

VIVISECTION FROM AN ETHICAL POINT OF VIEW.

THE EVILS OF VIVISECTION.

From personal experience and a near relationship with hospitals, schools, biological laboratories, and experimental work-rooms, I know that I am right in believing that my scientific brethren ought to be supervised, cautioned, and restrained by a firm hand. Alas, I know full well, as myself a worker, that our work called Science, as now pursued, is not an end in itself, fails as yet to point out the solution of all life, and in the case of many of its votaries has produced a narrowing scholastic result. So thought in large degree, so lived in the inspiration of his research, so often taught by his action, my departed friend Professor Cope. To my mind the enthusiastic advocates of humanity and mercy, often weak of mind, hardly ever logical, are after all in the deepest sense right, because of no self-indulgent weakness have some of us encouraged them as far as reason permits, in the attempt to restrain and supervise the whole thing. Let them take it out of the hands of the conceited doctor, or the smart biological assistant. You know what I mean. With us your voice should speak. To shrink from cruelty, from the sight of torture as we shrink from a vile smell, from the ravages of disease, or an act of barbarism, as a thing to shudder at, as a thing that runs through you, and changes the heart-beat whether or no. This, to my mind, is an unfolding of the deeper meaning of that struggle to which you allude. How shall science solve it without the heart's help?

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THE ETHICS OF ANTI-VIVISECTION.—A REPLY TO DR. CARUS.

“There are scientists, and among them some of great name and fame, who after a life-time of long and laborious study did not arrive at the ethical truths that the moral commands will preserve, and that they do preserve, both the individual who keeps them and the society to which that individual belongs.

*Dr. Paul Carus.*¹

The unique position occupied by Dr. Carus as the ardent and principal exponent of the “Science of Religion and the Religion of Science” and his distinction in the regions of culture and ethics entitle his speculations to the gravest considerations of those who think and aspire. Dr. Carus often writes with a positive conscience but never with papal assumption, and it needs no apology in the pages of

¹ *Homilies of Science*, p. 53.

The Open Court to question his conclusions when controversial. Probably many of his admirers read with concern the definite denunciation of "The Immorality of the Anti-Vivisection Movement" in the June issue of this magazine. I venture to submit some reasons to Dr. Carus for reversing that denunciation. Precisely because (as he is aware) I greet him as a protagonist of the higher ethics and the harvester for this wistful modern age of all that was eternally and beautifully true in the God-ward guesses of every religion,—so in proportion I confess some sorrow for his vindication of the identical and unscrupulous materialism in science which is opposed to his noblest teaching.

Dr. Carus affirms that while the anti-vivisectionists are "ensouled with the noblest of all virtues, compassion for the suffering . . . they lack upon the whole the most essential of all virtues, which are thought, discrimination, discretion, consideration of consequences, a surveying of the situation, and a weighing of the implications of the question as well as the results to which it leads." If all the counts on this indictment were true, it would undoubtedly discount the currency of opposition to, but would not affect in the least the final appeal against, scientific torture.

"Consideration of consequences,"—who are the sinners? Take we that text for awhile. Listen we first to another accent of the same voice:—"Morality is "not the increase of the happiness of our fleeting individuality, of our self, the "temporary abode of our soul; but it is the extension of our good will to all that "is good, based upon the acquisition of a clearer and ever clearer insight—a heart-felt insight—into the nature of the interrelations of all things, especially of all "living beings." True,—most true. Proceed we now to the "consideration of consequences."

Dr. W. B. Carpenter once asked Canon Wilberforce "whether he would not vivisect a dog to save the life of his wife?" The Canon ironically answered, "Vivisect a *dog*? Why, Dr. Carpenter, I would vivisect *you!*" In like manner Dr. Carus queries: "But should we not be ready to kill a million rabbits if we can thereby save the life of one child attacked with diphtheria?" But here is a subtle distinction. Torture and slaughter are two different things. The first is totally indefensible,—the second is inevitable. The tortures of the Spanish Inquisition and the modern system of capital punishment convey no association of ideas. The brutal maltreatment of animals by the depraved or violent obtains no precedent from the killing of animals for human food or the necessary extinction of what is obnoxious or dangerous to human life. If it were conceivable that the mere slaughter of a million rabbits would save the life of a beloved child, probably few parents would hesitate. Affection—like hunger—would plead expediency. But if it be meant that the scientific torture of rabbits precede sacrifice,—then we pause. I will not disfigure these pages with the ghastly details of physiological research but simply refer Dr. Carus to Professor Mantegazza's experiments with his "Tormentatore,"—an ingenious device for creating the most intense pain, yet keeping the animal motionless in an attitude that shall not interfere with respiration. "Thus," says Mantegazza in the pride of his invention, "I can take an ear, a paw, or a piece of skin of the animal, and by turning the handle squeeze it beneath the teeth of the pincers; I can lift the animal by the suffering part, I can tear it or crush it in all sorts of ways." "These my experiments were conducted with much delight and extreme patience for the space of a year."¹

