Satin Rene

Vivisection

By

J.W. Bramwell M.B.
Although we have heard and read so much about the subject of vivisection within the last two years, it is a subject concerning which a great amount of ignorance still prevails. The subject is indeed a very important one, and in treating it certain extremes ought to be avoided. On the one hand the voice of humanity in the pursuit of science should not be stifled, and on the other hand the clamours of frivolous scientists should be resisted. Although experiments are indispensable for the advancement of medicine as a science, they may be conducted in such a way as to cause little pain to animals, and whenever pain can be prevented, experimenters are in duty bound, if no counter-indication exist, to spare animals from its pangs.

The subject of vivisection has within the last year undergone a thorough examination, and much has been done both by medical men and others to place it in its true light before the public. But notwithstanding this and notwithstanding the vast amount of literature that has already been published concerning it, it is astonishing to find how little is really known about it. One frequently hears of the horrible torture that are daily inflicted on humble animals, not only by the physiologist but also by medical men in general and by medical students. Charges of cruelty are brought indiscriminately against vivisectors by persons who are ignorant of the subject and who therefore are not qualified to give an opinion concerning it. The fact that is generally known by the public, has been gathered from text-books,
which often seem to an ignorant reader to detail
extraordinary torture when in fact no pain is being
inflicted at all, and from the reviews of newspapers
in the Report of the Royal Commission, written by
editors sometimes far too prejudiced—
that it may be asked, is this reason of this, and why
would such ignorance still prevail after the
subject has undergone a searching inquiry by
a Royal Commission? The reason is I think,
that it has not been sufficiently examined, and
that its literature is spread over too wide a
field to be easily reviewed, and consequently, there
is considerable difficulty in getting a precise
knowledge of the facts concerning it, and of the
arguments which have been brought to bear for and
against its practice.

The term “Vivisection” is in itself insufficiently defined
in sensitive minds feelings of repulsion. Few
medical students witness their first surgical
operation without experiencing a sickening emotion
and wishing perhaps to retire from the spectacle.
This feeling arises naturally in all, even when they are
aware that the patient is quite unconscious of pain;
and it is this same feeling which makes the
term Vivisection (which means a cutting up of living
creatures) repugnant to sensitive feelings and which
implies cruelty. It's important when considering
this question to distinguish between cruelty and
the infliction of pain: the infliction of pain with
a good object is not cruelty, but the infliction
of pain for its own sake or for no definite purpose
is cruelty. Vivisection clearly belongs to the first
of these two classes—
It cannot of course be said that by every experiment
performed some new discovery is made, indeed there
May be vivisectors who have never made a new discovery although they may have laboured devotedly and strenuously for years; but it must be remembered that the building of the edifice of knowledge is a work of ages and the materials are only slowly accumulated by the labours of thousands of individual workers—there are many scientific facts and discoveries which appear in themselves exceedingly trifling, but we know that it is the blending of the atoms together that makes the whole, and many our greatest triumphs in physical and biological science have sprung from so-called trifling facts. In reference to this, The Report of the Royal Commission on Vivisection, p. xviii, says—'The first origin of a great discovery is often, like the worm of the natural life in an animal or a vegetable, so small as to be scarcely perceptible, and yet it may contain in it the seeds of the grandest results. Who 'Tasso detestis' when Galvani touched the nerves of a frog with different metals and noticed their contraction could have dreamt that .... All Europe should be traversed with wines, flowering intelligence from Madrid to St. Petersburg with the speed of lightning? In the hands of Galvani, and at first men in Volta's, electrical currents were phenomena capable of exerting only the feeblest forces, and could not be detected except by the most delicate apparatus. Had they been neglected or the ground that the investigation of them promised no immediate practical result, we should now be ignorant of the most important and most interesting of the links between the various forces of nature. Experiments on living animals are not performed without a definite
object and it is the desire of all experimenters to solve some important question in physiology and medicine—there can be no doubt that the only true method of arriving at definite results is by dissection.

The subject may be divided into various heads. I propose to divide it into the two following:

A. Consideration of the benefits which science has already derived from dissection.

B. Enumeration and Consideration of some of the arguments which have been urged against its practice.

A.

What are the benefits which science has already derived from this source?

To prevent confusion it will be most convenient to divide these again into certain classes according to the branches of medical science which they more particularly affect. The following three divisions which have been made (British Medical Journal Jan 9, 1875) are the most natural:

2. Discoveries by Means of Which the Sciences of Medicine, Surgery and Medical Jurisprudence have been greatly advanced.
3. Discoveries in Therapeutics Due to Dissection.

