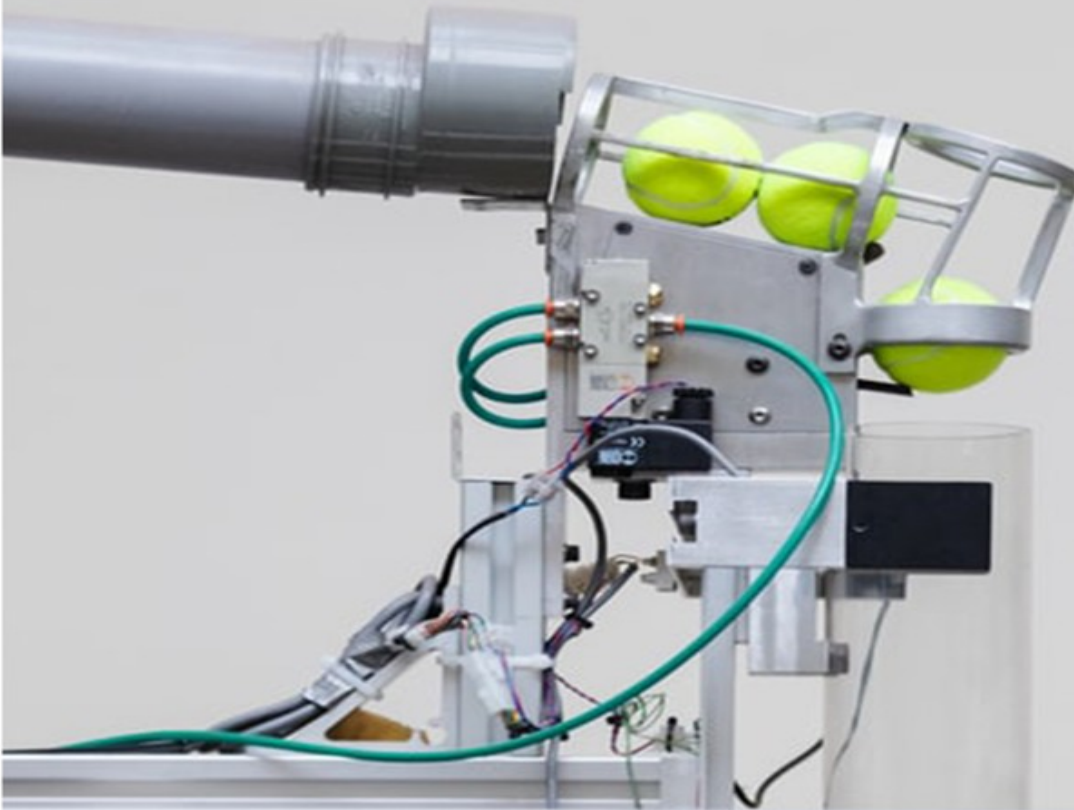


***THOMAS HENRY  
HUXLEY***



***APHORISMS AND  
REFLECTIONS  
FROM THE WORKS  
OF T. H. HUXLEY***

**Thomas Henry Huxley**

# **Aphorisms and Reflections from the works of T. H. Huxley**

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## **PREFACE**

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Although a man by his works and personality shall have made his mark upon the age he lives in, yet when he has passed away and his influence with him, the next generation, and still more the succeeding one, will know little of this work, of his ideals and of the goal he strove to win, although for the student his scientific work may always live.

Thomas Henry Huxley may come to be remembered by the public merely as the man who held that we were descended from the ape, or as the apostle of Darwinism, or as the man who worsted Bishop Wilberforce at Oxford.

To prevent such limitation, and to afford more intimate and valuable reasons for remembrance of this man of science and lover of his fellow-men, I have gathered together passages, on widely differing themes, from the nine volumes of his "Essays," from his "Scientific Memoirs" and his "Letters," to be published in a small volume, complete in itself and of a size that can be carried in the pocket.

Some of the passages were picked out for their philosophy, some for their moral guidances, some for their scientific exposition of natural facts, or for their insight into social questions; others for their charms of imagination or genial humour, and many—not the least—for their pure beauty of lucid English writing.

In so much wealth of material it was difficult to restrict the gathering.