Dr. Carus alleges of vivisection that "we all know it is not a pleasant duty of

¹ *Fisiologia del Dolore.*

the physiologist." Mantegazza thought differently. So did Cyon:—"The true "vivisection must approach a difficult vivisection with the same joyful ardor and "the same delight wherewith a surgeon undertakes a difficult operation from which "he expects extraordinary consequences. He who shrinks from cutting into a living animal, he who approaches vivisection as a disagreeable necessity, may very "likely be able to repeat one or two vivisections, but will never become an artist "in vivisection. The sensations of a physiologist, when from a gruesome wound, "full of blood and mangled tissue, he draws forth some delicate nerve-branch . . . "has much in common with that which inspires a sculptor."¹ And Claude Bernard wrote in similar terms.

"Consideration of consequences!"—Let it ever be remembered that the consequences of vivisection are not limited to the pain inflicted. Vivisection means not merely agony and mutilation,—it involves the deliberate suppression of intelligence,—the determined concentration of accumulated ingenuities against affectionate but intellectually inferior organisations,—and the effect more evil than physical curiosity is to murder mind. The subject *was* joyous, frolicsome, sensitive, and faithful,—it *shall* be terrified, palsied, blinded and shorn of the perceptions and volitions that linked it to our own humanity in the love of life, the faith of gratitude, and the unconquerable fear of death.

"Give us this day our daily bread!—which is a vivisection!" was Carl Vogt's revision of the human cry of Jesus.

Do the opponents of vivisection neglect "consideration of consequences?" Surely not. Not any "who consider pleasure and pain . . . from the higher "standpoint of ethics, where the individual as such disappears . . . where life is "valued not according to the pleasures it affords, but according as it contains "more or less of those treasures that 'neither moth nor rust doth corrupt.'² Not any who remember that while the individual vivisectionist may disappear to find pleasure in pain and only to value life "according as it contains more or less of those treasures" of organic intricacies for living dissection,—yet must emerge into the world to share again its influences for good or evil. For if within the walls of his laboratory the vivisectionist violates the principal sanctions on which the security and well-being of society depends, it must follow as the night the day that however conventional his conduct in the outer world, he does but mask a dangerous revolt against the supreme contract of the social order. That contract insists that powerful aggression shall not plead "expediency" against the liberties, the lives, and the rights of the most defenceless if involuntary assentors to that contract. Given a starving mass and a minority of prosperous people in any community a revolution against the eighth commandment does not establish stealing as moral. Given a single millionaire and a starving mass. Undoubtedly the mass would temporarily benefit through the murder of the millionaire and the appropriation of his wealth. But murder in alliance with theft could not be affirmed after the tempest of passion was over as other than rebellion against the infinite conscience of humanity. The plea for vivisection is precisely analogous and apart from the scientific fiction would equally justify rape and cannibalism. Those of us who oppose the torture chambers of the Inquisition of Science do consider consequences, for we know that every thought, and word, and action of good and evil are impulses that extend in widening circles throughout the universe for everlasting time.

Dr. Carus alleges that "innumerable discoveries of the most beneficent kind have been made through experiments on animals." It would be more effective to

¹ *Methodik*, p. 15.