1. Let us take then the science of Physiology and see how far it has been materially advanced by means of experiments on living animals. It is said that almost all the important discoveries which have been made in it, since it has been recognised and studied as a separate science have been made by this means.
almost entirely dependent on vivisection for its progress in the past and without this aid little or no hope could be entertained of its progress in the future. I need simply enumerate here some of the most important discoveries which have been made pretending that they have all been made by the aid of experiments on animals.

1. Discovery that arteries contain blood not air. Galen.
2. Discovery of the circulation of the blood. Harvey. The discovery of the circulation of the blood has opened the whole range of therapeutical affections, of pulmonary apoplexy, of the engorgement of the liver, and the whole category of such affections.
3. Demonstration of the capillary vessels between the arteries and veins. Malphighi.
5. Discovery of the termination of the arteries in the skin veins at the root of the feet, and that they are pored into the veins system driven with the blood. Pecquet 1649.
6. Discovery that air becomes diminished in volume by respiration. Mayo 1674.
7. Discovery that by continued breathing air becomes diluted and unfit for respiration. Paracelsus.
8. Discovery that atmospheric air is necessary for the maintenance of life.
9. Discovery of the relation between animal and vegetable life as regards respiration. Priestley 1772.
10. Discovery of the functions of the sympathetic system of nerves by Pourfour du Petit 1727, Suppes 1816, and Barachet 1837.
11. Discovery that the oxygen of the atmosphere is the only gas acted on in respiration, nitrogen being
12. The movements of inspiration, and the discovery of the effects of suppression of inspiration producing asphyxia. The mode in which the functions of the brain and the motion of the heart are arrested in such cases. Lavoisier.

13. The discovery that death ensues when the great part of the oxygen of the atmosphere is converted into carbonic acid.

14. The discovery of animal electricity in the frog, and subsequent important discoveries by Galvani, Volta, Faraday etc., leading to all that we know about current electricity, with all its applications to therapeutics, telephony, telegraphy, &c.

15. Discovery of the compound functions of the special senses. Sir Charles Bell 1809.

16. He afterwards proved the motor power of the anterior roots of the special nerves.

17. Majendie then showed the sensory power of the posterior roots.

18. Discovery of the motor power of the posterior roots of the sensory nerves. Sir Charles Bell.

19. Discovery of the functions of the anterior and posterior columns of the spinal cord. Brain, etc.

20. Discovery of the power of the cerebellum in co-ordinating muscular movements, etc.

21. Discovery that the medulla oblongata is the centre which furnishes the necessary power for the co-ordinate movements of inspiration and respiration, and that consequently its destruction causes instant death.

22. Discovery of the functions of the grey matter from the surface of the cerebral hemispheres as connected with sensation and motion. Burdach, Majendie, etc.
23. Sciency that the Cerebrum is the Seat of the Mental Faculties.

24. Sciency of the Functions of the Fifth Pair of Nerves in Relation to Deglutition, Phonation, Respiration, and Cardiac Action. John Reid & others.

25. The Sciency of the Functions of all the Cranial Nerves, the Most Important Being the Facial and Pneumo-gastric.


28. The Sciency that the Corpora Striata are Connected with Voluntary Conjuncted Movements. Lang. Lafaque.

29. That the Optic Thalamus are Connected with Sensation. Henri Boulay.


31. Sciency of Reflex Action, that this is Independent of Sensation, and that its Centre is in the Spinal Cord. Marshall Hall.


33. The Sciency of the Rapidity of the Circulation of the Blood.

34. The Amount of Pressure Exerted by the Blood in the Vessels Demonstrated. Stephen Bates.

35. The Sciency of the Function of Respiration.

36. Numerous Facts in the Physiology of Deglutition. Blundet, Schwann &c. 8. Pari let them that living Substances can be digested by the Gastric Juice of the Stomach.
37. Disequilibrium of the function of the kidneys and the formation of urine.


In Nervous Physiology Vol VI p 225.

These then are some of the physiological discoveries made by the aid of experiments on living animals. Discoveries of this sort have been made without this means. To write a description of all of the experiments which led to these discoveries would be a work of great time and would take up far more space than could be found in a paper such as this; but to illustrate the importance of these as single examples may be taken.

Let us take as an illustration, No. 32. The discovery of the motor functions of the eye, namely, closing certain convolutions in the anterior part of the cerebral hemispheres. (From W. H. Schroedl and Hille.)