My great wish is that this small book, by the easy method of its contents, may attract the attention of those persons who are yet unacquainted with my husband's writings; of the men and women of leisure, who, although they may have heard of the "Essays," do not care to work their way through the nine volumes; of others who would like to read them, but who have either no time to do so or coin wherewith to buy them. More especially do I hope that these selections may attract the attention of the working man, whose cause my husband so ardently espoused, and to whom he was the first to reveal, by his free lectures, the loveliness of Nature, the many rainbow-coloured rays of science, and to show forth to his listeners how all these glorious rays unite in the one pure white light of holy truth.

I am most grateful to our son Leonard Huxley for weeding out the overgrowth of my extracts, for indexing the text of the book and seeing it through the press for me.

HODESLEA, EASTBOURNE,  
*June 29th, 1907.*

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## **APHORISMS AND REFLECTIONS**

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I

There is no alleviation for the sufferings of mankind except veracity of thought and of action, and the resolute facing of the world as it is when the garment of make-believe by which pious hands have hidden its uglier features is stripped off.

## II

Natural knowledge, seeking to satisfy natural wants, has found the ideas which can alone still spiritual cravings. I say that natural knowledge, in desiring to ascertain the laws of comfort, has been driven to discover those of conduct, and to lay the foundations of a new morality.

## III

The improver of natural knowledge absolutely refuses to acknowledge authority, as such. For him, scepticism is the highest of duties; blind faith the one unpardonable sin.

## IV

The man of science has learned to believe in justification, not by faith, but by verification.

## V

No delusion is greater than the notion that method and industry can make up for lack of motherwit, either in science or in practical life.

## VI

Nothing great in science has ever been done by men, whatever their powers, in whom the divine afflatus of the truth-seeker was wanting.

## VII

In science, as in art, and, as I believe, in every other sphere of human activity, there may be wisdom in a multitude of counsellors, but it is only in one or two of them.

## VIII

Nothing can be more incorrect than the assumption one sometimes meets with, that physics has one method, chemistry another, and biology a third.

## IX

Anyone who is practically acquainted with scientific work is aware that those who refuse to go beyond fact, rarely get as far as fact; and anyone who has studied the history of science knows that almost every great step therein has been made by the "anticipation of Nature."

X

There are three great products of our time.... One of these is that doctrine concerning the constitution of matter which, for want of a better name, I will call "molecular"; the second is the doctrine of the conservation of energy; the third is the doctrine of evolution.

XI

M. Comte's philosophy, in practice, might be compendiously described as Catholicism *minus* Christianity.

XII

Fact I know; and Law I know; but what is this Necessity, save an empty shadow of my own mind's throwing?

XIII

We live in a world which is full of misery and ignorance, and the plain duty of each and all of us is to try to make the little corner he can influence somewhat less miserable and somewhat less ignorant than it was before he entered it.

XIV

The man of science, who, forgetting the limits of philosophical inquiry, slides from these formulæ and symbols into what is commonly understood by materialism, seems to me to place himself on a level with the mathematician, who should mistake the *x*'s and *y*'s with which he works his problems for real entities—and with this further disadvantage, as compared with the mathematician,

that the blunders of the latter are of no practical consequence, while the errors of systematic materialism may paralyse the energies and destroy the beauty of a life.

#### XV

There are some men who are counted great because they represent the actuality of their own age, and mirror it as it is. Such an one was Voltaire, of whom it was epigrammatically said, "he expressed everybody's thoughts better than anybody." But there are other men who attain greatness because they embody the potentiality of their own day, and magically reflect the future. They express the thoughts which will be everybody's two or three centuries after them. Such an one was Descartes.

#### XVI

"Learn what is true, in order to do what is right," is the summing up of the whole duty of man, for all who are unable to satisfy their mental hunger with the east wind of authority.

#### XVII

When I say that Descartes consecrated doubt, you must remember that it was that sort of doubt which Goethe has called "the active scepticism, whose whole aim is to conquer itself"; and not that other sort which is born of flippancy and ignorance, and whose aim is only to perpetuate itself, as an excuse for idleness and indifference.

#### XVIII

What, then, is certain?... Why, the fact that the thought, the present consciousness, exists. Our thoughts may be delusive, but they cannot be fictitious. As thoughts, they are



real and existent, and the cleverest deceiver cannot make them otherwise.

XIX

Thought is existence. More than that, so far as we are concerned, existence is thought, all our conceptions of existence being some kind or other of thought.