² *Homilies of Science*, p. 219.

describe say, three, which have so benefited mankind and for which experiments on animals were unavoidable. When it is further alleged that "many publications of the anti-vivisectionists are guilty of gross exaggerations as to the number of the victims of vivisection and the cruelties to which the dissected animals are exposed," it need only be said that—at least so far as England is concerned—the details are invariably quoted from the official confessions of experimenting physiologists. Here we meet on ground which needs no word of argument. These details are accepted from physiologists—who scarcely exaggerate except in condemning or contradicting each other—and alleged against themselves in propaganda. These details are true or false. If false, the case against vivisection collapses; if true, the appeal is to the tribunal of conscience which admits no plea of "expediency" for experiments that blunder through swamps of mangled tissue into deliberate crime. To-day it is the outrage on animals, to-morrow it may be the surrender to exultant researches of the pauper and the criminal. Why not? With ten-fold force that curious apostrophe of Peter Rosegger to the "dear fortunate dead man!" in the dissecting-room would apply to any dear fortunate living man "chosen to contribute to the welfare of humanity."

"The pedigree of two-thirds of our virtues is far longer than the human race," as Professor Woods Hutchinson finely wrote. "They are backed by the inheritance, not merely of our whole human lineage, but by that of our infinitely longer pre-human ancestry. Their strength is drawn from the life of all the ages."¹

These words are worthy of Dr. Carus himself who upholds the banner of spiritual evolution and pleads like a prophet against the tendencies of modern materialism. Shall we descend into the gulf of materialism and with scientific ferocity and sleepless ingenuity rend without remorse whatever is helpless?—apply the gas-engines of the physiologist to the fainting heart of nature and probe with fierce impatience through her bleeding organs for secrets she only whispers into the souls of guiltless investigators? The marsh-lights of materialism are alluring procuresses to the "Lords of Hell." But the star of conscience, however tremulous when feet may falter or purpose tremble in times of temptation, is the guide of the individual to a grander immortality than dreams ever fabled or dogmas ever foreshadowed.

NOTTINGHAM, ENG.

AMOS WATERS.

VIVISECTION AND MORALITY.

The Open Court is a journal devoted to the Religion of Science. In its June issue is a thoughtful article devoted to the cause of vivisection, for which it endeavors to establish a valid plea. Now although vivisection is as yet a matter in which the thinking world takes but little interest, it is, in its cause, course, and consequence, one of the most serious problems that can confront the thinker and the legislator. Religion, morality, and philosophy, are as deeply involved as science in this question of vivisection. Some even think that if we could have a religion and a philosophy founded upon vivisection, humanity itself would be doomed. And certainly we may assert that if the Religion of Science is about to ally itself with vivisection as an indispensable element of its ritual and ceremonial, then will that religion be confronted by the execration of mankind, speedily and righteously.

The Open Court may draw the line as carefully and as tenderly as it will between cruelty and the necessary infliction of the least possible pain, the enthusiastic vivisectionists, young and old, bad and good, will not be much moved by such gentle admonitions.

¹ *The Monist*, July, 1896.

There is no question as to man's duty to learn the truth, especially the highest truths, those which show his relation to God and his fellows. But there is a question as to the methods by which he may seek to learn. There is a question also as to the truths which he ought *first* to seek. He may not justify any means whatsoever of acquiring knowledge. One can acquire knowledge by torturing his neighbor, or his own wife or child, but he is not at liberty morally so to do.

Freedom of inquiry may be of great value, but this too has its limits. Freedom of religious action founded the Inquisition of the Catholic Church. Freedom of scientific inquiry founded vivisection, the inquisition of the Religion of Science. One has the same ground as the other. Both are alike revolting and diabolical. It was accounted "immoral" to oppose the Inquisition. It is now becoming immoral to resist the progress of vivisection.

Happily for them, the majority of mankind know nothing about the horrors of vivisection. I do not believe that the writer in *The Open Court* knows anything about them or he could never have written such a statement as this:

"The truth is that all the great scientists who are famous as clever vivisectors are as considerate as possible and avoid all unnecessary suffering."

Only by attaching a curious meaning to the word "unnecessary" in that sentence can it be comprehended at all by one who knows what the actual history of vivisection has been.

When a man constructs an oven with a glass window in it, imprisons a living animal therein, and then bakes it, roasts it slowly to death that he may, in its behavior, behold the effects of increasing high temperature on the animal organism, is that suffering "necessary"? Has the knowledge so acquired been of even the smallest service to any living creature, human or less than human?