In what aid did these experiments consist and what advancement has been made in the knowledge of these functions of the brain by means of them? To answer understand the answer to this question we must first inquire into the state of our knowledge concerning the functions of the cerebrum and certain of the ganglia of special sense before these experiments were made. (K. Carpenter, in Two Principles of Human Physiology, Seventh Edition p. 641, says, "We shall now proceed with our physiological inquiry into the functions of the cerebrum, and shall appeal, therefore, to Human and Comparative Anatomy, to Experimental and Pathology for our chief data. The anatomical relations of the cerebrum to the other cephalic centres clearly demonstrate that it is not..."
me often essential or fundamental parts of the nervous
system; but a superadded organ receiving all its impulses
to action from the parts below and operating upon the body
at large through them. And it must be joined with its
position as the summit of the whole apparatus, clearly
mark it out as the highest vital functional relation
and as ministering so far as any material instrument
may do to the exercise of those physical powers
which in man exhibit so remarkable a predominance
over the mere animal instincts.

P. 645. "All the results of experiments seem to establish the fact
that no irritation, either of the interior or of the skin,
substance produces either sensation or motion. These
results are borne out by pathological observations in
man; for it has been frequently, though rarely, observed when
a necessary to separate prototated portions of the brain
from the remainder, that this has given rise to delirium,
seen in cases in which the mind has been perfectly clear
at the time, nor has any carcinogenic action been produced.
"The effects of partial irritations are usually, at the
first instance, a general disturbance of the cerebral
functions; which, subsiding, however, more or less
quickly subsides leaving but little apparent affection
of the animal functions except muscular weakness— the
whole of one hemisphere has been removed in this way,
without any evident consequence, save a temporary feeling
of the limbs on the opposite side of the body and what
was supposed to be a deficiency of spirit through the
opposite eye. The former was speedily relieved from
and the animal performed all its movements as well as
before; the latter, however, was permanent, but the pupil
remained active. When the upper part only of both cerebral
hemispheres was removed by cutting, the animal was
reduced for fifteen days to nearly the same condition with
its one from which they had been altogether. Intoxication;
but afterwards sensibility evidently returned and the muscular power did not appear to be much diminished. In practice inferences can be safely drawn from the effects of the entire removal of the cerebral hemispheres, those fully bear out the conclusion that the cerebrum is the organ of intelligence: since the animals which have suffered this mutilation appear to be constantly placed in a profound sleep, although they, five manifestations of consciousness, should be very prone to injury, however, as some have done, that each would be the natural condition of an animal without a cerebrum, since it is obvious that much of the disturbance of the sensorial powers which is occasioned by this operation is sufficiently attributable to the asking open of the cranial cavity, to the disturbance of the normal vascular pressure and to the injury necessarily done to the part which are left, by their severance from the cerebrum. Hence the persistence of consciousness after the entire removal of the cerebrum, which proves that the cerebrum is not the seat, or at least its essential seat, is a fact of such importance far as the positive abstraction of psychic power which is consequent upon the operation, to far as they can be trusted. Moreover, the results of the mutilation bear out the views already put forth, into the super-added and non-essential character of the cerebrum; and justify us in applying to the higher animals the inferences which we should be led by the contemplation of the forms of the nervous system in which no cerebrum exist. There is nothing therefore to support the conclusion, that whilst excisions may be felt and sensori-motor actions excited, independently of the cerebrum, the presence of this organ is essential to the performance of psychic or psychical operations for which ideas formed at once the material and the mental. 

The general result of pathological investigation is that the cerebrum is the instrument of all those psychical
operating which we include under the general term intellectual, whilst it also affects in part at least the instrumental condition of emotional states; and that all those muscular movements which result from voluntary determinations or which are directly consequent upon emotional excitement, have their origin in its peculiar substance, though the motor impulse is immediately furnished by the cranio-spinal apparatus upon which the cerebellum plays.

With regard to the function of the corpora striata & c. Carpeaux, loc. cit. p. 604, "The effects of lesions of the corpora striata are too distinctly marked. It was observed by Majendie that there exists in them a motor power which excites backward movement, and that a corresponding power of exciting forward movement exists in the cerebellum; that these two powers ordinarily balance one another; but that, if either be removed, the power of the other will occasion a continual automatic movement, the removal of the corpora striata causing an irresistible tendency to forward progression, whereas the division of the peduncles of the cerebellum (according to him) occasions the reverse movement. These assertions, however, have not been confirmed by others. Experiments on animals, according to Lengel, Schieff and Lafage, the results of uncerebral of the corpora striata with the anterior part of the cerebral hemispheres are for the most part negative; forth, although usually remains in a state of profound stupor, although still retaining the erect position, and it is only when irritated by pinching and pricking that it will move any rapid movements to mechanical irritation of the corpora striata produces little, if any, excess or muscular movement.