XX

It is enough for all the practical purposes of human existence if we find that our trust in the representations of consciousness is verified by results; and that, by their help, we are enabled "to walk sure-footedly in this life."

XXI

It is because the body is a machine that education is possible. Education is the formation of habits, a superinducing of an artificial organisation upon the natural organisation of the body; so that acts, which at first required a conscious effort, eventually became unconscious and mechanical.

XXII

I protest that if some great Power would agree to make me always think what is true and do what is right, on condition of being turned into a sort of clock and wound up every morning before I got out of bed, I should instantly close with the offer.

XXIII

The only freedom I care about is the freedom to do right; the freedom to do wrong I am ready to part with on the cheapest terms to anyone who will take it of me.

XXIV

Whatever evil voices may rage, Science, secure among the powers that are eternal, will do her work and be blessed.

XXV

There is assuredly no more effectual method of clearing up one's own mind on any subject than by talking it over, so to speak, with men of real power and grasp, who have considered it from a totally different point of view.

XXVI

The parallax of time helps us to the true position of a conception, as the parallax of space helps us to that of a star.

XXVII

[If animals are conscious automata with souls] the soul stands related to the body as the bell of a clock to the works, and consciousness answers to the sound which the bell gives out when it is struck.

XXVIII

Logical consequences are the scarecrows of fools and the beacons of wise men.

XXIX

The only question which any wise man can ask himself, and which any honest man will ask himself, is whether a doctrine is true or false.

XXX

Of all the senseless babble I have ever had occasion to read, the demonstrations of these philosophers who undertake to tell us all about the nature of God would be the worst, if they were not surpassed by the still greater absurdities of the philosophers who try to prove that there is no God.

XXXI

That which is to be lamented, I fancy, is not that society should do its utmost to help capacity to ascend from the lower strata to the higher, but that it has no machinery by which to facilitate the descent of incapacity from the higher strata to the lower.

XXXII

Time, whose tooth gnaws away everything else, is powerless against truth.

XXXIII

Misery is a match that never goes out.

XXXIV

Genius as an explosive power beats gunpowder hollow; and if knowledge, which should give that power guidance, is wanting, the chances are not small that the rocket will simply run amuck among friends and foes.

XXXV

Thoughtfulness for others, generosity, modesty, and self-respect, are the qualities which make a real gentleman, or lady, as distinguished from the veneered article which commonly goes by that name.

XXXVI

The higher the state of civilisation, the more completely do the actions of one member of the social body influence all the rest, and the less possible is it for any one man to do a wrong thing without interfering, more or less, with the freedom of all his fellow-citizens.

XXXVII

I take it that the good of mankind means the attainment, by every man, of all the happiness which he can enjoy

without diminishing the happiness of his fellow men.

#### XXXVIII

Education promotes peace by teaching men the realities of life and the obligations which are involved in the very existence of society; it promotes intellectual development, not only by training the individual intellect, but by sifting out from the masses of ordinary or inferior capacities, those who are competent to increase the general welfare by occupying higher positions; and, lastly, it promotes morality and refinement, by teaching men to discipline themselves, and by leading them to see that the highest, as it is the only permanent, content is to be attained, not by grovelling in the rank and steaming valleys of sense, but by continual striving towards those high peaks, where, resting in eternal calm, reason discerns the undefined but bright ideal of the highest Good—"a cloud by day, a pillar of fire by night."

#### XXXIX

Missionaries, whether of philosophy or of religion, rarely make rapid way, unless their preachings fall in with the prepossessions of the multitude of shallow thinkers, or can be made to serve as a stalking-horse for the promotion of the practical aims of the still larger multitude, who do not profess to think much, but are quite certain they want a great deal.

#### XL

Proclaim human equality as loudly as you like, Witless will serve his brother.

#### XLI

There is no sea more dangerous than the ocean of practical politics—none in which there is more need of good

pilotage and of a single, unfaltering purpose when the waves rise high.

#### XLII

The doctrine that all men are, in any sense, or have been, at any time, free and equal, is an utterly baseless fiction.

#### XLIII

For the welfare of society, as for that of individual men, it is surely essential that there should be a statute of limitations in respect of the consequences of wrong-doing.

#### XLIV

"Musst immer thun wie neu geboren" is the best of all maxims for the guidance of the life of States, no less than of individuals.

