes incessant demands upon the vital energy, and requires the most favorable circumstances to perform its work well.

Thus, at this period of life, the entire change of the milk teeth, for a more numerous and powerful set, indicates the increasing power of digestion, to meet the more varied and substantial food now required by the body. The growth of the mind and the wants of social life, neeessitate greater freedom of action, longer walks, greater exposure to change of weather, to the roughness and accidents of the external world; therefore all the textures of the body must increase in size and strength. And the physical changes which precede the age of puberty, are in progress for years, before the actual appearance of the new functions established at that age.

Now what do we do, at this period of special physical growth? We completely ignore the body; we substitute mental for physical training; we entirely change the order of nature, and oppose the most formidable obstacles to the proper growth of the body.

For, to ensure this proper growth, the appropriate nourishment of every physical function must be supplied in abundance. Thus a constant

supply of fresh air is essential, together with much active exercise in the open air, and plenty of simple nourishing food; for the body never grows so well as in the companionship of the trees and flowers and streams of a healthy country district.

The great object of the child's school life is pure intellectual training. The best part of every day, generally from 9 to 3 o'clock, is spent in the school-room, where the mind is forced to long and unnatural action; and in order to meet the tasks imposed upon it, it must either rouse itself to a constant exertion that would be difficult for an adult, or it must rest contented with a half understanding of its studies, and learn by rote; a habit injurious to the best qualities of the mind. And this unnatural mental action is carried on under circumstances which would almost seem expressly calculated to injure the body as much as possible. The imperfect ventilation of our houses, which renders it extremely difficult to preserve purity of atmosphere even in a private family, makes it quite impossible to keep the atmosphere of school-rooms fit for human lungs to inhale; it is difficult in summer-time, with all the windows open, to maintain an entirely pure air where so many human bodies are congregated for hours together; but during the greater part of the year, the windows must be shut; and for several months the rooms must be artificially heated. Under these circumstances, the essential constituents of

the air are exhausted more rapidly than they can be supplied; the atmosphere is laden with human exhalations, and becomes a slow poison to those who breathe it; the lungs continue to take it in, but it can no longer perform its office of fully purifying the blood; and the blood being no longer able to supply the normal stimulus required by the brain, the child is forced to make still greater efforts to perform its tasks. We all know the unpleasant effects we experience in a crowded room, or omnibus, and how very difficult we find it to keep the mind in a condition of active exertion under such circumstances; yet we are adults, and require the fresh air simply for the maintenance of our healthy condition; whereas the child has, in addition, the requirements of rapid physical growth to meet. A play-ground is very seldom connected with the school; once or twice during the six or seven hours of school-time, the child may go down for five minutes into the court, and there may even be half an hour's intermission in the middle of the day; but there is no provision for amusement, and the children, exhausted by the morning's efforts, lounge about and eat their luncheon, but are not, for the most part, inclined to take bodily exercise.

There is another serious evil in school arrangements, besides the close air of the school-room; it is the injurious position in which a great part of the time is passed, leaning over desks in study

or writing. This position is exceedingly mischievous; the chest, which should expand freely to receive the air, to strengthen its muscles and to grow, is cramped and contracted by this stooping attitude, and the pressure against the desk; the shoulders, which should be thrown back at an equal level, are thus drawn forwards, and the right one being thrown upward by the action of the arm in writing, often retains this position, and we have the narrow chest and crooked shoulders so commonly seen in school-girls. The seats are hard, generally without backs; the body is wearied by a constrained position, exhausted by mental efforts; the muscles of the back cannot maintain the upright position; they seek to relieve themselves of the weight of the head and back by awkward attitudes, by leaning on one side, resting on the desk, curving the back. This effort continued day after day weakens the muscles, often distorts the spine, and produces other bodily deformities; for it must ever be borne in mind, that it is the young, not adults, that we are educating; growing bodies, soft and pliable, that give way to undue pressure, and cannot resist evil influences with the power of older organizations.

Now the object for which the children are thus brought together, and subjected to such serious physical evils, is open to grave objections, not only from the exclusive attention which is paid to the mind, but from the method by which

the system of teaching addresses itself to the mind.

The instruction given at school is almost purely intellectual; the senses receive little regular training; their power is used in very moderate degree to aid the mind: yet they are the first teachers of the young. Grammar, history, definition, composition, call for simple intellectual exertion; the natural sciences are very slenderly illustrated by sensible examples, and the poor engravings in the text books are often the only illustration they receive. The most abstruse subjects, that tax the attention of the strongest mental powers, are presented as studies for the young; girls of 13 or 15 are called upon to ponder the problems of mental and moral philosophy, to demonstrate the propositions of Euclid, to understand the refinements of rhetoric and logic; admirable studies, truly, but they are the food of mature minds, not suitable to children. "The Logic of the Schools," once signified the acutest efforts of powerful intellects; in our day it has a very different meaning.

There is no end to the list of "English branches," which the child has to "go through" during the few years of school training; the mere enumeration would have frightened our most studious ancestors, who did not understand what is meant by "going through the English branches;" but supposed, in their simplicity, that there was some

use attached to every study, that it must be acquired thoroughly, and be made either a means of mental discipline, or an object of investigation and discovery. But it would puzzle the most ingenious observer, to discover the use of many of the studies now pursued by children. If the object be mental discipline, there is no surer way of defeating such an object, than to attempt to give the mind a superficial view of a subject too difficult for it to grasp; to confuse it with a multitude of disconnected studies, to hurry it from subject to subject, so that the simple studies more suited to the young mind, are imperfectly acquired, and soon forgotten. Thus the greater part of the time devoted to the so-called cultivation of the intellect is really wasted; and it is no uncommon thing, to find young girls who have gone through all the English branches, quite unable to write a lady-like note, or read aloud a single page with right emphasis, ease and accuracy.

How can it be otherwise, when the young mind has to apply itself, during the limited term of school-study, to such a list of subjects as the following: Grammar, Ancient and Modern History, Natural Philosophy, Chemistry, Botany, Astronomy, Mental and Moral Philosophy, Physiology, Rhetoric, Composition, Elocution, Logic, Algebra, Geometry, Belles-Lettres!

The teacher is not to blame for this wretched

system of cramming. He is compelled to present as imposing an array of knowledge to be acquired at his school, as his neighbors do; and most patiently and earnestly he may strive to aid his pupils in the acquisition. The evil is in the system itself, which substitutes names for things; which fails to recognize the necessity of adapting the kind of instruction to the quality of the mind. This formidable array of names, and superficial amount of instruction, being required by the community, he is compelled to meet the demand; but the system itself is radically wrong, and no effort of the teacher can make it right.

But is this list of English studies the only burden laid upon the child? We have not yet spoken of the accomplishments; accomplishments to be acquired with great labor, to a superficial extent, and laid aside directly the serious duties of life commence. French, Latin, Italian, perhaps Spanish, German, and Greek; I believe Hebrew is not introduced in this country; vocal and instrumental music, piano, harp, guitar, drawing, painting, and various kinds of fancy work, swell the increasing list. Now many of these pursuits are beautiful and useful in themselves, and would refine and elevate if acquired at the right time, in the right way. But, as studied at present, added to the burdens of the school-girl, their acquisition is not simply useless; they consume much time, and thereby become highly injurious, by increas-

ing still further the efforts which the mind is compelled to make, and preventing the slightest attention being given to the necessities of the body. The school-hour closes, the child returns home, but not racing merrily along, with shout and frolic; for the little girl must not run, or slide on the ice, like a boy, and must walk properly through the streets; she dines, and then there are lessons to be prepared for the next day. If she be a docile, obedient child, some hours will be spent in this preparation; if the instincts of nature are too strong, she will neglect the lessons, wander about the house, perhaps join in a game of play; and the next day she will suffer the penalty of a reproof from the teacher, for imperfect lessons, and the loss of her place in the class.