Concerning the corpora quadrigemina that which was chiefly known was that they were concerned with vision and the movements of the eyes - B. Carpeaux, p. 603.

The subservience of these bodies in the exercise of the visual sense.
"appear in the whole to be points best established in regard to their functions; and considering the degree in which these "are concerned in the regulation of the general movements of the body, it is surprising that brains of this size should occasion a perversion of these movements."

With these great strides of our knowledge concerning the physiology of these important parts of the brain before the researches of Ferrier, Truitt, and Hitzig, it

is now considered by experiment of Ferrier and see in what respect they have added to our knowledge.

The experiment in question are described under the head of "Experimental Researches in Central Physiology and Pathology" in the British Medical Journal's Medical Reports, Vol. III. P. 107. They consist of a series of interesting experiments on the brains of guinea-pigs, cats, dogs, and rabbits. The manner of performing them may be best told in Perrier's own words:—

"In order to carry out the operations necessary for exposing the brain and observing the effects of stimulation, there was simply narcotised the animal, and extended it on a board with the abdomen downwards, and then, during the stimulation, relaxed the ends to so as to give the head and legs free play. The brain was exposed by trephining, and the surface in subsequent, extended by the use of the bone forceps. The hemorrhage from the cavities I have found that effectually controlled by cotton wool, which can be insinuated into the various bleeding orifices. The electrodes used for irritation were simple copper wires doubled at the end, and slightly rounded to avoid laceration of the parts through which they were applied. They were insulated up to the point.
The anterior portions of the cerebral hemispheres are the chief centers of voluntary motion and the active outward manifestation of intelligence.

2. The individual convolutions are separate and distinct centers, and in certain definite groups of convolutions (as some extent indicated by the researches of Eilard Weig), and in corresponding regions of non-convoluted brains, are localized the centers for the various movements of the eyelids, the face, the mouth (and tongue), the ear, the nose, the hand, foot and tail. Sticking affections corresponding with the habits of the animal are the found in the differentiation of the centers—thus the centers for the tail in dogs, the paw in cats, and the lips and mouth in rabbits are highly differentiated and pronounced.

3. The action of the hemispheres is in general crossed, but certain movements of the mouth, tongue and neck are bilaterally co-ordinated from each cerebral hemisphere.

4. The pronunciative centers of different epileptics are, as Dr. Hargreaves Jackson supposes, desolating centers of different centers in the cerebral hemispheres. The affection may be limited artificially to one muscle or group of muscles.
or may be made to involve all the muscles represented in
the cerebral hemispheres, with paralyzing at the mouth, biting
of the tongue, and loss of consciousness—when induced
artificially, it mimics all the affection as a rule first involves
the muscles next in voluntary use, in striking harmony
with the clinical observations of Dr. Hughlings Jackson.

5. Changes in the brain structure as well as the kidney, dependent on
simultaneous (and successive) discharging centres of the
individual cerebral centres. In this respect Dr. Hughlings
Jackson's views are again experimentally confirmed.

6. The Corpus striata have crossed action and are
centres for the muscles of the opposite side of the body.
Powerful irritation of one causes rigid plantarodystonias
the other predominating over the extensors.

7. The optici thalamus, fornix, hippocampus major and
convolutions joined around it, have no motor significations
[and are probably connected with emotion?]

8. The optic tubers of corpora quadrijunctura, besides
being concerned with vision and the movements of the
eyes, are centres for the extensor muscles of the head,
torso and legs. Irritation of the centres causes rigid
opisthotonos [and tremors?]

9. The cerebellum is the co-ordinating centre for the
muscles of the eyeball. Each separate tubercle (in
rabbits) is a distinct centre for the special alterations
of the optic axis.

10. On the integrity of these centres depends the maintenance
of the equilibrium of the body.

11. Hypomnesus, or oscillation of the eyeballs, as an
epileptiform affection of the cerebellar centro-motoric centre.

12. These results explain many interesting obscure symptoms
of cerebral disease, and enable us to localize with
greater certainty many forms of cerebral lesion.

Such are the results obtained by these interesting
experiments. I have contrasted what is now known and what was formerly known concerning the physiology and pathology of the cerebrum, we cannot help being astonished as the great advance in knowledge that has been made—and to the importance of each of the discoveries enumerated might be shown—Great discoveries like those of Sir Charles Bell, Harvey, Claude Bernard, Room-Segard, &c, have done more for the advancement of the science of physiology than centuries of study without experiment could possibly have accomplished: and was such as the practice of medicine, and a true and thorough diagnosis of disease cannot be properly carried out unless founded on a physiological basis, the amount of benefit which the medical science, and consequently humanity in general, has derived from these great discoveries is incalculable.