#### XLV

The population question is the real riddle of the sphinx, to which no political Œdipus has as yet found the answer. In view of the ravages of the terrible monster, over-multiplication, all other riddles sink into insignificance.

#### XLVI

The "Law of Nature" is not a command to do, or to refrain from doing, anything. It contains, in reality, nothing but a statement of that which a given being tends to do under the circumstances of its existence; and which, in the case of a living and sensitive being, it is necessitated to do, if it is to escape certain kinds of disability, pain, and ultimate dissolution.

#### XLVII

Probably none of the political delusions which have sprung from the "natural rights" doctrine has been more

mischievous than the assertion that all men have a natural right to freedom, and that those who willingly submit to any restriction of this freedom, beyond the point determined by the deductions of *a priori* philosophers, deserve the title of slave. But to my mind, this delusion is incomprehensible except as the result of the error of confounding natural with moral rights.

#### XLVIII

The very existence of society depends on the fact that every member of it tacitly admits that he is not the exclusive possessor of himself, and that he admits the claim of the polity of which he forms a part, to act, to some extent, as his master.

#### XLIX

Surely there is a time to submit to guidance and a time to take one's own way at all hazards.

#### L

Individualism, pushed to anarchy, in the family is as ill-founded theoretically and as mischievous practically as it is in the State; while extreme regimentation is a certain means of either destroying self-reliance or of maddening to rebellion.

#### LI

A man in his development runs for a little while parallel with, though never passing through, the form of the meanest worm, then travels for a space beside the fish, then journeys along with the bird and the reptile for his fellow travellers; and only at last, after a brief companionship with the highest of the four-footed and four-handed world, rises into the dignity of pure manhood.

## LII

Not only does every animal live at the expense of some other animal or plant, but the very plants are at war.... The individuals of a species are like the crew of a foundered ship, and none but good swimmers have a chance of reaching the land.

## LIII

When we know that living things are formed of the same elements as the inorganic world, that they act and react upon it, bound by a thousand ties of natural piety, is it probable, nay is it possible, that they, and they alone, should have no order in their seeming disorder, no unity in their seeming multiplicity, should suffer no explanation by the discovery of some central and sublime law of mutual connection?

## LIV

The student of Nature wonders the more and is astonished the less, the more conversant he becomes with her operations; but of all the perennial miracles she offers to his inspection, perhaps the most worthy of admiration is the development of a plant or of an animal from its embryo.

## LV

Matter and force are the two names of the one artist who fashions the living as well as the lifeless.

## LVI

There is not throughout Nature a law of wider application than this, that a body impelled by two forces takes the direction of their resultant.

## LVII

Orthodoxy is the Bourbon of the world of thought. It learns not, neither can it forget.

LVIII

Who shall number the patient and earnest seekers after truth, from the days of Galileo until now, whose lives have been embittered and their good name blasted by the mistaken zeal of Bibliolaters? Who shall count the host of weaker men whose sense of truth has been destroyed in the effort to harmonise impossibilities—whose life has been wasted in the attempt to force the generous new wine of Science into the old bottles of Judaism, compelled by the outcry of the same strong party?

LIX

When Astronomy was young "the morning stars sang together for joy," and the planets were guided in their courses by celestial hands. Now, the harmony of the stars has resolved itself into gravitation according to the inverse squares of the distances, and the orbits of the planets are deducible from the laws of the forces which allow a schoolboy's stone to break a window.

LX

The lightning was the angel of the Lord; but it has pleased Providence, in these modern times, that science should make it the humble messenger of man, and we know that every flash that shimmers about the horizon on a summer's evening is determined by ascertainable conditions, and that its direction and brightness might, if our knowledge of these were great enough, have been calculated.

LXI



Why should the souls [of philosophers] be deeply vexed? The majesty of Fact is on their side, and the elemental forces of Nature are working for them. Not a star comes to the meridian at its calculated time but testifies to the justice of their methods—their beliefs are "one with the falling rain and with the growing corn." By doubt they are established, and open inquiry is their bosom friend.

LXII

Harmonious order governing eternally continuous progress—the web and woof of matter and force interweaving by slow degrees, without a broken thread, that veil which lies between us and the Infinite—that universe which alone we know or can know; such is the picture which science draws of the world, and in proportion as any part of that picture is in unison with the rest, so may we feel sure that it is rightly painted.