Perhaps the child is sent out to take a walk on her return from school; but what is there attractive or invigorating in a walk through our streets? Can there be a more melancholy spectacle than that of the girls in a boarding-school taking their afternoon walk? There is no vigor in their step, no pleasure in their eye; the fresh air is certainly good for their lungs, but the unattractive exercise is of most questionable benefit.

There is little that is interesting to young girls in walking out without an object; they cannot play in the streets; their dress would be inconvenient; the mud and the carts, and the passengers, would prevent it. Children playing in the streets are

nuisances; though we may watch with pleasure the lively movements of a group of boys, who have taken possession of a slippery pavement with their sleighs and skates, and though we would not for one moment dislodge them from their only play-ground, still they are out of place, and the unfitness would be still more striking, if the players were a group of girls, for there is an ideal of beauty in womanhood which may not be neglected, and our natural perception of fitness is always more outraged by coarse arrangements for girls than for boys. The public squares do not afford the necessary opportunity for exercise. They are very few in number; they are public thoroughfares. Thus a quiet walk through the streets is the only resource for young girls, and who can wonder that they find it more amusing to gaze in at shop windows, or lounge on the door-step with young companions, or sit in a rocking-chair with a novel, than to take exercise in a dull street-walk? There is an entire neglect of all provision for the exercise of city children that demands serious consideration. The ground has become so valuable, that the houses are crowded together; and with very few exceptions, the courts are laid out on the minutest pattern; exercise could not be taken in them, for they are the embodiment of dulness, shut in by brick walls; there is no room to run, hardly space for a swing. The old Dutch houses that formerly stood in

pleasant shaded gardens, on the little hills that once diversified the island, have almost all disappeared; the island is fast becoming a dead level, and those pleasant gardens, with the wholesome breath of their trees and grass, have been dug away, with a short-sighted view to the greater profit to be derived from rows of brick houses. It is much to be regretted that some of those fine old gardens have not been retained as playgrounds for children.

For the school-girl, then, after the long hours of unnatural confinement, no opportunity is given for the healthy action of those bodily powers which are, as we have seen, of the first importance to the young, and whose neglect is the source of prolonged suffering and incapacity. No relief is afforded to the overtaxed mind, no healthy counterbalancing excitement to the body whose powers have been so completely repressed. The child wakes in the morning, to dress and take her breakfast, and hurry off to school again. And often the toilette is hastily performed, the duties of cleanliness and order are neglected, and the breakfast is too quickly swallowed, in defiance of the necessities of the stomach, in fear of being too late.

Moreover, the food given to children, as remarked in a previous lecture, is generally unsuited to their age, both in quality and quantity; we do not draw the necessary distinction between the

youthful and adult natures, and though I would not vindicate the wisdom of employing such articles in the diet of adults, there can be no doubt that coffee, hot bread, mingled butter and molasses, rich or highly spiced dishes, pickles, wine, pastry, are far more injurious to the young than to the old. Their food should be of the best quality, and wholesome unadulterated articles should be carefully selected; but it should be a plain description of food, well, but simply cooked.

Children should also be cautioned from eating food too hot, and from swallowing it hastily and half chewed; these habits, which injure both teeth and stomach, may be entirely prevented by a little care, and opposite habits formed, which will be a powerful safeguard from dyspepsia in later life.

Again, children should not be allowed to eat large quantities of food; they require, as I have elsewhere shown, more food proportionally than the adult; and this should be given to them at regular but more frequent intervals.

We greatly injure children by neglecting these rules. During the ordinary school-hours, the child remains for seven hours without any proper meal, for the luncheon taken to school, is often hastily put up, or consists of some improper article. The pickles and candy that children frequently carry to school with them, are hardly more wholesome than the chalk, india-rubber, and slate-pencils, that they chew in such large quantities.

Thus under the combined influences of confinement and close air, of unsuitable food, and injudicious mental excitement, the school-days pass; under such influences the child changes from a girl into a woman; such is the foundation laid for the important duties of adult life!

If we were to sit down and carefully plan a system of education, which should injure the body, produce a premature and imperfect development of its powers, weaken the mind, and prepare the individual for future uselessness, we could hardly by any ingenuity construct a system more admirably calculated to produce these results. The stimulus applied to young minds, the emulation excited, the very interest which they take in many of their studies, become a powerful means for weakening the body; if the minds were not so much exerted; if the children were lazy or disobedient, and would not learn, the same amount of mischief could not be done; but by their very conformity to rules, by striving to please their teachers and parents, and to maintain an honorable position, they fall completely into the snare, and sin against nature, in exact proportion to their obedience to rule.

It is in the boarding-school that this ruinous system of education attains its full force, for it is only there that the entire lives of the pupils are delivered up, for the time, to this one idea of so-called mental development. It is expected by

parents that their children shall acquire so many branches and accomplishments in a given time; they are willing to pay high for this acquisition, but they will be much disappointed if their children do not display the worth of the money expended in their tuition. To fulfil this expectation the teacher must make the most of every moment, for the day is too short to get through the formidable list of studies. The time is laid out with the utmost regularity; early and late the child bends over her books or sits at the piano; the short time appropriated to exercise is an interruption to the great business of the day, and is an unpleasant duty to all parties; for no child or teacher ever yet liked an ordinary boarding-school walk. The stimulus of rewards and punishments is freely applied, to urge on in the necessary direction; this stimulus being farther increased by the display of special exhibitions or examinations. The whole interest of the child is concentrated on its studies, for the distractions of home do not exist for it, the atmosphere of affection is not there, and if the moral tone of the school is good, study becomes its one idea.

I shall not speak of the frivolity and immorality which frequently exist in boarding-schools, though undoubtedly this association of children under such unnatural discipline, is calculated to weaken the moral sentiment, and produce a mental reaction in favor of weakness and folly. Little re-

ligious influence is exerted upon children at school. A formal prayer morning and evening, the repetition of the Sunday's texts, or the occasional recital of a chapter in the Bible, is not the sort of instruction that will develop the religious nature of the child; the atmosphere which it breathes should be religious; for it is only by the constantly exerted influence of religious natures, that children will grow in religious life. Frivolity and immorality are not necessarily connected with a well conducted boarding-school; but the injury to the physical health is inevitable; it is a direct consequence of the system pursued, and too often the mind also is permanently weakened by the very course adopted to strengthen it.

At 16, the girl's education is often considered finished. At the very age, when, if a right system of physical and mental discipline had been pursued, she would have been prepared with a strong mind, in a strong body, to commence serious study, her education is pronounced to be ended, and she willingly lays aside her tasks to enter more fully into society than was possible during the period of tuition. Henceforth pleasure is her chief object; for the plans that perhaps were formed, on leaving school, for reading and study, are never executed; the mind is not prepared to exert its powers alone. The knowledge already acquired has no connexion with her present life; her social nature needs companionship,

and the temptations of society are too strong to be long resisted.

And what has been gained during these long years of school, at such a sacrifice of physical strength? The logic has not taught her to reason well on any subject; the mental and moral philosophy will furnish no guide to goodness or happiness; the chemistry will never aid her in the preparation of wholesome food, or taking stains out of her furniture; the botany will not render more interesting the country rambles that she does not care to take. She will never use her natural philosophy to make the fire burn, or ventilate her house. All these studies will be completely dropped, and soon forgotten; for they were learned too soon, and the mind could not retain them; they were acquired too superficially, too unpractically, to be of any use in strengthening the understanding, or aiding in daily life. The music she has learned may be useful in society, if she have any natural taste for it; if it have been simply acquired through much drudgery, it will be at once dropped. The French will be of doubtful service; the young lady is often too shy to speak it, if the occasion for so doing should present itself; if natural taste or circumstances induce her to persevere in its study, it may prove an elegant accomplishment, but, in general, that too is dropped. What then is made serviceable, out of the long list of studies? a little reading and writing (for it is very rare to

find an elegant writer, still rarer, one who can read well aloud); some arithmetic, and the general outlines of history and geography, may be retained for life, and this is about all! Little real knowledge is gained, but an evil habit of mind has been acquired; a habit of careless, superficial thought, an inability to apply the mind closely to any subject; and this habit unfortunately cannot be dropped with the superficial acquirements which produced it. What a result is this, as a return for years of time, and the outlay of much money! surely we may call it a criminal waste of life.

