

# *Vivisection in America*<sup>\*</sup>

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## Chapter I

### *Vivisection in Medical Schools*

UPON no ethical question of our day is there a more striking difference of opinion than regarding the value or the righteousness of experimentation upon living animals. About this practice the atmosphere of controversy is thick with the dust of contradiction and dispute. "It is one of the foundations of medical science," asserts one authority. "The conclusions of vivisection are absolutely worthless," is the reply of one of the most eminent surgeons of our time."<sup>1</sup> "It is a mild, merciful, and, for the most part, painless, interrogation of Nature, and her secrets of life," says a recent apologist and advocate of vivisection. "The experiments of certain physiologists are those of *inhuman devils*" says Canon Wilberforce, of England. Among contradictions like these one may well ask, where is truth to be found ?

The solution of this strange divergence of opinion is not difficult; it lies simply in the absence of careful definitions of the words we use. "Vivisection" is a term which includes some kinds of operations upon living animals involving excruciating and prolonged torture; and some other kinds of operation which simply destroy life with the discomfort of induced disease; and yet other experiments which involve no pain whatever. It is a practice of almost infinite variety and complexity. To speak of it as inevitably involving the infliction of torture is to betray ignorance ; to defend it on the ground that pain is never inflicted, and that alleged abuses rarely, if ever, occur, is to state what every student of physiology knows to be false.

*Atrocities of vivisection are facts of history.* It is well perhaps at the outset to take a glance at some of them. What has been done by men without pity, in the hope to wrest from Nature something she has hid ?

The abuses of research include every form of excruciating and lingering torment that can be conceived. In the august name of Science, animals have been subjected to burning, baking, freezing; saturation with inflammable oil and then setting on fire; starvation to death; skinning alive; larding the feet with nails; crushing and tormenting in every imaginable way. Human ingenuity has taxed itself to the utmost to devise some new torture, that one may observe what curious results will ensue. For instance, Dr. Brachet, of Paris, by various torments, inspired a dog with the utmost anger, and then, "when the animal became furious whenever it saw me, I put out its eyes. I could then appear before it without the manifestation of any aversion. I spoke, and immediately its anger was renewed. I then disorganized the internal ear as much as I could, and when intense inflammation made it deaf, then I went to its side, spoke aloud, and even caressed it without its falling into a rage." Of this one man Dr. Elliotson, in his work on "Human Physiology," goes out of his way to say: "I cannot refrain from expressing my horror at the amount of torture which Dr. Brachet inflicted. I hardly think knowledge is worth having at such a purchase."<sup>2</sup>

Von Lesser, of Germany, made a long series of experiments in scalding animals to death. He "plunged a dog for thirty seconds into boiling water ; " he "scalds another four times, at various intervals ; " even animals which have just passed through the pangs of parturition do not escape.<sup>3</sup> Dr. Castex, of Paris, fastens a dog to the dissecting-table and, discarding the use of

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<sup>\*</sup> New York and London: Macmillan, 1894.

<sup>1</sup> Mr. Lawson Tail of England.

<sup>2</sup> "Elliotson's Physiology" p. 448.

<sup>3</sup> "Virchow's Archiv." vol. lxxix., pp. 248-289.

anaesthetics, stands above it " with a large empty stone bottle. I strike with all my strength a dozen violent blows on the thighs. By its violent cries the animal shows that the blows are keenly felt." Of another victim : "I dislocate both the shoulders, doing it with difficulty ; it appears to. suffer greatly ; "<sup>4</sup> and so on through the long series.

Chauveau " consecrated " more than eighty large animals, mostly horses and mules, worn out in the service of man, to almost the extremes! torture possible to conceive, not, as lie expressly tells us, " to solve any problem in medical theory," but simply to see what degree of pain can be inflicted through irritation of the spinal cord. Mantegazza, of Milan, devoted a year to the infliction of torment upon animals—some pregnant, some nursing their young—in a long series of experiments which had no conceivable relation to the cure of disease, and which ended in the attainment of no beneficial or even instructive results. To produce what "he desired—the extremest degree of pain possible—he invented a new machine, which he calls his "tormentor," and in this fiendish device, little animals, which had been first "quilted with long thin nails," so that the slightest movement is agony, are racked with added torments; torn and twisted, crushed and lacerated, hour by hour, till crucified Nature will no longer endure, and sends death as a tardy release. Yet all these experiments, repeated day after day, were conducted, as Mantegazza himself asserts, not with pity or repugnance; of *that*, no admission is made; but "with much delight and extreme patience for the space of a year."<sup>5</sup> One stands in mute amazement at revelations like these. Dante in his " Inferno " never dreamed of torture so awful as certain refinements of torment which Professor Mantegazza invented and executed; the details cannot be told.<sup>6</sup> Yet is there a vivisection more awful to contemplate than a man like this who has succeeded in plucking from his heart every sentiment of pity or instinct of compassion ? And how barren of benefit were the results of these experiments ! Out of all these multiplied torments of Richet and Mantegazza, of Chauveau and Castex, of Magendie and Brown-Sequard, Science has found not one single remedy to disease, not one discovery of the slightest value to mankind !

What have the atrocities of experimentation to do with America ? Much, every way. There is hardly a physiologist in this country who will not admit that such cruelties are to be deplored ; and that the ardor of scientific curiosity has driven these men into unpardonable excess. But how did it happen ? Was it because they were by nature more brutal than other men ? Probably not. On one point the teaching of History is uniform. *Wherever is conferred power without responsibility, there will follow—there must follow—license and abuse.* It is the relation of cause and effect. Perhaps we execrate unduly the heartlessness of a Nero or a Robespierre, a Magendie or a Mantegazza. They were but the natural product of a selfish civilization, which made them monsters of cruelty, only by the gift of absolute power.