2. We now come to the second division of benefits derived by means of which past aid has been given to the sciences of medicine, surgery and medical jurisprudence. These again I will briefly enumerate without entering into a very detailed description of each.

1. Artificial Respiration. Respiration beamed by blowing into the lungs with air after the chest has been opened, stoppage of the heart's action might be delayed for some time. The amount of respiration, the effects of its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its 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its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its suppression, its supervision.
Artificial respiration and what have been extensively practiced to the benefit of human beings.

2. The transfusion of blood and introduction of medicines directly into the blood. Robert Boyle 1665 - first done in France on a human being by Blaisius in 1665.

3. The treatment of aneurism by ligature, John Hunter, 1785. He also discovered and described the diseased condition of arteries immediately above aneurisms, and pointed out that consequently to avoid secondary hemorrhage it was necessary to place the ligature some distance above the aneurism. Hunter's experiments also named the whole process of severing an artery after ligature.

4. The suppression of hemorrhage by dividing arteries and the use of the ligature, Jones 1805.

5. Ligation of arteries by Amoens and others at the beginning of this century.

6. The process of growth of bone from periostum, demonstrated by Michael Foster; An Italian, Reiguen in 1837, and in 1853 Oliver of Lyons showed the property of periostum, even when denuded from bone and transplanted to another part of the body, of producing bone.

7. The pathology of the disease of cartilage, Redfern.

8. The mode of union of fractured bones.

9. The pathology of inflammation of glands, membranes, and the cornea, Columbo and others.

10. Resection of joint and bones in case of amputation.

11. The effects of various gases upon the blood and the manner in which they occasion death, as for example Carbonic oxide, have been demonstrated. Claude Bernard discovered that Carbonic oxide forms a compound with the blood which is incapable of taking up the oxygen of the air in the lungs, so that the blood in the tissues rendered useless. Therefore artificial respiration would be of no avail in a case of suffocation by Carbonic oxide.
15. The Whole Phenomena of Inflammation Demonstrated. Sharpey. 1846.
16. The surgery of intestinal wounds has been greatly elucidated by Hopkins’s experiments in animals.
17. Discovery of important clinical facts by injection of foreign substances into the blood. This led to Arith’s treatment of pyaemia.
18. Insertion of the Easocur, its painless action, its safety in preventing hemorrhage was demonstrated.
19. Important knowledge has been acquired in regard to Tuberculosis, a disease of which the half of the population die. It has been produced in animals.
22. Demonstration of the infectious nature of Choleraic Discharges if in any way introduced into the system.
23. Cholera by experiments shown that the artificial food for a certain prolonged period invariably led to such a lowering of the temperature of the body, that death was the result, and that life could not again be restored by means of food, unless the temperature was again raised.
24. Taylor showed that the power of recovering a poison in the System. After death, depended on the amount of the poison, poison and the time allowed after taking it. It was before said that if an animal were to die from poison, it must necessarily be found in this body. This led to the Conviction of Palmer.
25. The discovery of the fact that poison can be traced.
by the skin, and eliminated by all the fluids of the body.

36. Discovery of the Action of the Poison of Certain Reptiles, such as Cobra de Capello. Lortet.

37. Discovery that the Poison of the Cobra de Capello does not act through absorption, but through wounds. Taylor.

38. The Use of Guttae Ligature. Lister.

39. Experimental Research into many epidemic diseases, showing the occurrence of Micrococci.

40. Experiments by injection of substances devoid of azote, upon which the accurate analytic treatment of fevers and plague is founded.

3. The last division of benefits derived from toxicology includes those discoveries by means of which the science of therapeutics has been advanced. Nearly all the facts definitely known, with regard to the action of drugs, have been discovered lately, and of experiments on animals. Only a few of the most important can therefore be enumerated here.

1. The Use of Glauber's Salt.
5. The Discovery of the Capacity, with which hydrocyanic acid causes death. L. R. Christison.
   J. P. Harvey.
7. Discovery of Antidote to Sulfuric Acid. L. R. Christison.
10. Discovery of Chloral, its Action. Liebrack.
11. Action of Calabar Wax. Fraser.
12. The Remarkable Action of Quinine on the Heart by
J. R. Cutten and Clarke.

   " Sulfate of Amylin 4 Hydrolu of Morphine
   Calabar Rose 3 Hydrolu
   Hydrolu of Chloral 1 Hydrolu
   John Hughes Bennett and Dr. Kendall.

14. The action of Resin of Areylu on the Venous of the blood, and thus the relief of Asthma Phlegmon.

15. The action of Rhubarb and Colchicum.

16. The action of several classes of Antimony and
   demonstration of the symtptoms of slow poisoning by
   Antimony. Revies.