I have already in another lecture called your attention to the absolute necessity of exercise to the young, and I have shown some of the evils which will result from its neglect. The mischief done to the body by the system of school discipline, may for some time be hidden, by the many attractions which belong to youth. The delicacy of complexion and feature, the plumpness of figure and that graceful *tournure* which characterize young American women, may, for a time, hinder us from perceiving the deceitfulness of those charms. Foreigners from all nations are struck by this young beauty (observe it is girlish beauty, not matured womanly beauty), and they are equally struck by its evanescent character.

Let me call your attention here to the powerful influence exerted by our method of educating children, in hastening the period of physical

maturity. How many mothers have anxiously watched the suffering, the delicate health experienced by their children, when entering on the age of Puberty. The active, and apparently healthy child is then transformed into the sickly, nervous young woman. Functions which should be characterized by the perfection which marks all the actions of the healthy body, are now exercised with difficulty and often life-long suffering.

The influence of education, of the conditions of daily life, upon this department of the system, is strikingly shown, in the tables of statistics collected by the French in reference to this subject. These statistics, based upon large masses of facts collected in many countries, and in different districts and classes of the same country, have proved beyond a doubt that the age at which physical maturity is reached, is greatly influenced by the place of residence, whether town or country, and by the habits of different classes of society; this maturity being found to be attained at a later period amongst the inhabitants of mountain districts, than amongst the labouring population of towns, and the earliest period of its attainment being found in the wealthy classes of cities. Rich food, luxurious habits, mental stimulus, novel reading, late hours, and over-heated apartments, are enumerated amongst the causes of this premature development.

According to these observations also, different trades clearly affected this development. Thus young girls who pursue confining sedentary employments of a delicate nature, as milliners, embroiderers, artificial flower makers, occupy a middle rank in regard to the period of mature development, between the labouring class and the wealthy; and it was observed in the same city, that in the children of the wealthy classes, this period was more than a year in advance of the lower classes.

We see how highly injurious the school system which we have been considering must necessarily be, to the health of the growing girl, by placing her in the most unfavorable circumstances for physical growth, the system being in fact diametrically opposed to the natural order of development.

Now to appreciate fully the extent of the mischief committed by our methods of education, we must bear in mind the important relations into which our daughters early enter. A disordered condition of any functions of the body would be productive of much misery to the individual; but the reproductive system stands alone in its importance, in its relation to the duties of maternity. Not only our duty to the individual, to our children, but our wider duty to the race, commands us to educate strong mothers for a succeeding generation, and we are not faithless to our

children merely, but traitors to Humanity, when we thus destroy the health of the young.

Through the imperfect development and weakness of the generative system, it is unprepared for the remarkable changes of maternity; hence we have a long and fearful catalogue of uterine maladies, a class of disease whose evils are increased by the wide sympathies of this system. It is so closely connected with the rest of the economy, so intimately united to the whole nervous system, that simple local disease of these organs cannot exist alone, for any length of time, but necessarily involves function after function in sympathetic disturbance; the stomach is deranged in its action, locomotion is to a great measure hindered, the disposition and mind are affected, and there is no part of the economy that may not suffer in course of time.

The happiness of the marriage relation, the domestic life of the family is often thus destroyed by these diseases, for the mother is quite incapacitated for the full performance of her duties. I cannot speak of the direct degeneracy of the race, which is undoubtedly produced by disease of the generative organs, for we have no statistics on the subject; the effect, however, of the general state of the mother's health on the early life of her offspring, I have already dwelt on. I have no time to enlarge upon this topic—I can but refer to it, and leave it to the serious consideration which it demands.

I shall only advert to one other physical evil, directly springing from the confinement and mental excitement of school education, viz., the state of nervous irritability which is thereby induced in young girls. The nerves of the young share the general susceptibility of the rapidly growing organization; and I have already shown, how important it is to call the nerves of motion into action, that they may counterbalance the undue activity of the nerves of sensation. Now not only do we entirely neglect to call the motor nerves into proper action, but the whole effect of school and in-door life is directly calculated to exalt the undue susceptibility of the sensitive nature.

A terrible example of this undue nervous susceptibility was afforded by the sad accident that so recently occurred in the Ninth Ward Common School of this city, the natural excitability of the children being heightened by artificial training, and producing on the occasion of an alarm of fire an uncontrollable panic, which ended in a fearful loss of life.

Presence of mind is seldom found amongst young girls, owing to the hysterical condition which is too commonly the result of this excited sensibility.

The life of the young lady, on leaving school, is little calculated to restore lost power, or to excite to a truer and healthier action by the presentation of nobler objects of interest. What is

there in fact presented to her, worthy of pursuit? School discipline has not prepared her for serious study; indeed, study without an object is of little worth, and she has no object in view for which grave preparation seems to her necessary. The oversight of domestic affairs does not particularly interest her; indeed, by the age of 16 or 17 she has learned all of household economy that she will learn at all, till called upon to practise it. There are few schemes of organized benevolence to attract youthful activity and kind-heartedness, and teach to the young mind a deeper and darker lesson of life than it has yet learned; and it is very seldom that the young can profitably engage in these enterprises. With the large mass of girls gossip and frivolous amusements become now the chief business of the day; they have had no serious preparation for life, they know nothing of its realities, its wants and duties; so the valuable moments are laughed and chatted away; every incident furnishes a theme for idle talk; church; society; promenades through the streets; all become subjects of gossip; novels are devoured to satisfy the new thoughts and desires that are springing up; parties, amusements of all kinds are eagerly sought for; the dictates of prudence, the requirements of bodily health, are alike disregarded; till at length the giddy career is cut short, by marriage.

But how little the young lady who thus

leaves her novels and parties, for the duties of wife and mother, understands of the responsibilities of the state upon which she now enters. Her life since leaving school has had no definite object; and a growing want of excitement, with some lively impression of her fancy which she mistakes for love, induce her to enter prematurely on the marriage state.

In America the large majority of marriages are made too early. A young lady is thought to be getting rather old at 20, but at 25 she is already an old maid; and yet, as a general rule, before the age of 25, she is not prepared to enter on the marriage relation; it is only from 20 to 25 that the body attains its full vigor; that every part having acquired its due solidity, becomes capable of employing all its functions without injury to the individual, and with full benefit to society. Before that age, the character is not sufficiently formed, nor the experience of society wide enough, to render the individual capable of selecting her proper partner. The first attraction of the young heart may be lasting, but the probabilities are against it, and in so momentous an action as the choice of a husband, a girlish fancy should never be yielded to, till the judgment of the womanly mind confirms the attraction. But on the subject of incompatibility of character, though productive of so much unhappiness, of so much vice, in the marriage relation, I shall not dwell; for it is the

physical condition which belongs especially to my subject. These early marriages exhaust the vital energy of the mother. The remarkable changes which child-bearing produces in the economy, require the energy of a strong constitution to sustain them adequately; and the care of children, the superintendence of a household, can only be supported by the vigor of a mature woman. Girls who are married too early are crushed by undue burdens. Their beauty quickly fades, they are afflicted by bodily weaknesses and disease, and become absorbed in the care of the household, which they are unable to rule with grace and dignity.

It has often been remarked that the tone of American society is given by the young, and there is much truth in the remark; for the married women who should be the great supporters, the attraction and guide of society, are oppressed by household cares even more than their husbands are overwhelmed by business, and thus the young and unmarried are placed in the position of leaders rather than learners.

Another great mistake is made by parents in regard to the marriage of their children, in the neglect of that consideration of their health, and physical temperament, which should be an especial study of parents. The health of offspring is so inevitably affected by the state of the father and mother, the hereditary transmission of many

maladies, is a fact so well established, that it is a criminal neglect of duty to shrink from the investigation of this subject for any cause whatsoever. The physical conditions most favorable to the production of a strong and beautiful race, are a most important subject of inquiry; the study is a noble one, and we should regard it with the reverence which its importance demands; and it should be considered just as criminal an act to unite individuals whose offspring will inevitably be diseased, as to take young children already in life and maim and weaken them with ingenious cruelty.