When this man's successors and students repeated the experiment, and varied it, and verified it, and learned from it how to make further and more searching experiments, was it "necessary"?

When at Alfort now for many years several poor horses, worn out in the service of man, are to be found, any hour of all these years, subjected to the same disheartening, dreadful round of operations—sixty and more operations to each horse—is this frightful atrocity "necessary" for the knowledge of truth that shall be of service to mankind? These horses survive six days the awful ordeal. I dare not detail to your readers what they suffer. Let it be enough to say that the hoofs are dissected off from the feet, the eyes cut to pieces, the ears carefully dissected, the brain laid bare and pierced, and burned, and shocked with electricity, the spinal canal opened and the spinal cord tortured to exhibit "motor reaction to sensory impressions"; the intestines, the lungs, the heart, the kidneys, every part without exception, is tortured by laceration, cutting, bruising, burning, until at the end of about six days the quivering mass, still alive, is dragged to the bone-yard to breathe its last without further torture. How many readers of *The Open Court* could sleep well to-night after a half-hour's thinking on such unspeakable cruelty? Is this not "unnecessary suffering"? How can we justify the torture of one animal in this manner and not justify equally the torture of others in the same way? First experiments are crude and tentative and the results unsatisfactory. Men must be trained by repeated experience and careful study to be enabled to elicit the profoundest verities from such sources. In this, as in all other departments of research, a little knowledge only creates a thirst for more; therefore we must have more torture, more exhaustive, more vivid, more crucial. Otherwise we intrench

upon the domain of free inquiry, freedom of research, freedom of thought, besides leaving our work unfinished.

Does the editor of *The Open Court* mean to say that this poor and feeble detail is a "gross exaggeration" of the cruelty of vivisection? We mean to say that it is not one drop in the bucket of the indisputable truth that is known perfectly by every man who has fairly studied the subject, "Gross exaggeration," indeed! Why? What need is there of any exaggeration whatever? Thousands of horses have been dissected alive as described, by thousands of medical students, at Alfort and in Paris, where the work has been systematically pursued for many years. Let us say that ten thousand horses only have been subjected to this torture. Let us not flinch from the figures, but say that forty thousand living hoofs have been cut alive, piecemeal, from as many mangled feet, and then ask if this is necessary or "unnecessary suffering." Not one syllable of useful truth has thereby been wrung from the helpless and agonised animal. Not a single hoof has been saved as a result. All that is useful to know in the matter can be learned from dissections of the dead foot. If a tithe of the energy that has been wasted in this shocking and fruitless work had been spent in studying the hygiene of the foot in the living horse, some good results would assuredly have been achieved. As a matter of fact, all the useful knowledge that we now possess on that subject has been acquired in this natural, humane, and divine way of studying the subject. The same remark applies with equal or greater force to the entire field of vivisection. There is a right way and there is a wrong way of searching after the truths of physiology; there is a moral way, and there is an immoral way; and the right way is the only way of attaining real truth and right results. The very instinct of humanity revolts at the idea that the way to health is through the horrible torture-house at Alfort and through others of its kind established all over the civilised world. On the other hand all hearts rejoice at the thought that nature, in her most perfect and in her least perfect forms, freely offers herself as a study, pure, sane, and natural, full of beauty, charm, and beneficence. Why should we teach our young men, pardonably ambitious for knowledge, to desert these methods and opportunities for the unnatural, violent, and most cruel revelations of vivisection? For we cannot follow both methods. The time spent in one is lost to the other.

This awful method of eliciting truth has even been applied to psychology, and I have heard one of the foremost teachers of America announcing to a vast audience of children and teachers certain educational principles which had been drawn from the laboratory of the vivisectionist. Fortunately hardly one of his hearers, much less the happy children, knew anything of the hideous background of his information.

If a man wishes to make a special and profound study of psychology, why not go at once to the divine psychology which is presented in its purest forms in the world's great literature? Here is mind communicating itself to mind as such, in the most perfect and natural way; and every intelligence is lighted up anew at every touch, and has received a new revelation of real mind. Every moment spent in converse with intelligent men and women, is a revelation of mind to mind. And this is psychological growth of a beautiful and legitimate character. One hour's converse with Shakespeare, Paul, or Plato, reveals more of the true nature of mind than could be ascertained by all the world in a century by slicing off the feet of a million living horses, or putting to perpetual torture the whole animal kingdom. In fact, this latter process obscures psychology. All that we get by such torture is a series of motor reactions frightfully expressive of the agonies possible to a sentient

creature—the groan of a horse for a lucid utterance of Plato! No wonder the psychologists assure us that it will take a thousand years of such study, lengthened, deepened, broadened, intensified, in order to enable them to say what mind is.