But are such glaring abuses possible in America? Why not ? The realm of pain has here no boundaries which investigation is required to observe. In no American State or Commonwealth is there any law, any statute of any kind whatever, which would prevent these same experiments from being repeated here as often as desired ! Now, is it probable that in a country like ours, with a population drawn from every foreign source, experimental research, thus unrestrained, remains free from the excesses which have stained it everywhere else—in Italy, in Germany, in France ? The absence of clear, definite, and reasonable limitations, beyond which vivisection becomes cruelty, and should not go—is of itself *an invitation to abuse.* Such restrictions elsewhere have been successfully initiated. In England, Scotland, and Ireland—countries whose medical skill is quite equal to our own—a painful experiment for the illustration of facts already known has been prohibited for over fifteen years. The law there has placed a limit; and the law is obeyed. It has not remedied every evil, but at any rate it has prevented to a large extent that "abuse of vivisection by reckless, unfeeling, and unskilful persons," which Dr. John C. Dalton admitted and deplored.

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<sup>4</sup> " Archives de Medecinc," January 1892, pp. 9-22.

<sup>5</sup> " Fisiologia del Dolore " di Paoli Mantegazza, p. 101.

<sup>6</sup> " Fisiologia del Dolore," pp. 102-3.

Not merely the absence of legal limitations, but the absence of all supervision, is another invitation to excess. Up to fifteen or twenty years ago, when agitation against cruelty had just begun, it was the custom not only to show results of experiments but to perform even the most excruciating operations on living animals before a class-room of students, as aids to memory. There was no special secrecy about them ; anyone able to find his way to the lecture-room could observe everything. If there were indefensible cruelties, they were at any rate as unconcealed and as openly done as in Paris to-day. Now, all this is changed. Experimentation has vastly increased ; but it exists largely in comparative secrecy, behind locked doors, guarded by sentinels. To the largest physiological laboratory of New York City even the President of the Society for the Prevention of Cruelty to Animals cannot gain admittance during hours for "work." Against reasonable privacy of this kind no criticism can be justly urged. An anatomical dissecting-room, for instance, ought not to be open to every passer-by. But if bodies for dissection were, to-day, as frequently the result of mysterious murder or violated graves as in the time of Burke and Hare, and yet all entrance to the dissecting-room, all inspection or oversight, were absolutely refused, we may be sure that an alarmed and indignant public sentiment would demand—what has been given—not the publicity of dissection, but its supervision and control by the law. For the world does not like overmuch secrecy, and right doing never needs it. We are touched with a feeling of horror, to-day, not so much by the long procession in the Auto-da-fe as by remembrance of all the awful mystery which preceded it; the dim-lighted underground dungeons ; the application of the "question" at midnight; the groans for mercy which met no response ; the shrieks of agony which only the stone walls echoed. The Bastille rises without protest ; but in course of centuries it becomes an interrogation-point which Paris cannot answer; then comes a 14th of July, and it is swept from the face of the earth. Even Science needs that Pity should stand by her side. True, from the standpoint of anti-vivisection, inspection is not demanded; it means, one says, " compromise and acknowledgment." But it means more than this; it means accurate knowledge of all the facts ; the dispersion of error; illumination, enlightenment, certitude. " Misjudgment of vivisection exists," one says. Well, how is it to be dispelled by all this concealment and secrecy ? No real impediment to any experimentation that is not abuse, can result from bringing laboratories and all their work under the inspection of qualified representatives of the Societies for protection of Animals' Rights and the prevention of cruelty.

Upon the excesses into which a perverted zeal or cruel indifference has led experimenters in America, it is hardly necessary to dwell. Proofs are abundant enough ; one needs only to study our American text-books of physiology, where the various experiments performed, " for teaching purposes," every year, are frankly related. Once we admit the right to torture a living creature simply as an aid to memory, and where shall we put bounds to the cruelty one may inflict ? Is it an abuse of experimental science to cut out the stomach from a living dog—the "infamous experiment of Magendie," as Dr. Sharpey calls it ? I have seen it done, not in Europe, but America. To cut down upon the spinal cord of a dog for the demonstration of its functions—an operation which Dr. Michael Foster, of Cambridge University, has never seen performed, from "horror of the pain ?" Where is there a medical college in America in which it has never been done? Is it an abuse of vivisection to freeze rabbits to death before a class of young men and young women merely to illustrate what everyone knew in advance ? It is done annually. To divide the most acutely sensitive nerve in the whole body in order to prove what nobody doubts ? It is one of the " regular experiments." To mutilate a living animal so severely that left to itself, death might occur; to fasten it so that struggle is useless; to set in operation delicate machinery which shall cause it to breathe by artificial force, and so to keep it through a long night of terror and pain till " wanted " for the final sacrifice of demonstration before students on the following day? It is not of infrequent occurrence in American laboratories. " It helps memory," says one. But what gain to memory can outweigh that blunting of compassion, that deterioration of pity, which all this familiarity with torture tends to induce? " What doth it profit a man " to see it all ? Let Dr. Bigelow, late Professor of Surgery at Harvard University, reply : " Watch the students at a vivisection. It is the blood and suffering, not the science, that

rivets their breathless attention. If hospital service makes young students less tender of suffering, vivisection deadens their humanity and begets indifference to it."