The peculiar mental temperaments of the parties should also be a subject of careful consideration. This is a matter of delicate perception, rather than a subject for reasoning; much of the happiness of married life depends upon this relation of temperaments. It is often thought that opposite characters make the best unions; but the rule seems to be rather unity in variety. It is not a very lively and a very grave person that will make the best partners, nor two very lively, or very grave tempers; between the former there will be no sympathy; between the latter an exciting or depressing identity. But in the true union there will be sympathy of general purpose, oneness of aspiration, with an attractive difference in the conduct of daily life, which shall make pleasant harmony, not discord, still less monotony.

The delicate shades of related temperaments

which make some unions so happy, can only be determined by the parties themselves; but in order to feel this relation, there must be some experience of society, some maturity of sentiment, and not the simple bewilderment of sensation, which often forms the chief characteristic of youthful fancies.

Now this system of premature marriage is, in a great measure, a consequence of the earlier education of the child; there is a perfect correspondence of idea in our regulations for the commencement and termination of youthful life. With us childhood is no preparation for youth, nor youth for maturity. There is a neglect of the order of development; the foundation is not laid by a preparation of the physical nature, and this system of premature endeavor is carried out through the entire youthful life. The child commences study too soon, and the youth leaves it off too soon; the young lady enters society at too early an age, marries prematurely, and becomes a mother when she should be preparing for the duties of wedded life.

We see too how in every age the necessity for varied action, the Law of Compound Movement is neglected; the school-girl attends exclusively to her studies, the young lady is absorbed in pleasure, the married woman has often no thought beyond her family. The rich harmonies of life, formed by blending together in orderly gradation the action of all our powers, are entirely lost by this system of exclusion; thus we have no society

worthy of the name, because the elements which should compose it are wanting; they are based on one idea, not universal; and society is consequently a monotony. There is no love of art, no worship of the beautiful, shedding a glory over the external life of society, purifying as well as delighting the senses: no beaming forth of intellect; no warmth of the heart, no cultivation of those natural graces which should make society a beautiful confluence of all that is noble and true and genial in human nature. In the society of to-day we see represented the poverty and exclusiveness which mark the occupations and employment of every period of the life of its members.

The Law of Use is equally laid aside through the various periods we are considering. It must necessarily be so, when the first step in education is made in the wrong direction, when, by commencing with the direct and exclusive cultivation of the mind, we invert the order of nature. By attempting to force upon early youth the objects of later youth, we neglect the true use of the period of childhood, and we take from the young girl who has left school, the object of pursuit, the thorough and profitable study that the mind is then prepared for. We force her into a life of frivolity and an early marriage, from sheer lack of noble objects, and to escape from the weariness of a useless life.

What a grandeur would those years of life

acquire—from 16 to 25—if they really were spent in preparation for the active duties of adult life, for the part which woman has to play,—as wife and mother, member of society, and human being. By the age of 16 or 17, under proper training, she would have acquired a strong, graceful and perfectly obedient body, her senses would be acute and truthful, and her powers accustomed to exercise themselves on objects appropriate to them, would be ready to receive the fullest extent of scientific training; she would speak fluently several languages, write a good hand, sketch with ease and correctness; sing with accuracy; for all these acquirements, and many others, would be necessarily obtained by pursuing a complete system of physical development.

The higher powers of the mind would be ready for orderly unfolding; the intellect would have acquired habits of truthfulness, being accustomed to comprehend fully whatever was presented to it; it would be eager for knowledge, for the keen appetite for information which naturally belongs to youth would not have been destroyed by unsuitable food. It would have laid in a store of facts and practical observations, gathered in many rambles in town and country, and from the conversation of intelligent instructors. And moreover, the religious nature would have grown to beautiful proportions, by that constant influence which should surround the young: she would have

learned to reverence every work of creation, and to worship the Creator as a constant presence; truth and love, and earnest work, would be the habits formed from every day's experience.

With this wide preparation of the youthful nature, the young girl on leaving school would find grand objects at once presented to her. The mind would now be ready for more direct education, and the studies of the mature intellect; she would arrange the facts gathered in earlier life, and learn their use and meaning; her tastes would now be formed, and she would be able to select those studies that would prove congenial to her, and which her individual talents would enable her to pursue with interest and success. But mental cultivation would by no means be the sole object of attention. She should learn to know life in its varied aspects; while cherishing the ideal of life in all its brightness, she should feel strongly and hopefully, that she has work to do in the world, to help realize that ideal. She should gradually enter into society, to learn, to feel, to know; and, in time, to take her place as its ornament and architect.

Years of noble usefulness would thus be opened to the young lady on her entrance into adult life; years of most valuable preparation, which would enable her to enter the married state wisely, and with the full preparation of a mature nature. She would know the partner whom she selected, as he

would not be mistaken in her. The highest physical and moral conditions for a happy union would be presented, and she would thus become wife and mother in the truest sense of those holy words.

Is such a result desirable? If it be so, we may be sure that we can accomplish it; for our higher aspirations are our best guides, and what we strongly, wisely, and perseveringly desire, we shall gradually achieve.

In studying the subject of education, we have distinctly recognized the great principles on which it should be based. We have seen also the way in which our present system of education is opposed to these principles; it now remains to lay down our plans in accordance with these laws, and to reconcile the necessities of our nature with the conditions of practical life.

It will therefore be my duty when we next meet, to furnish some practical suggestions on the subject of true education, and to consider in what way we may accomplish a desirable change in the present system; a gradual but complete reform.

REFORM.

It is often said that no historian can write the history of his own age; that the prejudices of personal interest and feeling will prevent him from understanding the true position of its various parties, and judging from an impartial point of view the real bearing of the events that pass before his eyes. There is much truth in this saying; it is difficult to free ourselves for a time from personal feeling; to rise above our own immediate interests, and view our present life in its relations to the past and future. The local interests which surround us absorb a great part of our attention; and our way of thinking, of living, of arranging our external relations, appears to us as the natural and necessary way. We all of us make a Chinese map of the world, in which our own special ideas and interests are spread out in fair proportions and bright colors over the paper, while the rest of humanity lies crowded into obscure corners. And there is doubtless a wise design in this tendency of the human mind, for concentration of interest is necessary to insure energetic action; and it is essential to the well-

being of the whole world, that every part, every town and village, shall be full of life, and strong in the conscious importance of its own affairs.

But when self-judgment is required, when we have reason to doubt the wisdom of some of our customs, customs in which we have been educated, and which consequently appear to us at the first glance a part of nature, we must lay aside this exclusive self-regard, and take a broader view of the world, compare our ways with those of other nations and former ages, and see if our cherished habits do not shrink into insignificance, or even assume the aspect of a temporary mistake.

Such is our position now, with regard to our systems of education. I have shown the great evils which result from them, particularly to girls; how disease is engendered, and the happiness and usefulness of after-life destroyed, by neglect of the physical organization, and premature culture of the mind; and I have traced this evil to its source, viz., the disregard of the Divine Laws of Life.

But we have been so long accustomed to the idea of daily life as it exists at present, having been sent to school ourselves, just as we now send our children, and knowing no other method of eating, dressing, living than our present one, that the severe judgment we have been compelled to pass upon our present system of bringing up children, may seem strange, notwithstanding the

truth on which it is based; and a change in this system may seem impossible. But there is no impossibility for those who see the right, and are determined to do it.