17. Experiment Showing the Physiological Action of Codine.


20. Facts in Regard to the Action of Salts of Magnesium,
   Lye, Cobalt and Catharum.

There is also a class of experiment which although
nothing in any definite and positive
unexcepted fact, has yet been very useful
in furthering our knowledge of the action of drugs.
the experiment of John Hughes Bennett with regard
to the action of Mercury on the secretion of urine are
an example of this Class.

B.

The second division of our subject consists of
The Consideration and Enumeration of some of the
arguments which have been urged against the
practise of Prinception. In order to condense this
subject I will enumerate briefly some of the
principal objections raised and give an answer
to each in as short and comprehensive a form.
1. 

Argument. That Vaccination has not in any way materially added to the advancement of medical science.

Answer. This only necessary look at the foregoing list of benefits which have already been added to science since at once that this argument is entirely without foundation.

2. 

Argument. That the only knowledge of importance gained has been in Physiology, and that, inasmuch as the knowledge of healthy functions does not actually enter in any course of treatment of disease, no practical benefit is derived from its practice.

Answer. Without a knowledge of the normal condition of the functions we should be quite at a loss to know when the functions were diseased, or, in other words, the knowledge of the healthy state of the functions is the principal instrument of diagnosis, and without accurate diagnosis there can be no proper treatment. Our knowledge of disease must be based upon our knowledge of the healthy state; to say therefore that no practical benefit is derived from physiological discovery is absurd. It is also absurd to say that the only knowledge of importance gained has been in Physiology; are not discoveries such as, the use of Chloroform, the treatment of Accutaneous by Vaccination, of the fevers, importance is annexed?

3. 

Argument. That it is wrong to inflict pain on animals for the benefit of man.

Answer. This clearly states the case that man should seek after the cure of the lower animals, and of animals must be taken that man may be supplied with...
food, or is it too much to ask that a few animals should suffer that man may be relieved from suffering? Vivisection is surely justifiable if it enables us by the infliction of a small proportion of pain to animals, to prolong human life and protect human beings from suffering.

4. Arg. That it is immoral and that it advocates are guilty of a deliberate and determined attempt to degrade morality from science.

Ans. Morality in its highest phase claims the continual sacrifice of the few for the many, of the individual for the race. If the advocates of vivisection repudiated morality it might be said that it was immoral but not otherwise. That the morals of vivisectors are far from being corrupted has been amply proved. The infliction of unnecessary pain is a thing which is abhorrent to the moral code of the medical profession.

5. Arg. That familiarity with experiment in living animals breeds contempt for their suffering. That experimenters become hardened and callous to the suffering they inflict and in consequence inexpressibly suffering is frequently the result.

Ans. This is by no means proved. That this feeling springs from the practice of experimenting. Acts of beneficence which bring out their best feelings, so there is no class of mankind who are so likely to feel tenderly for a suffering animal. They know what the suffering is and appreciate it, no doubt, more truly than other persons. If the experimenters of the past...
the consider'd, it is plain that this notion of the
 Effect of Vincitation is not at all justified.

6. Arg. That as the lower animals are susceptible to pain
and have in them the sentiments of a moral nature,
and as we feel that it is impossible to cause
them pain and sacrifice their lives, without
injury to our own better nature, therefore the pain
unjustifiable and wrong to perform experiments
upon them.

Ans. This line of argument if carried out would
necissitally lead to vegetarianism, against
which the mass of mankind would certainly rebel.
The lower animals, although susceptible to
pain, are not nearly so susceptible as man,
and the lower are in the scale of animal
life organization, the lower in the sensibility.

7. Arg. That the number of painful experiments is
multiplying from alarming extent in this Country.

Ans. As civilization, in the great expenditure of
money, unless the healing art is made to
advance in proportion to civilization, the result
would be a distinct degradation of mankind
both physically and morally, and therefore
its necessary to take every possible means
to understand the nature of disease and prevent
its spread. New directions may open up in which
experiments are helpful, but it must be remembered
that the progress of science tends to suspend
experiments previously performed. The fact is,
that the most painful arts of experiments are not
annihilating, they are both fewer in proportion
to the number of experiments, and fewer in proportion
to the range of physiological research, than
they were in the hands of medical men. The only exception which might in this instance be taken is that novices are not.