"But," somebody protests, "surely there should be no limitations or conditions regarding original researches ? " Well, why not ? Investigation in America has been absolutely unrestrained; has it accomplished anything of value ? Have not even American scientists been subject to an enthusiasm that during investigation, takes no account of the pain it inflicts ? Look, for example, at that series of one hundred and forty one experiments performed not long ago in Jersey City, opposite New York. The object of the experimenter was, as he tells us in his account of them, " to produce the greatest amount of injury " to the spinal cord and its attachments without killing the animal outright; and with this end in view a great number of dogs, with hobbled limbs, were dropped from a height of twenty five feet, so as to effect all the severest injuries thus designed. Strange, indeed, it is to read the record of experiment after experiment, and to note that " even a few hours after they had been dropped, when the experimenter presented himself to their view, the dogs not severely injured never failed to *greet their master with extravagant expressions of joy.*" Well, what judgment are we entitled to pass on these investigations ? What valuable discovery for the benefit of suffering humanity accrued therefrom ? The highest European authority upon medical questions shall tell us : " *is a record of the most wanton and stupidest cruelty we have ever seen chronicled -under the guise of scientific experiments.* If this were a type of experimental inquiry indulged in by the profession, public feeling would be rightly against us; for, apart from the utterly useless nature of the observations, so far as regards human surgery, there is a callous indifference shown in the descriptions of the sufferings of the poor brutes which is positively revolting. What conclusions can be drawn from these unscientific experiments? That dogs falling from a height of twenty-four feet were liable to rupture or injure lungs, liver, kidneys, viscera, blood-vessels, or bones ? Is there anything new or useful in this grand discovery? That pathological changes rarely occurred in the spinal cord ? Does this help us to any similar conclusion, after totally dissimilar railway accidents to man ? Not the least. We trust no one in our profession, or out of it, will be tempted by the fancy that these or such like experiments are scientific or justifiable. Badly planned and without a chance of teaching us anything, *and carried out in a wholesale cruel way, we cannot but feel ashamed of the work as undertaken by a member of our profession.*"<sup>7</sup>

This is the judgment of the British Medical Journal, the leading authority of Great Britain. Here we have criticism based upon knowledge of what constitutes an abuse of scientific research. It cannot be swept aside as the wailing of sentiment or the exaggeration of ignorance.

What may be clone in America to prevent these abuses? Denounce the entire medical profession as in a league with " inhuman devils " of cruelty ? That is folly. The man who has watched at midnight with some old family physician, by the bedside of his dying wife or child, will not hear you. Agitate for total abolition ? It will be achieved sometime, when the conduct of humanity toward all that breathes and suffers shall be governed by ideas of altruistic equity. But what shall we aim to do for our country, and to-day ? Is not *reform of abuse* the first practical step ? The duty of the hour, it seems to me, is the excitation of interest in this subject; the acquisition of accurate knowledge about it; the encouragement of intelligent personal investigation. " Is it true," one should ask, " that such awful agony been repeatedly inflicted upon animals by European physiologists, and that proof of their cruelties is based upon their own statements and reports ? Can it possibly be true that not a single one of these accursed experiments has yielded to medical science any discovery of the least practical value in the treatment of disease? Is it true that no law prevents the repetition of these abuses in my own State ? Is it true that such painful experiments are unnecessary for the attainment of medical knowledge and skill; that every year a host of physicians and surgeons graduate from the medical schools of England, Ireland, and Scotland who never once in the course of their

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<sup>7</sup> " British Medical Journal," Nov. 15, 1891. 10

studies are asked to see an animal tortured that lessons may be remembered ? " Decision upon questions like these is not difficult; but let it be conviction based upon solid facts ; for that alone has chance to be heard, or opportunity to be effective in results. Men will differ regarding the justification of research where pain is not involved ; but never need the advocacy of use bewilder us into blind condonation of revolting abuse. It is, then, solely to the creation of an intelligent public sentiment that we can look with hopefulness for the slightest mitigation or prevention of the evils deplored. Its evolution may be slow. But, once aroused, public sentiment in America is irresistible when based on Right; and before this tribunal no cruelty or abuse of scientific research can ultimately escape condemnation and the stamp of atrocity and crime.

## Chapter II

### *Vivisection in American Colleges*

THUS far we have examined the question of unrestricted experimentation as a method of medical instruction. That it would be confined to this purpose no attentive observer of the modern scientific spirit could for a moment believe. Once let it be granted that sentient creatures may be subjected to any degree of pain for the simple illustration of well-known facts, and it is certainly difficult to say why the practice should not be so extended as to gratify the scientific curiosity of anyone who desires seriously to investigate the phenomena of life. Within the past few years a new aspiration has become prominent—the wish to penetrate to the very heart of Nature, and to pluck from thence each mystery which there lies hidden. Since for the future, one of the chief aims of scientific endeavour is to wrest from unwilling Nature her secret thought, we could have known for certainty, years ago, that this idea would not be confined within the walls of the medical school.

That which any careful observer of recent tendencies in thought might have foreseen, has actually occurred. Spurred by competitive rivalry into provision for the most advanced courses of instruction ; hindered by no strong public sentiment, which should demand the least safeguard against danger or abuse, nearly every great educational institution of America is widening the opportunity for its young men and young women to investigate the phenomena of living things,—not as an adjunct to professional study, but merely as a phase of that scientific training which in future is to form a part of a liberal education.

The change has been gradual and unobtrusive. In the printed catalogues of colleges we may find little note of the study of physiology; that, to-day, is merely a department of Biology, which includes within its scope not only the functions, but also the structure and development of all living creatures. The American university of to-day has no thought of fashioning itself after the ancient models of Oxford and Cambridge; its ideals are found rather in Germany or France. No American college at present reckons itself completely equipped without its biological laboratory and its staff of instructors, conversant with newest methods of foreign investigation.

Nor is the modern aim simply to teach students the gathered facts of previous inquiries. The new ideal would inspire students, not to believe, but to investigate. "Every encouragement is afforded to those who show aptitude for original research," is the frequently-recorded promise to the young inquirer. Let us take a few representative American Colleges, and note some of the advantages they are offering to the student of to-day.

HARVARD UNIVERSITY.—" Students working in the Physiological Laboratory study the various digestive and respiratory processes . . . and devote themselves to similar problems and processes.

' 'All the apparatus used in this laboratory is contrived and made expressly for it."—From "What Harvard College Is."—By F. BOLLES, Sec'y.

YALE UNIVERSITY ; COURSE 128.—" Huxley's Lessons in Elementary Physiology, with occasional lectures *and illustrative experiments*. . . . A course of lectures on Experimental Toxicology<sup>8</sup> is open to students in the above course."

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<sup>8</sup> "*Toxicology*: The science which treats of poisons."—WEBSTER.