While pursuing my medical studies in London, in order to reach the hospital I was attending, I was forced daily to cross a portion of that time-honoured nuisance, Smithfield Cattle Market, then situated in the very centre of London. I once expressed my surprise to one of the intelligent members of the Faculty, that so cruel, dangerous, and unhealthy an arrangement should be permitted to exist in London. He replied, "We English are very conservative; this market is an immense nuisance—every body grumbles about it, and has always done so; but there is powerful moneyed interest concerned in its support; it is a part of London; and just as long as London exists, so long will Smithfield Market remain as it is!" Yet that very year a bill passed the Houses of Parliament for its removal. And so will it be with other objectionable arrangements, when an enlightened public sentiment is brought to bear upon them. Let it not be forgotten that many of the peculiarities which mark our educational system are of very modern date; our grandmothers were by no means educated as we were; all the habits of life were arranged on another plan; the very food they ate was in many respects different. Tea was only introduced into England in the

reign of Charles I.—sugar, spice, coffee, were then luxuries little used; the hot drinks, and stimulating food, which, as we have seen, affect so powerfully the stomach, the teeth, the nervous system, were not in use two centuries ago.

A knowledge of the general customs of education in other nations, will then furnish us with very important data for determining the evils of our present customs, enabling us to distinguish what is essential from what is simply accidental in our habits of life, and thus indicating the direction in which some wise change may be made. I shall therefore call your attention to certain facts in the history of those nations where the greatest care has been paid to education, and where the successful result makes the method pursued worthy of study.

I have already referred to education amongst the ancient Greeks. I now direct attention again to this subject, because we find amongst that people a remarkable degree of attention paid to those very points of education which we so singularly neglect, and it will be exceedingly interesting to notice the results which they obtained.

The most remarkable feature in Grecian education was their system of bodily exercises, which formed the foundation of all other training. The Greeks considered gymnastic exercises to be as necessary for the preservation of health, as medi-

cine is for the cure of diseases. The whole education of a Greek youth was divided into three parts—grammar, music (and some mention drawing and painting), and gymnastics. Gymnastics, however, were thought by the ancients a matter of such importance, that this part of education alone occupied as much time and attention as all the others put together. And while the former necessarily ceased at a certain period of life, gymnastics continued to be cultivated by persons of all ages, though those of advanced age naturally took lighter and less fatiguing exercises than boys and youths. The ancients, and more particularly the Greeks, seem to have been thoroughly convinced that the mind could not possibly be in a healthy state, unless the body was likewise in perfect health; and no means were thought, either by philosophers or physicians, to be more conducive to preserve or restore bodily health, than well-regulated exercise.

Gymnastic exercises amongst the Greeks were as old as the Greek nation itself. At first they were of a rude, and mostly of a warlike character. They were generally carried on in the open air, and in plains near a river, which afforded an opportunity of swimming and bathing. As the nation advanced in civilization, these exercises assumed a wider character; they were employed not only to harden the body for military purposes, but to give to its movements grace and beauty,

also to restore the health when lost, and to make soundness of body the basis of a sound mind; and large classes of men pursued these exercises as a profession, contending for the prizes at the public games.

At an early period in their history, the Greek towns began to build regular gymnasia as places of exercise for the young, furnished not only with baths and other appliances for the promotion of corporeal well-being, but also provided with the requisite conditions for the teaching of philosophers, and for the convenience of all persons who sought intellectual instruction or amusement. There was probably no Greek town of any importance which did not possess its gymnasium. Athens possessed three great gymnasia, to which several smaller ones were afterwards added. These buildings were all constructed on the same general plan; there were porches with seats for conversation; a large hall adorned with sculpture, and the statues of great men; hot and cold baths, covered squares for winter exercise, and open ones for milder weather, and walks for those who were not engaged in taking exercise. Much attention was paid to the outward and inward splendor of the gymnasia, the highest art of the age was employed to decorate them, and the statue of Hermes their tutelary deity, was everywhere conspicuous.

The gymnasia were under the control of the

State; their regulations were exceedingly strict, and violation of some of these was punished with death. The chief officer, or Gymnasiarch, exercised magisterial power over all persons connected with the institution. He removed all teachers, philosophers, and sophists, when their influence was injurious to the young. He superintended the solemn games at certain great festivals, his office was held in much esteem, and was sought for as a high honor.

Another class of officers was appointed to inspire the youths with a love of morality, and to protect their virtue from all injurious influences. These officers were required not only to be present at all the games, but to watch and correct their pupils wherever they might meet them, not only within, but without the gymnasium. There were also special teachers of exercise, who were required to understand all the exercises practised in the gymnasium, to know their physiological effects on the constitutions of the youths, and to assign to each individual the exercises most suitable to him. Other officers regulated the diet of the pupils, and acted as surgeons. There were sometimes special teachers of games at ball, for the ball was in universal favor amongst the Greeks, and was here, as at Rome, played in a variety of ways. It is both amusing and instructive, in these recorded games, to observe how human nature, 2000 years ago, resembled the nature of to-day; a resem-

blance which proves that the history of its activities should be no useless tradition to us. In one favorite game, a boy holding one end of a rope, tried to pull another boy, who held its other end, across a line, marked between them on the ground. In another game, a rope was drawn through the upper part of a tree or post, and two boys, one on each side of the post, turning their backs to each other, took hold each of one end of the rope, and tried to drag each other up to the tree. The top was as commonly in use amongst boys then, as in our day. We have too the game of five stones, which were thrown from the upper part of the hand, and caught in the palm. The description of these few games will serve to show the nature of gymnastic sports; we can but refer to the more important games, as jumping, leaping, running, throwing the discus, wrestling, dancing, &c.

The education of boys up to the age of 16 was divided into three parts mentioned above, gymnastics forming only one department; but during the period from their sixteenth to their eighteenth year, the instruction in grammar and music seems to have ceased, and gymnastics were exclusively pursued.

Such was the basis of education throughout Greece; but the laws of the Lacedemonians watched over it with still stricter care. Amongst them public education was common to rich and

poor. From the first moment of life, the child was an object of attention to the State. Even before birth, the mother's apartments were surrounded with pictures of youthful beauty, that these bright images might, through her organization, stamp her child with beauty. The infant's cradle was surrounded by warlike instruments, that they might become from the earliest moments a part of his life. The clothing allowed perfect freedom of movement to all its limbs; it was suffered to cry freely, but no harsh word was allowed to excite its tears or produce a feeling of terror. Until the age of seven, it grew up under the parental influence, permitted to play in freedom, taught to regard the kind of food given to it with indifference, accustomed by degrees to darkness and solitude, and ignorant of the feeling of fear. At the age of seven the State superintended the further education of the child. One of the chief men of the republic was placed at the head of the children; he separated them into classes, and to each class a young chief noted for wisdom and courage was appointed. The children obeyed his orders, and submitted to his chastisements and discipline; their hair was cut off, they learned to walk bare-footed, to wear a single garment summer and winter, to sleep on rushes, which they gathered on the banks of the Eurotas. They were never left alone; their exercises were performed under the eye of the aged, and the chief

officer of public education; their young chief was constantly at the head of each class when they engaged in combats, swam across the Eurotas, hunted, raced, or attended the exercises of the gymnasium in which they spent the greater part of the day. They supped on plain food, which they cooked themselves, the stronger carrying the wood, the weaker the vegetables and other food. After supper some were directed to sing, others were called upon to answer questions, thus indicating their intelligence and disposition—as, "Who is the honestest man in the city?" "What do you think of such an action?" The answer must be exact and to the point; those who failed in their replies were punished. Little literary education was given them, but they were taught to express themselves clearly, to join in the exercises of dancing and music, and to sing the praises of their gods, and the exploits of those who had died for their country. They were visited daily by magistrates who inspected their education and habits, and looked with special interest to see that they were not growing too fat. This last condition being considered an indication of laziness, unfortunate individuals who displayed a too great tendency to *enbonpoint*, were cited before the public tribunals and threatened with exile.

At the age of 18, the pupils were not released from the discipline of the schools, as in many

cities of Greece. Lycurgus wisely considering this to be a critical age, new exercises and labors were imposed, to delay the development of the passions, and the chiefs required from their pupils an increase of modesty, submission, temperance, and zeal. The singular spectacle was thus presented of a brilliant youth, in the pride of strength, courage, and manly beauty, behaving with the decency and reserve of the young maidens who served in the religious festivals.