Furthermore there is such a thing as perverting and destroying any faculty. Every desire, appetite, and passion of man is good and necessary in right relation and in proper exercise. And every one may be perverted, abused, and destroyed by unnatural exercise. The desire for knowledge is a spiritual desire that exalts man at one bound above all animality, and is the means for his continuous spiritual development—that is, for creating him as man. Nevertheless this faculty, like the lower desires, is capable of abuse. It may become morbid by being wrongly directed or governed by inferior motives; or it may seek its gratification without due respect to moral, social, physical, or religious principles, in alliance with which only can it be normally developed. There is a whole science of sociology in the inter-relation of the faculties. Finally the desire for knowledge may be unnaturally excited and exercised, and may so be rendered first erratic, then reckless, then morbid, and so may pass, step by step, into states of incurable disease, which finally end in intellectual blindness, disgust, and misery. The end of this unnatural exercise is intellectual impotency. If there is a possibility of creating in man a depraved desire for unnatural knowledge, as he may acquire a depraved taste for unnatural and destructive food or drink, then must we scrutinise most closely this matter of our intellectual hygiene. We must not prescribe recklessly all kinds of diet, and all kinds of intellectual indulgence, not even on the plea of the necessity of liberty. And if there is possible an unwholesome regimen for human thought, in the scientific realm, that possibility is fully realised in vivisection. Of course we cheerfully admit that actual and historical vivisection is not the vivisection which *The Open Court* advocates. But on the other hand it must be affirmed that the kind of vivisection suggested by *The Open Court* is not the kind which the anti-vivisectionists have been "immorally" opposing. These latter have been in determined antagonism to the vivisection that was, is, and will be (so long as there is any), not to the vivisection that might be—say in some quite different world.

The Open Court advocates a vivisection which makes "innumerable discoveries of the most beneficent kind," and which, by sacrificing "a few hundred rabbits," saves "many millions of children." The opponents of the practice object to the continual torture for centuries of thousands of creatures of many kinds for no good purpose whatever, and with no good results. Where are the results to be found anywhere in hygiene or medicine—where has a single life been saved or benefited by the cruel experiments made at Alfort, above described?

Magendie starved, mutilated, and otherwise destroyed several thousand dogs in the course of his physiological experiments, and where has been saved a single human life as a consequence? In all our text-books of hygiene and therapeutics no reference of practical value is ever made to them. The results and theories of one year are contradicted by those of the next year, and clearly nothing has been learned. Meanwhile something might have been learned by a rational and humane study of the subject in other ways. Dr. Edward Berdoe, M. R. C. S., says: "I have been trying for many years to find out what the blessings are which vivisection has conferred upon the race, but I have not succeeded."

Prof. Lawson Tait, F. R. C. S. E., a man known the world over for his unexampled skill in surgery, says: "In the art of surgery, vivisection has done nothing but wrong."

Prof. Henry J. Bigelow, M. D., late professor of surgery in Harvard Univer-

sity, says: "How few facts of immediate considerable value have of late years been extorted from the dreadful sufferings of dumb animals, the cold-blooded cruelties now more and more practised under the authority of science."

Dr. Charles Bell Taylor, F. R. C. S., says: "No good ever came out of vivisection since the world began: and, in my humble opinion, no good ever can. . . . If there are any discoveries either made or to be made, for which vivisection was indispensable, I must candidly confess I do not know them."

Sir Charles Bell says: "The opening of living animals has done more to perpetuate error than to confirm the just views taken from anatomy and the natural motions."

Volumes of such testimony, which is valuable because it is the testimony of men who have seen, and known, and studied, and practised, and know just the exact value of vivisection to the physician, can be furnished if desired.