WILLIAMS COLLEGE.—"Anatomy is studied only so far as it may be necessary to an intelligent discussion of Physiology. An effort is made to exhibit *not only the results, but also the methods of physiological research*. The new Thompson Biological Laboratory is a large building of four stories. The laboratory is well equipped with ... all the appliances for general and advanced work."

TUFTS COLLEGE.—" The work in Biology begins with the study of Physiology, which is required of all students in the Classical and Philosophical Courses. . . . Subjects are taught by lectures and by laboratory work, the object being *to impart the scientific method*, rather than a large number of *unimportant facts*!).

" Provision is made for original investigations, and students will be encouraged to continue their work in this department (Biology) by means of research on special problems."

PRINCETON (COLLEGE OF NEW JERSEY).—"An advanced course in Biology has been established . the objects in view being (i) *To foster a spirit of original research*; (2) to qualify advanced students to become teachers. It is not restricted to students who are candidates for a degree, if they possess sufficient elementary knowledge, to profit by the instruction. These courses are of a comprehensive and elastic character, and *include much laboratory work under the direction of the instructor*."

SYRACUSE UNIVERSITY.—" Biology is required in all the courses during the third term of the sophomore year. To students showing special aptness there is opportunity for continuous work along special lines."

UNIVERSITY OF ROCHESTER.—"Instruction is given by means of laboratory work, lectures, and recitations, especial attention being given to the first. *Physiology: Experiments performed by the students individually form a feature of the course. Honor Studies : Experimental work on digestion and on the functions of nerves*. (Seniors.) "

NORTHWESTERN UNIVERSITY.—(*Physiology*.\*) "The work consists of laboratory work, four hours a week, with weekly lectures upon comparative anatomy, amply illustrated by dissections *and demonstrations*."

CORNELL UNIVERSITY.—"In all the courses, laboratory work forms an integral part. With the general courses in Physiology and Zoology, one-third of the time devoted to the subject *is occupied on laboratory work or demonstrations*. In the advanced courses, laboratory work is proportionally much greater in amount."

UNIVERSITY OF MICHIGAN.—The courses in Physiology are arranged for those who intend to become physicians or dentists, those who propose to teach the subject, *and those who contemplate making Biology a specialty*. ... In the laboratory, the student learns to use the apparatus *and methods employed in ordinary physiological experiments*. Advanced students are given an opportunity to begin research work. . . . Th; laboratories of the University are provided with the necessary facilities, not only for ordinary biological work, but for somewhat extended research, and *every encouragement is given to the students, especially in the last year, to devote themselves to original investigations*."

LELAND STANFORD JR. UNIVERSITY (California).— " 1. *General Anatomy and Physiology*: Laboratory work seven and one-half hours a week through the year. . . . The laboratory work will give occasion to discuss many questions of general biology. 2. *Animal Physiology* : . . . Laboratory work five hours a week through the year. It includes an *experimental course in Physiology*, based upon Foster's ' *Physiology* ' as the text. The Graduate Courses in Physiology and Histology will include the thorough study of some of the more recent treatises of various subjects in Histology and Physiology, *and a repetition of a sufficient number of experimental investigations to give a discipline in the methods of investigation*. . . . Students in this department will occupy the latter portion of their courses, mainly on some original research the subject of which is determined by previous training—*and their inclinations*."

UNIVERSITY OF CHICAGO.—"*Autumn Quarter* (Assistant Professor Loeb) : Original investigations in Physiology. Laboratory work in physiology of the sense-organs *and the nervous system*. *Winter Quarter* : Laboratory work in the physiology of circulation, respiration, and animal heat. *Spring Quarter*: Laboratory work in physiology of the nerves and muscles, and in general physiology. *Summer Quarter: Physiological Demonstrations*. It is the aim of this course to give to teachers in high schools and colleges an opportunity *to become familiar with the typical physiological experiments*."

This is by no means a complete list, but it serves as a fair illustration of the position attained to-day by that spirit of scientific inquiry, which, within a quarter of a century, step by step, has conquered its way into dominant ascendancy over the old and long-established ideals of collegiate training.

In regard to most of the group of sciences included under the name of Biology, to the study of organization, of tissue and development, there is no question of their vast importance and value. But the complete study of animal functions introduces the young student to another phase of investigation—*the observation of pain*. One may indeed learn all the truths of Physiology without this experience ; but he must then be willing to accept facts upon others' testimony ; and the new scientific spirit insists that personal investigation must supersede belief. For example, you may learn perfectly each and all of the functions of the nervous system, by the careful study of recorded facts. But suppose you demand that the recorded fact shall be emphasized " by experiment and opportunity for observation ? " Then some Creature must be put to an agonizing death to gratify your curiosity. Now how far is this method of study *a permissible element in the training of young men at American colleges ?*

I think this inquiry one of great importance. Here is no question of "cruelty," for the essence of that vice is the infliction of agony for amusement, the causation of wanton torment, of purposeless pain. Nobody acquainted with the earnest men who direct the science-teaching departments of our colleges, will for a moment fancy them guilty of aimless torture. But how far will scientific enthusiasm lead them on ? To what extent do the university authorities in America permit the causation of pain, simply for purposes of illustration ?

Let us make the question as definite as possible. One of the principal European experimenters to-day is Dr. Simon Strieker, of Vienna. Not long since I was told by a professor in one of the leading medical colleges of New York, that he had himself witnessed the most horrible tortures conceivable inflicted by this man upon living monkeys,—animals specially selected because in their dying torments their facial expression became so like to human agony ! A European journal recently describes one of his class-demonstrations, wherein he destroys the spinal cord of a dog by thrusting a steel probe into the spinal column, producing, we may say, the most atrocious torture it is possible to conceive. The animal evinced its agony by fearful convulsions; but it was permitted to utter no cry that might evoke sympathy, for previous to the demonstration its laryngeal nerves had been cut! No vivisection could be more utterly

unjustifiable or more fiendish in atrocity. And yet with entire and perfect good faith this demonstrator might have repeated the well-worn formula, that he was " careful to inflict no *unnecessary* pain." "I know," said Herr Strieker, on one occasion, " that this experiment will seem cruel; but it is ' necessary ' that my hearers should have its effects impressed on their minds!" Surely, there was never more fit example of Milton's words:

" So spake the fiend, and with Necessity,  
The tyrant's plea, excused his dev'lish deeds."