This was not the result of external restraint, affecting simply the manners; their enthusiasm was enlisted in this reserve, by the emulation of rival classes, who excited each other to the love and practice of virtue according to their standard, by the glory of victory.

These bodies of young Spartans were subsequently spread over the country, exposed to various hardships, and were taught to attack wild boars and other savage beasts. They studied the aspect of the country, and the best method of defending it, and were instructed in the manœuvres of the military art.

The entire system of education in Sparta had a tendency to prevent premature marriage; an end which was considered essential to the welfare of the State. No union was permitted before the body had attained its perfect development, and the judgment was sufficiently matured to guide in the selection of a partner. It was also required

that the couple should join to the personal advantages of face and figure, and robust health, a suitability of temperament and disposition.

To secure these important conditions, the Spartan legislators were compelled to provide for the education of women; they had wisdom to perceive that the mothers of a strong race must be strong; and with this idea alone—not from any thought of individual right, which did not belong to the age—they arranged the most striking peculiarity of their system, the education of young girls.

In the Ionian State the women were separated from the men with oriental care. Confined in their own apartments, they spun and pursued various feminine arts; the young were strictly guarded, and excluded from festivals, and no woman, married or unmarried, was permitted to enter the gymnasium, or appear in the public games, on pain of death. But in Sparta the education of girls was conducted in public, and with a large freedom that was strictly regulated by law. The sedentary employments of Athenian girls were neglected. They were taught to dance, to sing, to wrestle, to run swiftly on the sands, to hurl the javelin. Their exercises were carried on in the presence of the kings, magistrates, and citizens; they assisted in the public festivals, and were encouraged to distribute praise or blame to the youths, who often exercised in their presence. Spending the greater part of the day in active

and often laborious movements, a dress that should allow perfect freedom to the body, was absolutely necessary. They wore no veils or covering on their head; their dress ordinarily consisted of a single garment, light, without sleeves, attached by clasps over the shoulder, and raised above the knee by the belt.

The Spartan legislator had a double motive in these regulations; he not only sought to render the young women vigorous in health, but, by thus freely educating them in public, bringing them frequently into the society of the young men in active occupations, he removed from them that mystery produced by concealment, which tends to foster the passions that he endeavoured to repress; and establishing between the sexes a unity of virtue, he laid a foundation of mutual esteem, which should prove the surest basis of a warmer sentiment.

The Spartan women were long remarkable for the purity and dignity of their manners. They were tall, strong, and vigorously healthy; nearly all were beautiful, of a lofty, imposing style of beauty. Their dress after marriage consisted of a short tunic and a robe which descended to the heel. They were veiled when they went abroad, and no longer visited the gymnasia. Their time was devoted to the early education of their children; the whole management of the slaves and household concerns rested on them; they dis-

cussed the affairs of state with their husbands, and their counsel was greatly respected. In Sparta it was disgraceful to remain unmarried, and the marriage union was observed with remarkable fidelity; and even when the earlier purity of Spartan manners had disappeared, the Spartan women stood high above the rest of the Grecian nations in their attachment to their duties. Their lofty character and the position which they long maintained is shown in the proud answer of the wife of King Leonidas to a foreigner, who once exclaimed, "You are the only women who can maintain an ascendency over men!" She replied, "Undoubtedly, for we are the only women who bring men into the world."

I have dwelt somewhat in detail on the systems of education in Greece, because Greece stood first amongst the nations of antiquity in physical and mental development; the highest in every kind of excellence, according to the standard which then existed in the world. In examining the means by which this condition was reached, we remark particularly the following points—1st, the physical discipline of the young was considered the basis of all education. 2. This physical training was not limited to a portion of the day, or to any single part of the organization, but beginning with early childhood, it was continued constantly to the period of confirmed manhood, and comprised dress, food, bathing, the air

breathed, the habits of life, as well as exercise in its various branches. 3. The instruction given in mental cultivation, never interfered with the fullest attention to the use of these physical agents; thus the beautiful groves, and the lofty halls adorned with objects of sublime art, in which instruction was carried on, could in no way injure the organic health of the body, while they refined the senses by the ennobling influences of Nature and Art. 4. The moral and religious welfare of the young was carefully attended to. They were heathen nations; their religion was not ours; but what seemed to them the highest virtue, was carefully instilled into the minds of their children, not so much by direct teaching as by the influences which surrounded them, the careful oversight of all their actions, the hymns they learned to sing, the ornaments of their edifices, the conversations they listened to, the religious ceremonials in which they assisted, and the whole spirit of society. 5. This system of education based upon physical development, was applied with remarkable advantage to their young girls; the superiority of the women thus educated was displayed with singular success, in every respect; they were more faithful wives, stronger mothers, wiser domestic rulers, more patriotic citizens, and nobler human beings, than the women who were educated in sedentary and secluded pursuits. 6. This long and complete physical training, favored

in a remarkable degree a brilliant mental growth, for they stand unrivalled in antiquity, as philosophers, poets, artists, men of science, and men of action; nay, with all the added wisdom of nearly 2000 years, we still bow reverently before the creations of their genius!

We find amongst the Romans the same attention paid to the strengthening and full development of the body in early life, the mental culture being deferred to a maturer age. With them however the education had a more exclusively warlike tendency; the system of public gymnasia did not exist, and their method of training was narrower in its aim, and less perfect in its details.

As Europe became fully peopled, the history of the northern and southern nations presents a striking contrast in relation to the life of the women of those nations. We find amongst the former a state of comparative freedom, physical strength and activity, and much rude virtue; whilst in the south we behold the seclusion of the harem, the guardianship of high walls, and bolts, and veils, sedentary pursuits and effeminate education, and a society utterly corrupt, with no standard of virtue, but giving the rein to all the lower passions of human nature. We cannot separate the body and soul; the health of one must, as a general rule, be based upon the other; fresh air and exercise are singularly conducive to virtue, as well as

to health, and we see this to be quite as true for women as men. In the free life of the Scandinavians—the country life, where the women lived much in the open air, not drudging in the fields, as in modern Germany, but superintending the rude agricultural labors of the bondsmen—they were courageous, truthful, chaste, and religious, and were often consulted as oracles by their countrymen.

Contrast with them the pictures of harem life, given by modern observers in the East, and we shall find the women a by-word for meanness, and licentiousness, and falsehood; the one virtue of the Mohammedans,—regard for their word,—is utterly unknown to the Mohammedan women.

Throughout the nations of modern Europe we find an entire neglect of physical training in the education of women, and the varied evils which result from this neglect; but there is no nation in the world, where so earnest an attempt to cultivate the mind is coupled with so complete a neglect of all the physical necessities of the child, as in the United States; and nowhere is the health of the women so weak,—a weakness which is on the increase.

In England the intellectual education of the young lady embraces as wide a range, and is carried out with much more thoroughness of detail, and yet the health of English women is much stronger than that of American women.

Now though the education in England is as fundamentally wrong as in America, though the true order of development is neglected, and the training is in a great measure objectless, and of no use in aiding the real business of life, it will still be useful to call your attention to those differences which favor the physical health of the English, that we may realize more fully the extreme folly, the madness of the customs which prevail here. The system of home education is much more common than in this country; conducted at first by a governess, and afterwards with the aid of masters at home. The injurious crowding of large masses of children is thus so far avoided, and the great stimulus to mental exertion, the emulation of a large school, is not applied. Rambles in the open air are more frequently taken; the pleasant fields in the vicinity of smaller towns, and the extensive parks in the larger ones, furnish the opportunity for attractive walks, and the pleasant recollection of the natural wonders which those walks disclosed, often remains through life. The food given to children is much simpler. A basin of bread and milk often constitutes the breakfast and supper of the child for years, from which it advances to the dignity of bread and butter and weak tea; good meat and vegetables supply the rest of the food, and form the wholesome nourishment of rosy, healthy childhood.

Amongst the so-called higher classes the posses-

sion of extensive and beautiful country-seats favors the employment of special exercises, as riding and archery, and aids greatly in producing that superior physical development, for which the English aristocracy are noted.