LXIII

Mix salt and sand, and it shall puzzle the wisest of men, with his mere natural appliances, to separate all the grains of sand from all the grains of salt; but a shower of rain will effect the same object in ten minutes.

LXIV

Elijah's great question, "Will you serve God or Baal? Choose ye," is uttered audibly enough in the ears of every one of us as we come to manhood. Let every man who tries to answer it seriously ask himself whether he can be satisfied with the Baal of authority, and with all the good things his worshippers are promised in this world and the next. If he can, let him, if he be so inclined, amuse himself with such scientific implements as authority tells him are

safe and will not cut his fingers; but let him not imagine he is, or can be, both a true son of the Church and a loyal soldier of science.

LXV

Ecclesiasticism in science is only unfaithfulness to truth.

LXVI

If the blind acceptance of authority appears to him in its true colours, as mere private judgment *in excelsis*, and if he have the courage to stand alone, face to face with the abyss of the eternal and unknowable, let him be content, once for all, not only to renounce the good things promised by "Infallibility," but even to bear the bad things which it prophesies; content to follow reason and fact in singleness and honesty of purpose, wherever they may lead, in the sure faith that a hell of honest men will, to him, be more endurable than a paradise full of angelic shams.

LXVII

History warns us that it is the customary fate of new truths to begin as heresies and to end as superstitions.

LXVIII

The struggle for existence holds as much in the intellectual as in the physical world. A theory is a species of thinking, and its right to exist is coextensive with its power of resisting extinction by its rivals.

LXIX

The scientific spirit is of more value than its products, and irrationally held truths may be more harmful than reasoned errors.

LXX

Every belief is the product of two factors: the first is the state of the mind to which the evidence in favour of that belief is presented; and the second is the logical cogency of the evidence itself.

LXXI

Science commits suicide when it adopts a creed.

LXXII

The method of scientific investigation is nothing but the expression of the necessary mode of working of the human mind. It is simply the mode in which all phenomena are reasoned about, rendered precise and exact.

LXXIII

There are men (and I think Priestley was one of them) to whom the satisfaction of throwing down a triumphant fallacy is as great as that which attends the discovery of a new truth; who feel better satisfied with the government of the world, when they have been helping Providence by knocking an imposture on the head; and who care even more for freedom of thought than for mere advance of knowledge. These men are the Carnots who organise victory for truth, and they are, at least, as important as the generals who visibly fight her battles in the field.

LXXIV

Material advancement has its share in moral and intellectual progress. Becky Sharp's acute remark that it is not difficult to be virtuous on ten thousand a year, has its application to nations; and it is futile to expect a hungry and squalid population to be anything but violent and gross.

LXXV

If the twentieth century is to be better than the nineteenth, it will be because there are among us men who walk in Priestley's footsteps. But whether Priestley's lot be theirs, and a future generation, in justice and in gratitude, set up their statues; or whether their names and fame are blotted out from remembrance, their work will live as long as time endures. To all eternity, the sum of truth and right will have been increased by their means; to all eternity, falsehood and injustice will be the weaker because they have lived.

LXXVI

Science is, I believe, nothing but *trained and organised common sense*, differing from the latter only as a veteran may differ from a raw recruit: and its methods differ from those of common sense only so far as the guardsman's cut and thrust differ from the manner in which a savage wields his club.

LXXVII

The vast results obtained by Science are won by no mystical faculties, by no mental processes, other than those which are practised by every one of us, in the humblest and meanest affairs of life. A detective policeman discovers a burglar from the marks made by his shoe, by a mental process identical with that by which Cuvier restored the extinct animals of Montmartre from fragments of their bones.

LXXVIII

There is no side of the human mind which physiological study leaves uncultivated. Connected by innumerable ties with abstract science, Physiology is yet in the most intimate

relation with humanity; and by teaching us that law and order, and a definite scheme of development, regulate even the strangest and wildest manifestations of individual life, she prepares the student to look for a goal even amidst the erratic wanderings of mankind, and to believe that history offers something more than an entertaining chaos—a journal of a toilsome, tragi-comic march nowhither.