Now for this same reason, merely as a method of teaching, *what prevents that demonstration-experiment of Strieker from being regularly repeated before young men and young women in the leading colleges and universities of the United States ?*

I am indebted to a distinguished member of the medical profession, Dr. Ballou, of Providence, R. I., for information which seems to me to afford a complete answer to this question. Desiring to ascertain whether any restrictions, hindering the use of torture as a means of illustration, had been imposed by those having control of our educational institutions, he wrote to the presidents of certain representative American colleges, asking them whether any regulations existed, defining or limiting the extent to which living animals might be subjected to painful experiment in the College laboratory. In nearly all cases the inquiry was accompanied by special reference to statements in the printed catalogue, and the correspondence therefore seems to have varied somewhat in phraseology, although the leading question was invariably the same. The following letter is fairly representative of this request for light:

" To the President of THE UNIVERSITY OF CALIFORNIA.

" DEAR SIR : Referring to your ' Register ' and to the outlines of biological studies there presented, may I ask whether the University of California, by any written instructions, *has placed any limitations to painful experimentation upon living animals ?* Are students permitted to carry their investigations *to any extent* inclination may suggest ? In this matter, in short, does the University regard it best to leave all questions as to methods of research solely to investigators themselves —pupils or instructors ? "

The following extracts are from some of the replies he received. The italics are my own.

From REV. DR. TIMOTHY DWIGHT,  
President of Yale University, New Haven, Ct.

. . . "In answer to your letter of the 14th. I would say that we have had no occasion to lay down any definite restrictions as to the matter to which you refer, as we have entire confidence in the professors having special charge of the courses of study in physiology- . . .

" TIMOTHY DWIGHT."

From CHARLES W. ELIOT, LL.D.,  
President of Harvard University, Cambridge, Mass.

" Original research in Biology and allied branches *is not limited in any way* at this University. The instructors take all responsibility regarding methods of research. The students work wholly under the direction of the instructors, *and have no discretion as to methods employed.*

"CHARLES W. ELIOT."

From REV. DR. FRANCIS L. PATTON,  
President of the College of New Jersey, Princeton.

. . . " The College of New Jersey has *not* defined or limited, so far as my knowledge goes, the extent to which living animals may be subjected to pain. . . .

"FRANCIS L. PATTON."

From JAMES R. DAY, D.D.,  
President Syracuse University, N. Y.

" In reply to your first question would say that there are no written restrictions.  
" We leave the decision to the judgment of the investigator.

" JAMES R. DAY."

From JAMES B. ANGELL, LL. D.,  
President of the University of Michigan, Ann Arbor, Mich.

"The methods in use in our biological laboratory are those ordinarily employed, I think, elsewhere in similar institutions; but students are not permitted to work on living animals except under supervision. . .

" JAMES B. ANGELL."

From WILLIAM R. HARPER, Ph.D., D.D.,  
President of The University of Chicago, 111. [Founded by John D. Rockefeller.]

. . . " We have not thought it wise to place *any restriction* upon experimentation involving prolonged or severe pain.

"Win. R. HARPER."

From REV. DR. CHARLES F. THWING,  
President of the Western Reserve University, Cleveland, O.

" In answer to your courteous inquiry, I beg to say that a professor who is worthy of being made the head of the Department of Biology is certainly worthy of deciding the important question which you ask.<sup>9</sup>

"CHARLES F. THWING."

From PRESIDENT CHARLES KENDALL ADAMS, LL.D.,

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<sup>9</sup> What test of " worth " would Rev. Dr. Thwing apply? Professor Gad, of Berlin, obtained a year's leave of absence during 1893-94 for the purpose of " regulating" the physiological courses of instruction at the Western Reserve University. If Professor Gad is "worthy," why might not Professor Strieker be regarded as worthy to succeed him as a teacher of foreign methods ?

University of Wisconsin, Madison, Wis.

"There are no rules or regulations limiting our professors of zoology in the matter of vivisection. I have the impression that all the authorities of the University have confidence that our professors will not use their privileges in an improper manner.

"C. K. ADAMS."

From G. A. GATES, LL.D.,  
President Iowa College, Grinnell, Ia.

"The College authorities have never had occasion to take any action in the matter. Personally, I should leave it to the judgment of the instructor, or else change instructors.

"G. A. GATES."

From HENRY WADE ROGERS, LL.D.,  
President of Northwestern University, Evanston, 111.

" The University authorities have not, by any written regulations, defined or limited the extent to which living animals, used for experiment, may be subjected to pain. We have felt that the matter could be safely left to the discretion of the preceptor. . . .

"HENRY WADE ROGERS."

From REV. DR. ELMER H. CAPEN,  
President of Tufts College, Boston, Mass.

" The methods of doing work in theseveral departments is left to the discretion of the individual instructors. In reference to the Department of Biology, I have never known of experiments involving *needless* pain to the lower animals.

"E. H. CAPEN."

From DAVID STARR JORDAN, LL.D.,  
President of Le-land Stanford Jr. University, Palo Alto, Cal.

" In matters of this kind, I am decidedly of the opinion that *no restrictions should be put upon the student* except those which the professor may lay upon him.

" DAVID S. JORDAN."

From FRANKLIN CARTER, Ph.D., LL.D.,  
President of Williams College, Williamstown, Mass.

" We have not laid down any restrictions in our biological work, on our teachers. The principle in the College has always been in every department *to trust the professor wholly*, unless there seemed reason for distrust.

" FRANKLIN CARTER."

From J. G. SCHURMAN, D.Sc., LL.D.,  
President of Cornell University, Ithaca, N. Y.  
" President's Room, "  
CORNELL UNIVERSITY, March 8th.