2. Arg. That vivisection is not only performed by physicians but also by students and medical men in general.

Ans. There is ample proof before that this is very rarely the case. The report of the Royal Society for the Prevention of Cruelty to Animals showed that they could not prove that students engaged in the practice to any extent. Dr. J. Colman, the secretary said, that after fifteen years' personal experience he had not known of any instance where cruelty to animals had been practiced towards animals by private medical men in their own houses, nor had any such instance come to the knowledge of the officers of the society. The same gentleman in his evidence before the Royal Commission said that after a long and very searching inquiry he had only found one instance of this to occur.

The report of the Royal Commission lays it down that such practice by students is certainly exceptional and abnormal, for no proof of the practice could be adduced.

3. Arg. That with regard to students, vivisection induces any disgraceful tendency which may exist in their dispositions, and by education it vitiate their minds.

Ans. Experiments performed before students are invariably done under anaesthetics, and so there is no suffering witnessed; they could
not therefore indulge malicious tendencies. If the mind of the student is under the active idea that poisons the result of the experiment, it must have a humoring and refining effect. The leading Physiologist in this Country allay, that would be at once rectified by the student if any painful experiment was attempted to be performed before them.

10. Arg. That Anæsthetics have not at all relieved the suffering of animals, but have hindered, acted as a cause on them, than as a blessing, because they have learned to recognize the fact from the public that painful operations are performed without their use at all.

Ans. That there are a certain number of efficient performed without Anæsthetics is not denied, but they are exceedingly few. The vast majority are undoubtedly done under Anæsthetics and no suffering is inflicted at all.

11. Arg. To think that little pain is felt because Anæsthetics are used is a false inference, because the pain is not during the operation, but in many cases it is much more severe, felt after the operation, yes.

Ans. It cannot be denied also that there is a small class of experiments, chiefly in the department of Pharmacology, in which the operation itself is done under the influence of an Anæsthetic, and the animal allowed to recover and live afterwards, in order to watch the after effects. This causes a certain amount of pain before to inflicting...
Those who have had operations performed on
them say that it is the actual cutting part of
the operation which is painful, but that the
after effects are quite bearable and in many
instances do not cause pain at all. He must
judge of the effects on animals from their analogy
known.

19. Ist. That Continental views and experiments are being
rapidly introduced into England and Scotland,
an instance being the employment of living
animals to illustrate lectures in medical
schools, which mode of teaching has long
been the custom on the Continent, but which
has only recently become general in this Country.

Aus. The science of Physiology has progressed very
considerably in all countries during the
last twenty-five years, and all that has
been lately done in this Country is to organize
schools of Physiology in a more complete
manner than they were before. The experimental
method is original with Physiology; in England
it has been carried on for long. In 1870 and 1872
when Dr. Charles Bell and afterwards Dr. Bell
Hall were working, probably nearly, as much
was being done in England as on the Continent,
then much more has been done in the Continent
and less in England. The development of its
teaching in the practical Avord is holding
special to Physiology itself, but it is only a part
of the great movement which has affected all
branches of Physical Science. In Chemistry and
Physics this is to date. Thirty years ago such a
thing as practical Chemistry was not taught and
there was no Physical Laboratory in this Country.
which students had access.
The sentiment in this country amongst physicians
whatever may be the views of foreign experimenters is
undoubtedly that pain is a great evil which
should be avoided if possible, and when it is
got possible to avoid it altogether should be

13. Arg. That one of the abuses of vaccination is the
repetition of fundamental experiments already
well known, by way of showing an interesting point
to visitor in laboratory.
Ans. Experiments when once the result is established beyond doubt, are seldom if ever repeated unless
for the purpose of class demonstration. There are few in number and are never performed
without anaesthetics. Experiments for the purpose
of demonstration visitors must be exceedingly
early, performed.

14. Arg. That meretricious effects of vaccination, is because
in the mind of the medical man, the interest of
diseases because of more importance than the
immediate well being of the patient.
Ans. It must be of the greatest importance to the
patient for the medical man to have an accurate
knowledge of disease and to treat his patients
on scientific principles - the more scientific
is medical man the better will be able to
understand and cure disease.

15. Arg. That this contrary which indications as we
have in Scripture of God's will concerning our
treatment of his creatures.
Ans. To enter fully into this argument would be
to discuss the whole subject from an ethical point of view. This I do not intend to do here; it may be shortly stated that there is just as much obligation upon us to provide means for the healing of our bodies and the keeping of them in good repair as there is for the feeding of them and the keeping them alive; and therefore we are justified in destroying animals in order to provide means for our sustenance were also justified in destroying them in order to provide means for preservation against disease.

There are one or more important arguments which have been urged against the practice of vivisection, they are said to be severe and shortened as far as possible. In the absence of full and complete statements, there is no hope of definite and definite statement. The answers are brief and in the same condensed way, but they do not clearly uphold and justify its principles and subject the objections raised against it.