#### LXXIX

I cannot but think that he who finds a certain proportion of pain and evil inseparably woven up in the life of the very worms, will bear his own share with more courage and submission; and will, at any rate, view with suspicion those weakly amiable theories of the Divine government, which would have us believe pain to be an oversight and a mistake,—to be corrected by and by. On the other hand, the predominance of happiness among living things—their lavish beauty—the secret and wonderful harmony which pervades them all, from the highest to the lowest, are equally striking refutations of that modern Manichean doctrine, which exhibits the world as a slave-mill, worked with many tears, for mere utilitarian ends.

#### LXXX

To a person uninstructed in natural history, his country or sea-side stroll is a walk through a gallery filled with wonderful works of art, nine-tenths of which have their faces turned to the wall. Teach him something of natural history, and you place in his hands a catalogue of those which are worth turning round. Surely our innocent pleasures are not so abundant in this life that we can afford to despise this or any other source of them. We should fear being banished for

our neglect to that limbo where the great Florentine tells us are those who, during this life, "wept when they might be joyful."

LXXXI

No slavery can be abolished without a double emancipation, and the master will benefit by freedom more than the freed-man.

LXXXII

Compare the average artisan and the average country squire, and it may be doubted if you will find a pin to choose between the two in point of ignorance, class feeling, or prejudice. It is true that the ignorance is of a different sort—that the class feeling is in favour of a different class—and that the prejudice has a distinct savour of wrong-headedness in each case—but it is questionable if the one is either a bit better, or a bit worse, than the other. The old protectionist theory is the doctrine of trades unions as applied by the squires, and the modern trades unionism is the doctrine of the squires applied by the artisans. Why should we be worse off under one *régime* than under the other?

LXXXIII

The life, the fortune, and the happiness of every one of us, and, more or less, of those who are connected with us, do depend upon our knowing something of the rules of a game infinitely more difficult and complicated than chess. It is a game which has been played for untold ages, every man and woman of us being one of the two players in a game of his or her own. The chessboard is the world, the pieces are the phenomena of the universe, the rules of the

game are what we call the laws of Nature. The player on the other side is hidden from us. We know that his play is always fair, just and patient. But also we know, to our cost, that he never overlooks a mistake, or makes the smallest allowance for ignorance. To the man who plays well, the highest stakes are paid, with that sort of overflowing generosity with which the strong shows delight in strength. And one who plays ill is checkmated—without haste, but without remorse.

#### LXXXIV

Education is the instruction of the intellect in the laws of Nature, under which name I include not merely things and their forces, but men and their ways; and the fashioning of the affections and of the will into an earnest and loving desire to move in harmony with those laws.

#### LXXXV

To every one of us the world was once as fresh and new as to Adam. And then, long before we were susceptible of any other mode of instruction, Nature took us in hand, and every minute of waking life brought its educational influence, shaping our actions into rough accordance with Nature's laws, so that we might not be ended untimely by too gross disobedience. Nor should I speak of this process of education as past for any one, be he as old as he may. For every man the world is as fresh as it was at the first day, and as full of untold novelties for him who has the eyes to see them. And Nature is still continuing her patient education of us in that great university, the universe, of which we are all members—Nature having no Test-Acts.

#### LXXXVI

Those who take honours in Nature's university, who learn the laws which govern men and things and obey them, are the really great and successful men in this world. The great mass of mankind are the "Poll," who pick up just enough to get through without much discredit. Those who won't learn at all are plucked; and then you can't come up again. Nature's pluck means extermination.

LXXXVII

Ignorance is visited as sharply as wilful disobedience—incapacity meets with the same punishment as crime. Nature's discipline is not even a word and a blow, and the blow first; but the blow without the word. It is left to you to find out why your ears are boxed.

LXXXVIII

All artificial education ought to be an anticipation of natural education.

LXXXIX

That man, I think, has had a liberal education who has been so trained in youth that his body is the ready servant of his will, and does with ease and pleasure all the work that, as a mechanism, it is capable of; whose intellect is a clear, cold, logic engine, with all its parts of equal strength and in smooth working order; ready, like a steam engine, to be turned to any kind of work, and spin the gossamers as well as forge the anchors of the mind; whose mind is stored with a knowledge of the great and fundamental truths of Nature and of the laws of her operations; one who, no stunted ascetic, is full of life and fire, but whose passions are trained to come to heel by a vigorous will, the servant of a tender conscience; who has learned to love all beauty,