"All experiments, in the courses in Physiology, are upon animals just killed or completely anaesthetized.<sup>10</sup>

" J. G. SCHURMAN."

From REV. DR. WILLIAM DE WITT HYDE,  
President of Bowdoin College, Brunswick, Me.

" The College has *no rules or regulations* on the subject of experiments in Biology.

" WM. D. W. HYDE."

From ISAAC SHARPLESS, Sc.D., LL.D.,  
President of Haverford College, Haverford, Pa.  
" HAVERFORD COLLEGE, Pa.

" *Our trustees have forbidden any vivisection in our laboratory.* We do not find this a serious disadvantage, though we have to omit certain lines of research.

" J. SHARPLESS."

In a few instances the letter of inquiry was referred by the president of the college to the Professor of Biology. Some of the replies received from this source were as follows :

" Biological Laboratory, HAMILTON COLLEGE, N. Y.

" *I am glad to say that no restrictions* have been placed upon the experimental work of this department. The most painful experiments have been omitted. . . . Anesthetics are used in the few experiments tried, and the animal is not allowed to recover consciousness.

"A. D. MORELL."

" OBERLIN COLLEGE, March 5th.

" I think that the judgment of preceptors *and of really advanced pupils* should be trusted in such matters.

" ALBERT A. WRIGHT."

" UNIVERSITY OF CALIFORNIA, March 9th.

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<sup>10</sup> The question asked was not answered.

" Your letter to President Kellogg, making certain inquiries about our work in Biology has been handed to me for replying. I beg to say that the University of California employs instructors *whose judgment it is milling to trust* concerning the matter to be taught *and thie methods of teaching it*. It does not, consequently, deem it necessary to exercise a censorship over them, either in the biological or any other department.

" WAI. E. RTTTER, Asst. Prof, of Biology."

" AMHERST COLLEGE, Mass.

. . . " Thus far, the professor has had the power to decide what sort of work should be done in the zoological laboratory, and under what conditions it should be done. . . . *The trustees have undoubtedly power to make and enforce whatever rules and restrictions may seem best to them*. They have never, to my knowledge, made any attempt to modify my modes of laboratory work.

" I neither perform, nor allow any student to perform, any experiments involving vivisection in the laboratory.

. . . In very simple physiological experiments, such as showing the circulation of the blood, I always etherize the animal thoroughly, and then use the time of complete insensibility preceding death for demonstration.<sup>11</sup>

" I am convinced that our board would pass no restrictions or prohibitions without allowing me a hearing. / *should deprecate strongly any restrictions*. I should consider such a restriction a very grave and severe reflection on my character; any other zoologist would feel it just as deeply.

" JOHN M. TYLER."

It is evident therefore that in the majority of American universities and colleges there are no restrictions governing or limiting the infliction of pain. The judgment of the professor is the only guide ; his wish, the only limitation. That which in England would be a crime, in America would not be even the infraction of a college rule ! The freedom which prevails in the physiological laboratories at Vienna, Berlin, and Paris has quietly taken root in our American universities. One hesitates to believe that the atrocities of torture which have so often stained methods of research on the Continent have been duplicated in the physiological laboratories of any American college ; *but the opportunity is there*. As a method of teaching, no present impediment prevents their introduction at any time.

Nor is it reassuring to note the apparent unwillingness of teachers of Biology to have freedom of action limited by any restrictions hindering the infliction of prolonged or excruciating pain. This repugnance one might expect in medical schools ; but it is startling to find it in schools of science and art, where no plea of " beneficent utility" can be brought forward. "I should consider such restriction a very grave and severe reflection on my character ; any other zoologist would feel it just as deeply," says one of the leading biologists of this country. I do not understand this extreme sensibility. Doubtless the Czar of Russia prefers unlimited power to the restrictions of a written constitution ; but absolutism, whether on the imperial throne or in the physiological laboratory, has not offered to the world the highest type of conduct. What,

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<sup>11</sup> Shortly after writing this letter Professor Tyler left for Europ?, for the purpose of taking an advanced course in Biology at ths University of Prague. Doubtless the apparent inconsistency of these two sentences arises from omission of the word "*painful*" before "vivisection."

for instance, would be thought of the president of a great and wealthy university who should proclaim that,, as regards the expenditure of the treasurer, no restraints or restrictions were ever imposed ; that complete confidence in personal character took the place of all vouchers and receipts ? What opinion should we hear of the college treasurer himself, who refused all demand for detailed statement of his accounts, as "a grave reflection upon his character? " There is not an institution in the land where such financial mismanagement would not be condemned. Yet why so many precautions against prodigality of money, and such acute sensitiveness toward the slightest impediment against prodigality of pain ?

What may be done ? The first step is to convince those who govern the policy of our institutions of learning that here, too, is need of judicious surveillance and control. I am not urging this from the stand-point of anti-vivisection. My only question is whether vivisection shall, or shall not be unrestricted by *any* rules, or surrounded by any precautions.

If every American college were to adopt merely the restraints which characterize the statute laws of England on this subject, the condition would be far better than the immunity that now prevails. Or, go yet a step farther. What consistent objection is there to a college regulation or law that should forbid altogether those laboratory experiments or demonstrations which cause the infliction of any pain beyond that incident to the most humane method of taking life ? At Hamilton College, New York, no experiments are made upon conscious animals. At Cornell University " the utmost pain inflicted" is the instantaneous killing of a frog. If Science-teaching there does not suffer from this self-imposed restraint, why should not such praiseworthy custom be made in every college the imperative rule ? " Unnecessary ? " There never yet was unlimited opportunity, that did not, in the end, witness most grave abuse.