Another favoring circumstance to the health of the young, is the longer period of time allotted to education, and which consequently removes the imagined necessity for that overloading of studies from which American children suffer. Marriages are formed later in life; and the double advantage of prolonged youth, and of a stronger constitution to meet the requirements of maternity are thus secured. The English method of warming the houses by means of open fire-places, is decidedly more healthy than the use of stoves; this advantage is due, in some measure, to a milder climate, but a similar effect may be obtained in our severer weather, by a thorough ventilation of the houses, and the production of a more moderate heat by the furnaces.

Thus by a combination of circumstances, each one of which may seem a small thing in itself, but which, united, produce a powerful effect on the daily life of the young, the physical health of the English women reaches a higher point than is common in this country; and I attribute this superiority to these differences of habit, for we find in the large boarding-schools of England, and amongst those classes by whom these simple

healthy habits are not observed, the same physical degeneracy, the same host of named and unnamed diseases, that is increasing in so alarming a degree amongst us.

Thus we find that the history of all ages and nations confirms, by the lesson of their practical experience, those great principles which have been laid down in these lectures; and that daily life, to be wise and good, must be the working out, in detail, of the universal laws which we have been considering. All the powers of our nature must be developed by exercise, but this development must be effected in the true order of growth; the double movement of body and soul must always be maintained, but with varying predominance according to age; and every moment, every action, must have an object, a special, and a universal use.

Such are the lessons we learn, alike from the teaching of reason, and the observation of life; and by our neglect of these principles we learn the cause of our present failure in the attainment of health; of health in the widest sense of that word.

Let us consider then in what way we can so far modify the education of the young, that it may be in accordance with those Divine laws which we now violate. A momentous question; but one which we have done much to answer, however, in arriving at a clear understanding of the evil,

which will serve to show us in what direction our efforts must be turned. In considering this question still farther, let me say a few words in relation to this important point—Physical Exercise—which, as we have seen, must play so prominent a part in true education.

Exercise, to perform its true work in the education of youth must be scientific; that is to say, its practice must be based on principles, and it must accomplish definite ends, by intelligent means; for there is as much difference between thinking and unthinking muscular action, as between the idle jingling of tunes on the piano, by a person of uncultivated musical ear, and the magnificent effects produced by an accomplished musician, who, expressing every faculty of his soul through his instrument, is able to carry his audience with him through the wide range of passion and sentiment.

Savage nations gain health and strength by their untutored activity, but they remain brutal and degraded, gaining no mental refinement by their exercises; they are always surpassed by civilized man when he turns his attention to these subjects, as we learn that the Mormons, while on their long western journey through the wilderness, always triumphed over their Indian antagonists in every encounter of force or skill, in running, leaping, wrestling, &c. For scientific exercise trains the mind and the character; it may even be moral

and intellectual in its action, for the faculties of order, precision, calculation, self-command, decision, energy, &c., are called into intelligent action through muscular exercise; and by the combination of the senses with special adaptations of the muscles, a wide range of culture is opened to youth, which will embrace almost every instruction suitable to that age.

We are indebted to the Swedish poet and philosopher, Ling, for the noblest development of the subject of exercise which we have yet had; a student of the old Greek gymnasts, a descendant of the warlike Norsemen, surrounded by the traditions of their strength, their matchless feats of physical power, and the virtues that underlay their ferocity, he longed to introduce into our effeminate manners a little of the wholesome physical energy, which seemed to have vanished with the old vikings. Thus he developed his admirable system of Gymnastics in its various branches; he saw it adopted by his native country, taken under the protection of the government, introduced into the army, into medicine, and into education; and he left it as a precious legacy to future ages, and to more detailed development and adaptation by his successors. To the zeal of his intelligent disciple, Prof. Georgii, we owe the introduction of this system amongst the Anglo-Saxon race. He has been for nearly three years engaged in establishing the medical department of gymnastics in London,

with the full purpose of instituting a central gymnasium, such as exists in Stockholm, for the cultivation of all the branches of gymnastic art, as soon as the support of public sentiment will justify him in the undertaking.

The system of Ling is an attempt to restore education to its true basis, and to attain the due balance between the physical and spiritual natures. It is not an effort to revive the heathen education of Greece, nor the fierce customs of the Norsemen, but to adapt to the customs of our advanced civilization, the principle of the vigorous life which existed in those nations; to combine their physical energy with the mental energy of the nineteenth century, and with the purity and holiness of the Christian.

In accordance with his views, as a first step in direct physical education, the will must obtain perfect control over all the muscles. You will remember the immense number of muscles in the human body, with the infinite variety of combinations of which they are capable. The ordinary exercise of walking and domestic occupations, does not bring the majority of these muscles into active play; we need, then, special movements, which shall call out their activities, and thus strengthen every muscle and place it under the control of our will. Much physiological knowledge is needed in the direction of these movements, that there may be no violation of the laws of our economy, but

that true movements may be produced in a true way. Without this knowledge, gymnastic movements may become injurious, and even dangerous; for not only may the muscles be injured by an attempt to perform movements for which they are not adapted, but their action may be falsified by incorrect and slovenly execution.

The muscles having been trained to strength and obedience, will be employed in overcoming resistances, active or passive, as in wrestling, throwing, lifting weights, climbing, swimming, &c., in establishing harmony between themselves and external objects, as in fencing, riding, &c., where unity of action must exist between the individual and the weapon, or the animal; or they will be employed to express sentiments, and adapt themselves to the senses, as in declamation, pantomime, dances, singing.

Ling divides his system into four branches: 1st. The Pedagogic, by which the body is subjected to the will, and unity of action established between different parts of the body; 2d. The Military, in which the individual subjects another will to his, either by his own power, or by the aid of instruments, establishing unity of action between the body and weapon, in relation to the body and weapon of his adversary; 3d. The Medical, in which the unity of action between different parts of the body, which was lost by disease, is restored; 4th. The Æsthetic, in which ideas and sentiments

are expressed by movements and attitudes; a unity established between soul and body.

Ling regards the age of seven years as the right period for commencing gymnastic instructions; two or three hundred pupils go through their exercises together; they are divided into classes of twelve or fourteen, according to age, temperament, aptitude and strength. Each class is directed by a pupil-monitor, who superintends the execution of the movements appointed by the master, who directs the whole.

These movements are various, adapted to special ends, and always based on physiological knowledge. The employment of apparatus is of secondary importance. The human body being the most perfect of all instruments, the apparatus required is very simple. Its employment is of secondary importance, and it is only used in order to obtain fixed points for the execution of certain exercises.

While these movements are executed with the utmost precision,—the perfect performance of every movement being enforced with rigorous exactitude—gaiety is encouraged amongst the pupils. Ling remarks in his General Treatise, "Joy and peace are produced by the harmony which exists between all the faculties of the soul, and all the powers of the body; therefore, as this is the object of gymnastics, this sentiment should have a large share in the exercises, good order

regulating its manifestations." The health being thus strengthened by the physical education, which keeps pace with the moral and intellectual discipline, about the thirteenth or fourteenth year, a wider sphere is opened to the pupils by the addition of the military and æsthetic branches.

Such, though in very general terms, is the idea which Ling, after forty years of patient endeavor, established in a practical form in his native country, and which is attracting much attention in Europe, and is being gradually introduced among other nations. It is an idea of great value. We need a rational system of gymnastic training; not to supersede country rambles and the healthful society of natural objects, but to form the basis of a sound education, to insure the perfect development of the body, and to furnish to the youth of cities, the rational and attractive exercise which they need.