But lest these men should be deemed prejudiced or incompetent witnesses, let us turn to those whose competency and freedom from prejudice cannot be questioned. And first we will call Dr. L. Hermann, professor of physiology, Zurich, and he says;

"The advancement of our knowledge, and not utility to medicine, is the true and straightforward object of all vivisection. No true investigator in his researches thinks of their practical utilisation. Science can afford to despise this justification with which vivisection has been defended in England."

And Professor Charles Richet, M. D., professor of physiology, Paris, says: "I do not believe that a single experimenter says to himself when he gives curare 'to a rabbit or cuts the spinal cord of a dog, 'Here is an experiment which will relieve or cure the disease of some men.' No, he does not think of that. He says to himself, 'I will clear up an obscure point; I will seek out a new fact.'"

Prof. E. E. Slosson, of the University of Wyoming, says: "A human life is nothing compared with a new fact in science. The most curious misapprehension is that the Humane Society seems to think that the aim of science is the cure of disease, the saving of human life. Quite the contrary, the aim of science is the advancement of human knowledge at any sacrifice of human life." "If cats and guinea pigs can be put to any higher use than to advance science, we do not know what it is."

This ought to be enough for the present. Does *The Open Court* still believe that vivisection and vivisectionists, the real kind, are moral, and that those who oppose them are immoral?

What vivisectionists are in themselves we cannot say, and have not the right to judge; but that their theory and practice and results are utterly unscientific, unspeakably cruel, wholly irreligious, and morally damnable, we do not hesitate to declare.

R. N. FOSTER.

THE BRUTALITY OF VIVISECTORS.

I see you claim we anti-vivisectionists call too hard names, and, generally, overdo the thing. May I respectfully ask, is *any* epithet too severe to apply to a set of men who inflict, without a pang, upon sentient (ofttimes affectionate) creatures, torments before the contemplation of which, the human mind stands aghast! I have been fighting vivisection about twenty-five years, and I positively assure you that a humane vivisector is a *rara avis*.

The same cause which operated, in England, to frame and pass the measure which made butchers ineligible as jurors, rapidly obliterates the last traces of hu-

mane sentiment from the vivisector's heart; then they but see in the animal, in their power, so much "material" (the term they, themselves, invented and employ for this purpose). Neither has vivisection made great discoveries in medicine or surgery. I brand all such claims as absolutely false, and, if you will accord me space, I engage to disprove any and every such claim which may be advanced. "Come one, come all!"

ELLIOTT PRESTON, M. D.

Vice-President "New England Anti-vivisection Society."

FURTHER PROTESTS AGAINST VIVISECTION.

From other replies lately received from the defenders of the anti-vivisection movement we extract the following quotations:

Captain C. Pfoundes of Kobe, Japan, writes:

"The main point contended for is this: the vulgarising of the practices of the dissecting-room, and the vivisection laboratory, by the admission of junior students and candidates, indiscriminately, tends to harden and injure the character and to numb the finer sensibilities, weakening the ability to succeed in the art of healing, and vitiate the judgement so necessary in all cases. There are also other obvious considerations."

And Mrs. Fairchild-Allen, editor of *Anti-vivisection*, protests against the term "immorality of the anti-vivisection movement." Having quoted Webster's definition of immorality she adds that the writer of the article "can scarcely assume to apply such terms as these to the very long and eminent list of anti-vivisectionists embracing in its leadership such names as those of Anthony Ashley Cooper, seventh Earl of Shaftesbury; Lord Coleridge, the Lord Chief Justice of England; Basil Wilberforce, Canon of Westminster; Lord Alfred Tennyson, the late Poet-Laureate of England; the Bishops of Bath and Manchester; Robert Browning and a very large company of others who were the confrères of Miss Frances Power Cobbe in the early history of the movement the sentiments of which remain unchanged—except to grow stronger—from its first inception. From the modest beginning of a solitary society, in 1874, for the total suppression of vivisection there has now arisen ninety-four societies, all working to the same end, and these societies comprise a host of adherents whom the world delights to honor."

EDITORIAL REJOINER.