We are almost at the beginning of the twentieth century. Civilization is about to enter a new era, with new problems to solve, new dangers to confront, new hopes to realize. It is useless to deny the increasing ascendancy of that spirit which in regard to the problems of the Universe, affirms nothing, denies nothing, but continues its search for solution ; useless to shut our eyes to its influence upon those beliefs which for many ages have anchored human conduct to ethical ideals. Regret would be futile; and here, perhaps, is no occasion for regret. I say "perhaps; " some doubt yet mingles with our hopes. To the new spirit which perchance is about to dominate the future—this longing for Truth, not for what she gives us in the profit that the ledgers reckon, but for what she is herself; this high ambition to solve the mysteries that perplex and elude us, the world may yet owe discoveries that shall revolutionize existence, and make the coming era infinitely more glorious in beneficent achievement than the one whose final record, history is so soon to end.

But all real progress in civilization depends upon man's ethical ideals. Infinite responsibility for the moral impetus of the next generation rests to-day on the shoulders of those who stand at the head of institutions of learning wherein are created and fashioned the aspirations of young men. What shape and tendency are these hopes and ambitions to assume in coming years ? What are the ideals held up before American students in American colleges ? What are the names whose mention is to fire youth with enthusiasm, with longing for like achievement and similar success? Is it Richet, " bending over palpitating entrails, surrounded by groaning creatures," not, as he tells us, with any thought of benefit to mankind, but simply " to seek out a new fact, to verify a disputed point? " Is it Mantegazza, watching day by day, " *con molto amore e pazienza moltissima*"—with much pleasure and patience—the agonies of his crucified animals ? Is it Brown-Sequard, ending a long life devoted to the torment of living things, with the invention of a nostrum that earned him nothing but contempt? Is it Goltz of Strassburg, noting with wonder that mother-love and yearning solicitude could be shown even by a dying animal, whose breasts he had cut off, and whose spinal cord he had severed ? Is it Magendie, operating for cataract, and plunging the needle to the bottom of his patient's eye, that by experiment upon a human being he might see the effect of irritating the retina? Is it Strieker, making a tortured ape to mimic the agony of a dying man ?

These men, it is true, Science counts among her disciples. They reached fame through great tribulation, through agony that never can be reckoned up, but it was not their own; through "sacrifice," indeed, but not self-sacrifice; through abnegation of compassion, by suppression of pity. Surely in these names, and such as these, there can be no uplift or inspiration to young men toward that unselfish service and earnest work which alone shall help toward the amelioration of the world. "The old order changeth," but are there not some ideals of humanity that do not waver with the passing years ?

Perchance the curiosity of Science will one day spend itself. The last evasive and evading mystery of Life may not be wrested from Nature by fire or steel. Then there may be names that Humanity will forget, or remember only to execrate. But whenever in time to come, men shall long to lessen in some way the awful sum of ache and anguish in the world, may they not rather turn for their inspiration to those ideal examples of self-sacrifice which still encourage us; to Howard, risking life in prison and lazar-house, that by revelation of their infamy he might stir the conscience of Europe to the need of reform ; to Wilberforce and Clarkson, toiling amid obloquy and abuse for more than twenty years to put down the African slave-trade ; to Garrison, waging war for thirty years that he might help to free America from the stain of human bondage; to Shaftesbury, confronting the organized greed of England in his effort to protect children in coal mines and factories ; to Arnold Toynbee, making his home amid the squalor and wretchedness of Whitechapel, that he might know by hard experience the bitterness of life for the London poor. Are not these better examples for the emulation of youth than those devotees of research whose pitiless-ness is their supreme title to the remembrance of posterity? Surely, they would whisper to us, if they could, from their eternal serenity, that the right path to the world's amelioration is not by way of torture; that our closing century will not see the end of great opportunities for helpful work ; that while poverty, war, preventable disease and unmerited suffering yet afflict the world, it will not cease to need the sympathy, the devotion, and the self-sacrifice of earnest souls.

## Appendix A

### *Lines of Inquiry regarding Vivisection*

1. *Do European physiologists as a rule profess or manifest in any way the slightest regard for the sufferings of the animals upon which they experiment?*

(See Dr. Klein's testimony before the Royal Commission, 1876, Ques. 3535-3547 : " No regard at all.")

Dr. Yeo, Professor of Physiology, London, speaks of " the oft-told *tale of horrors* contained in the works of Claude Bernard, Brown-Sequard, Paul Bert, and Richet in France, Mantegazza in Italy, and Flint in America." (*Fortnightly Review*, March, 1882.) " Inhumanity may be found in persons of very high position as physiologists ; we have seen it was so in Magendie." (Report of Royal Commission signed by Prof. T. H. Huxley.)

2. *Have the cruelties of Magendie, Schiff, Bert, Mantegazza, Strieker, Goltz, and othc/s, in any one single instance, led to the discovery of a new remedy for disease ?*

They have not. See *Scribner's Monthly*, July, 1880. *Lippincott's Magazine*, August, 1884.

3. *When a writer asserts that in experiments " anæsthetics are always used," does he include curare ?*

Ask him. Often he includes it. But curare is used simply to keep the animal motionless.

4. *Does the use of curare abolish pain ?*

Claude Bernard, of Paris, and Prof. Austin Flint, of New York, agree that sensation is not abolished. (See Flint's "Physiology," page 595.) Prof. Gamgee experimented on children and arrived at the same conclusion. (Report Royal Commission, Ques. 5407.)

5. *Do any safeguards exist which would in any way prevent the most cruel experiments of Europe from being repeated here in America ?*

None whatever.

6. *Does any State in the Union require a report to be made of all vivisection experiments, as in England, Scotland, and Ireland? Or are experiments without any such restraint ?*

Experimenters are not required to make any report of what they do, and there are no restrictions of any kind.

7. *Are experiments common in America which are contrary to law in all parts of Great Britain?*

Painful experiments for teaching purposes are not allowed in England, but are everywhere employed in American medical schools. As examples of American practices, consult Flint's "Physiology," pp. 269, 282, 403, 489, 585-589, 639, 674, 710, 738. *Journal of Physiology* vol. ii.,

p. 63, and vol. vii., p. 416. " Vivisection is grossly abused in the United States. . . . We would add our condemnation of the ruthless barbarity which is every winter perpetrated in the medical schools of this country." (*Therapeutic Gazette*, August, 1880.)