We must distinctly remember that the object of education is not to pour a certain amount of technical knowledge which we call grammar, mathematics, philosophy, &c., into the minds of children, but to strengthen all their faculties, to give them command of their own bodies and souls, that they may, as life opens before them, be able to employ their powers for useful ends. Until a girl is sixteen, it is much more important that she should possess a healthy body, an honest, loving heart, good sense and a clear intellect, than that

she should be able to answer questions on every science, play tolerably on the piano, speak French and embroider, if these acquisitions are to necessitate physical and mental weakness in after life. It is of much greater importance to her, that she should possess a strong, straight back, good digestion, a cheerful temperament, a body that can move with vigor and grace, organs that perform their functions healthily; that she should be truthful, kind, earnest, and active; that her intellect should have acquired habits of observation and order, power of comprehension, and energetic application. If she have gained these qualities, this strength of faculty, by the age of sixteen, it matters little that she is not versed in the technicalities of learning, or that she is unable to display her accomplishments; she will soon acquire the learning taught in schools, and the ornaments of elegant life, with a completeness and a grace that can never be attained by too early training. Her powers will all be strong, and she will know how to use them; this is the great point, and this is not gained by our ordinary methods of education.

What then must be done in order to save the rising generation from the physical weakness and disease, with their attendant evils, which prevail so widely in the present generation, and which are rapidly increasing?

I answer, 1st. The domestic habits of our households must be changed for children; their food,

dress, sleeping apartments, and hours for rising and retiring, must be regulated with scrupulous regard for their physical welfare, and according to the principles so often laid down in these lectures.

2d. The system of school discipline must be essentially modified. The period of life from the age of seven to sixteen, being regarded as the special season of physical growth, the bodily development must be considered as the basis of all true education; we must cease to force the learning of a later period upon the youthful mind. A system of scientific gymnastic training should be adopted; every kind of active sport encouraged, and the accomplishments of riding, dancing, singing, swimming, archery, &c., should be taught as widely as possible; the moral and religious nature should be educated by the intercourse and influences of every day. Intellectual habits should be carefully formed by conversational training, and studies suitable to this age. These studies should be such as require the aid of the senses; writing, drawing, the study of charts and maps, the living languages and a variety of other subjects, might be employed to advantage. Frequent expeditions should be made into the country or to the sea-side, where, in direct intercourse with nature, and in conversation with its teacher, the child would learn with the utmost avidity and happiness. For such expeditions this city enjoys rare advantages; an hour's journey by steamboat

or omnibus would bring the children into the midst of the magnificent country which borders the Hudson, or spread them along the shores of the Atlantic.

The paramount importance of physical development should never be lost sight of in any arrangements for the education of the young. No pursuit should place the child under unfavorable conditions of position, atmosphere, &c., and direct physical exercise should constantly terminate the short periods of mental application. Lofty, well ventilated halls, and a large piece of ground partly shaded by trees, should be essential elements of every establishment for education.

Such changes could easily be introduced into schools. It only needs that public opinion should be roused to the necessity of an ample provision for the physical education of the young; that mothers should lay to heart the immense mischief that is done to their daughters by neglecting the body and overtasking the mind, and that they should resolve, as a duty of primary importance, to ensure for them a strong physical organization. When public sentiment shall thus demand the conditions of a sound and true education, its wants will soon be met by the establishment of the necessary institutions, and intelligent teachers will gladly welcome the change, for they clearly perceive the evils of the present system, though they are unable, alone, of themselves, to remedy them.

I cannot now enlarge on the condition, wants

and duties of the young lady, who has left school, nor on the many evils of adult life; for the plan of the present lectures is limited to a consideration of the physical necessities of girlhood.

I will only in closing most earnestly entreat you as wise mothers, as responsible human beings, to be faithful to the trust committed to you, as the educators of the young, and to remember the one great truth, which I have constantly endeavored to enforce, viz., that there is a Divine Order of Growth appointed for the human being, which we dare not neglect without violating our duty as parents and as Christians; a Divine Order which, if we observe faithfully through every period of life, will bring health and beauty, and happiness amongst us. Glorious indeed is the duty confided to mothers; the duty of training to perfection, to the ideal of our human nature, the young beings committed to their care; a most sacred duty, to be accomplished with religious devotion, and the deepest sense of responsibility. In this spirit let us meet the trust committed to us as women, and we shall then see our children growing up around us in strength and grace, and fulfilling in after life the promise of their childhood. The beauty of Adam and Eve will then no longer be a tradition, for the Divine Image shall again be stamped upon our race.

THE END.

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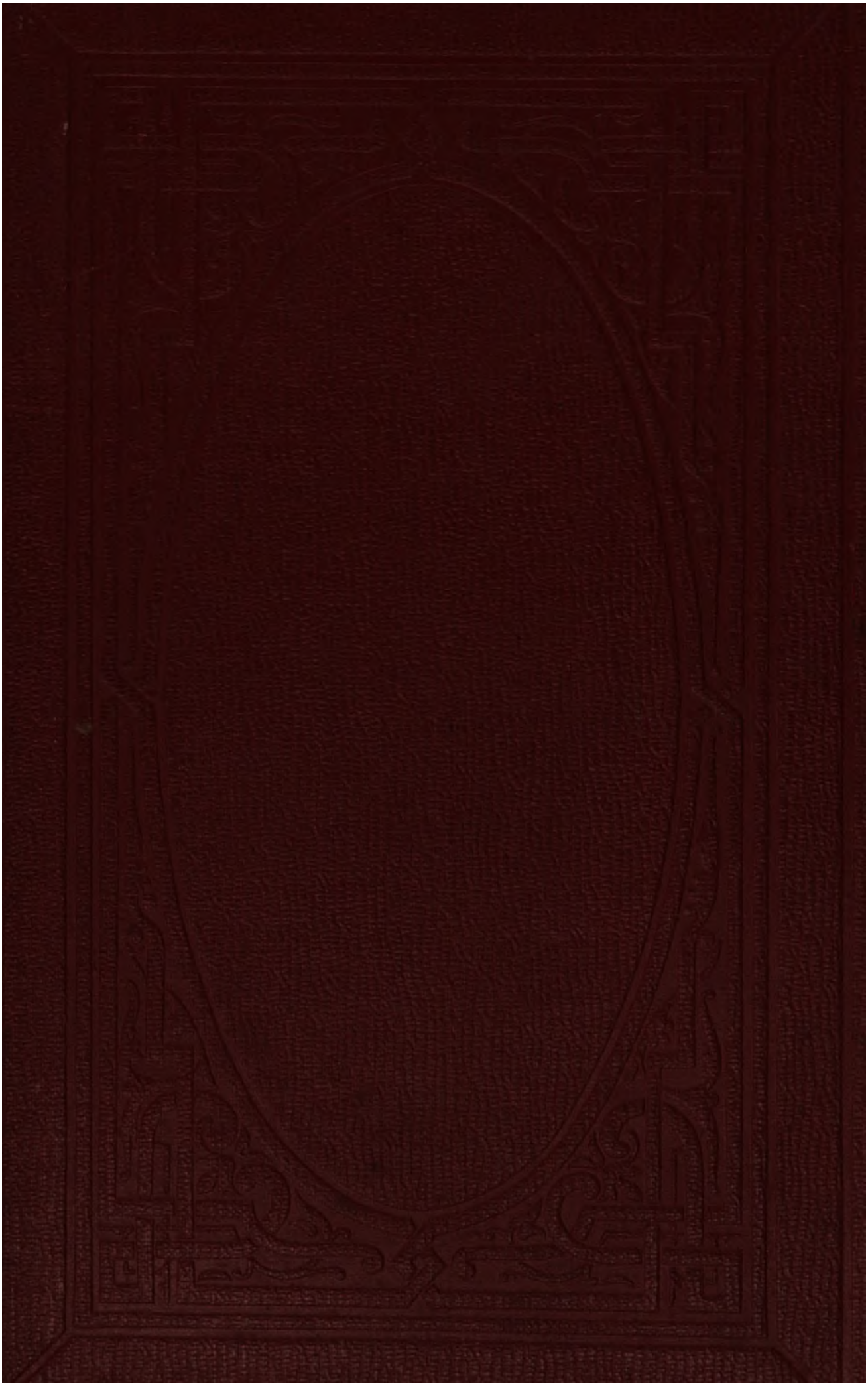
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