Having perused with great care a number of replies to my article on anti-vivisection, some of which are published in full here, I find that the main point at issue has not been touched by any one of my critics. When I wrote against anti-vivisection I did not attempt to sing the praise of vivisection, for indeed I hate vivisection as much as any one of my critics. Only I cannot join the anti-vivisectionists, and seeing the dangers of their propaganda I deemed it appropriate to point out the difference between stern morality and weak-hearted sentimentalism. I do not use the word "hate" frequently, but I can say that I truly hate vivisection. I hate it as much as war, as operations, amputations, and other cures that remove evils. Although fully conscious of all the horrors of war, I would not recommend a policy of peace-at-any-price. There are causes for which we have to go to war and I understand that war, although an evil, is a necessity in the world. The patient who would not allow the physician to cut into the living flesh of his body if thereby his life might be saved, is not a man of high moral sentiment, but a weakling. And the surgeon who decides in favor of the operation is not a hard-hearted rascal,

but a man who attends to his duty. And bear in mind that the lower nerve-centres of the human body range as high in physiological psychology as frogs and other animals upon whom vivisectors experiment.

It is not my intention to go over the whole field; nor do I wish to repeat myself. Therefore I shall in reply to my critics proffer one consideration only which characterises the issue:

We are surrounded in life by forces which in themselves are neither hostile nor friendly. They now promote our welfare, now impede and even destroy it. Frequently we become the victims of diseases the causes of which are unknown. Under these circumstances our sole salvation consists in comprehending nature and directing the course of events instead of remaining at the mercy of chance. This can be done only by inquiry which must be conducted fearlessly and with utmost circumspection. Truth is needed, for truth is more than life; truth is the condition of the comprehension of life; and as the soldier in battle gladly gives up his life for the sake of victory, so the true scientist gladly devotes his life to the search for truth, and would be willing even to die for truth if truth could be had at that price only.

Now the fact is that the inquiry into truth demands sacrifices. How many noble heroes have died, for instance, in the attempt at reaching the North Pole and collecting facts concerning the nature of the arctic regions. How many animals, especially dogs, have died with them! How many soldiers must be sent into a sure death so that the liberty and honor of a country may be preserved! And truth is more even than liberty.

Life is not the highest good, neither is pleasure, nor the absence of pain. And if progress and truth can be bought only with human lives, by the surrender of human pleasures, by undergoing hardships and suffering, we must unhesitatingly pursue the narrow and thorny path. The animal sacrifices that become necessary for the sake of solving various important physiological problems are only a trivial part of the sufferings that all life has to undergo in its struggle for maintaining itself and advancing to nobler heights of being.

Suppose that scientists had been prevented from making systematic inquiries on lower animals into the nature and cure of diseases, such as the small-pox, cholera, diphtheria, the plague, etc., what would have been the result? We should at present still be at the mercy of the terrible epidemics that sometimes swept over the world and devastated whole countries. If our scientists do not make the experiments, nature will make them for us; but while scientists can make them on lower forms of life and on a small scale with well-calculated economy, nature makes them in wholesale slaughters, on the highest forms of life with an appalling wastefulness, and even then it is doubtful whether she reveals the true cause of the disaster.

There is no need of entering into the details of the question, for we mean to limit ourselves to its moral aspect only. Tenderness of heart showing itself in compassion with the suffering is a noble sentiment, but unflinching courage in a well directed pursuit of truth is the greater virtue. And mind you, tenderness of heart must be well distinguished from that sentimental softness which shrinks from using the knife when needed. I do not deny that there are abuses of vivisection, but I do deny that all vivisectors are unfeeling and blood-thirsty scoundrels. There are men among them who are more considerate than all the members of the anti-vivisection societies together. It is nothing uncommon for the rude butcher-boy to faint at the sight of blood, while the tender-hearted sister of mercy with apparent indifference to the pain she cannot help causing, dresses the wound firmly and safely.

As for our own person we avoid all unnecessary pain, so it is every one's duty to avoid causing any unnecessary pain to others, even to the lowest creatures possessed of sentience; nay, it is wrong to inflict some ruthless harm even on shrubs and plants. But as it would be cowardice to shirk pain where, for some reason or other, duty demands of us to suffer it, so it would be flabby sentimentality if for fear of causing pain to a frog or a rabbit, we should abandon the investigation of important truths that are indispensable for the comprehension of life.

Happily, the terrors of vivisection are grossly exaggerated by the advocates of anti-vivisection and the invention of new anæsthetics will more and more reduce the pain of the victims of science.

EDITOR.