8. *Would it not be entirely practicable for students of physiology to remember the functions of the spinal cord, for instance, by means of diagrams, without the use of torture as an illustration? How do they remember such facts in Great Britain, where torture cannot thus be resorted to?*

No answer has thus far been given to this query by the advocates of vivisection without restraint.

9. *Are medical discoveries of any value ever made without vivisection, or by its opponents?*

" Time was," says a writer in the *New York Medical Record*, " when in certain forms of peritonitis, opium was the chief remedy; to-day, Lawson Tait's teaching *that this is dangerous*, and that the opposite treatment by salines is more useful, is most successfully followed."<sup>12</sup>

Who is this Lawson Tait?

One of the most eminent surgeons of Great Britain. Yet he says: " Like every member of my profession I was brought up in the belief that many of our most valued means of saving life and diminishing suffering had resulted from experiments on the lower animals. *I now know that nothing of the sort is true concerning surgery* ; I do not believe vivisection has helped the surgeon one bit; and I know it often led me astray."

10. *Why do not American physicians condemn all experiments which are cruel in tendency?*

There are comparatively few American physicians who would approve or sanction some of the atrocities mentioned in these pages, related by the experimenters themselves ; may there not be many more who would welcome any legal restrictions which would not only make such extreme cruelty impossible, but also forbid all painful experiments for the illustration of well-known facts? If every physician who believes that the door to cruelty should be shut, would but use his personal influence to that end, *the law would be speedily passed*. Let us hope that the time may soon come, when no man in the medical profession will hesitate to denounce all atrocities of experimentation for fear of being regarded as an opponent of science.

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The final result of all inquiry regarding vivisection must depend greatly upon the point of view assumed regarding man's right of dominion over the animal world. Disregarding minor differences, it is believed that the principal opinions held respecting vivisection may be grouped together under four different statements.<sup>13</sup>

The first of the following paragraphs presents the view practically held by those European physiologists who acknowledge *no restrictions or restraints*. The second perhaps fairly presents the opinion of American teachers of physiology at the present time. The third statement sets forth the position of those (including the writer), who would permit experimentation upon animals, but only when done under such legal restrictions and supervision as would make scientific torture a crime; while the last clause is the ground taken by those who demand the abolition of vivisection under all circumstances whatever. The reader will note that each

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<sup>12</sup> N. Y. Medical Record, November 4, 1893, p. 577.

<sup>13</sup>

paragraph represents one phase of opinion, slightly different from that which either follows it or precedes it; and that otherwise they have no connection.

1. " *Animals have no rights which human beings are bound to consider or respect.* There need be no restraint ; man may kill, torture, or torment them in any way or for any purpose of profit or amusement."

2. " For his own benefit—even if slight—man has the right to sacrifice animals with, prolonged torture. The sight, for instance, of an animal like a dog, dying in torment, may often assist a dull or indolent student to remember what his books and lectures teach, better than otherwise. Wanton cruelty for mere amusement, however, should be severely deprecated."

3. " Man is justified in taking animal life as quickly as possible for any purpose of utility to himself, and even in using animals as subjects for scientific experimentation whenever this may be done *without causation of pain*. On the other hand, to subject an animal to torment for any purpose whatever, other than the creature's own benefit, is an act of cruelty, and ethically wrong."

4. " The killing of animals for food, or for any other useful purpose, is perhaps right; but all that scientific experimentation upon them known as ' vivisection ' is so linked in the past with atrocious cruelty, and so certain of future abuse, that, whether slight or severe, painful or painless, every form of experiment is fraught with danger, and, with other forms of cruelty, should pass under the ban of civilization as a barbarity and a crime."

## Appendix B

THE following resolution, offered by Albert Leffing-well, M.D., of New York, and seconded by John Morris, M.D., of Baltimore, Md., was adopted by the American Humane Association, at its annual convention in Philadelphia, Pa., October 29, 1892.

" *Whereas*, The evidence before this Association seems clearly to prove that upon the continent of Europe atrociously severe and cruel experiments upon the lower animals are frequently performed ; and,

*Whereas*, While such experiments are restricted in England, yet there exists in no one of our American States any legal restriction preventing the most painful experiments of continental physiologists from being repeatedly performed even for the demonstration of well-known facts; therefore,

*Resolved*, That the American Humane Association, while not pronouncing itself at this time either for or against physiological research in general, does hereby declare that, in its judgment, the repetition of painful experiments before medical students merely for the purpose of illustrating physiological truths, is contrary to humanity and ought not to be continued. It agrees with the opinion of the president of the Royal College of Physicians, England, that no experiment should be repeated in medical schools ' to illustrate what is already established; ' with the opinion of Professor Huxley, that ' experimentation without the use of anesthetics is not a fitting exhibition for teaching purposes ; ' with Sir James Paget, surgeon to the Queen, that experiments for the purpose of repeating anything already ascertained ought never to be shown to classes; with Dr. Rolleston, professor of physiology at the University of Oxford, that ' for class demonstrations limitations should undoubtedly be imposed, and these limitations should render illegal painful experiments before classes.' *Resolved*, That, acting upon such scientific opinion and acknowledging itself in accord therewith, the American Humane Association hereby respectfully urges upon the Legislatures of every State in the Union the enactment of laws which shall prohibit, under severe penalty, the repetition of painful experiments upon animals for the purpose of teaching or demonstrating well-known and accepted facts."

## Note

Anyone willing to help in the wider diffusion of knowledge regarding vivisection and toward the prevention of its deplorable abuses is invited to address *Box 163, Bryn Mawr, Pennsylvania.*

Information regarding vivisection as practised both in this country and abroad may be obtained by addressing either of the following societies or individuals :

American And -Vivisection Society, 118 South Seventeenth Street Philadelphia, Pa.

Box 163, Bryn Mawr, Pa.

"The Zoophilist," No. 1 Victoria Street, London, W., England.