Undoubtedly a number of the same animals are sacrificed in the pursuit of knowledge, but the sacrifice is small and is not made without due deliberation and a sense of great responsibility. The number of experiments of all sorts, both for demonstration and original research, which are performed in Great Britain and Ireland in one year do not amount to the very highest figure to more than 3000 (see Statistics at end of Blue Book on vivisection). Nor has it been said by any eminent Physiologist and Experiments that more than one Experiment in 500 would cause any pain to the animal.
Experimented upon, but even if we take the very maximum figures, say 1 in 50, we find it more figures than there would not be more than 60 painful experiments performed in the whole United Kingdom in one year. The amount of pain therefore inflicted by vivisection is infinitely small compared with that inflicted for mere amusement. It has been said that field sports having nothing to do with this question, that the cruelty inflicted by this means cannot and ought not to be compared with that inflicted by means of experiments. The main difference is that in the one case animal life is sacrificed for the sake of mere amusement, or for the sake of obtaining food, in the other case the sacrifice is made for the acquisition of knowledge of the utmost importance to medical science and therefore indirectly for the maintenance of human life. We cannot spare animals altogether without sacrificing interests which the common sense of mankind tells us ought to be deemed of high importance; neither can the laws of nature which compel the so-called struggle for existence, or rather the prosperity of many sorts of lower animals, be obtained without sacrifice; the enormous slaughtering of animals for human food represents the sacrifice from one point of view, and the occasional use of animals in science represents the same sacrifice from another point of view; both represent the price which must be paid for the progress of man. The medical profession, whose task it is to watch over and guard the interests of human life, cannot do its duty except at some sacrifice, and it cannot be called cruelty to destroy a small proportion of
Annual life with the usual 'views of relieving human suffering and prolonging human life. Might not many instances be pointed out where there is real and undeniable cruelty practiced to animals, and where there is no such noble object in view? Is not the practice of shooting and trapping rabbits a cruelty, when in a great many cases the animals remain for hours and hours in agony? The same may be said of shooting; no doubt in very many cases rabbits shot a very considerable percentage are only wounded and escape to their holes to die. By the means alone great suffering must be caused and the suffering too must be of a very severe kind and must far surpass both in intensity and extent that caused by felonious means. Great suffering inflicted by the shooting of horses, depriving of life, Castration of sheep &c. It is absurd therefore to argue against vivisection and the infliction of such that these acts are quite permissible and have nothing to do with the question.

If we naturally be asked, How is it, if there are no abuses, that there has been so much agitation on this subject? The agitation against vivisection has commenced by the publication and circulation of a document containing statements of the most abhorrent kind, statements which had so foundation in fact. From it was declared, that it was the duty, the interest of hundreds of physiologists and their students to habitually practise such things, with disease and wanton cruelty against innocent animals as to constitute "an offence against innocent brute, and their Creator." The public were called upon to blame these creatures by their rededication and restrict them by their laws."
No wonder that statements such as these caused the fear of all those who had them and created an atmosphere in their minds to know if such things were really done. It was impossible for the public to obtain accurate information unless there was a thorough and open inquiry instituted; hence it was brought forward in the House of Commons and a Royal Commission was appointed to inquire.

That the inquiry was a thoroughly searching one there can be no doubt, and as far as the Medical Profession and Physiologists are concerned it was certainly a satisfactory one. The report of the Commission, delivered in the Direct, Disinterested manner that these alleged abuses did not exist, that the experiments performed were few and that, only a very small proportion of them were painful. The report too, was able to assure Her Majesty that the Medical Profession and Physiologists entertained the same humane feelings which animated the whole of Her Majesty's subject. There was no evidence to show that legislative interference was necessary and there were many reasons why it should have been avoided apart from the fact that there was no necessity for it. At the first place it implied an imputation of cruelty upon those who were engaged in investigation by the means, an imputation which the report itself said was not deserved: secondly, there was the fact that it would be clear legislation of the worst kind, an enactment as it would inflict distress upon a certain class for doing certain things, while the other classes of the Community were doing precisely similar things without any distress at all; and thirdly, there could be no doubt that the progress
of Service would be impeded by it.

Whatever Legislation did would be oppressive and would be based on a distinct Assumption that there was something wrong in it. Certainty, which required Correction. It could only have been called for in such Pounds— that there were such Pounds was amply proved; there might have been isolated Cases of abuse, but even that is doubtful, and if there were such Cases, they were such as could have been dealt with by the Common Law under the 'Cruelly to Animals' Act. There can be no doubt therefore that Legislation was unnecessary and needless. It should have been left to the high Humanity of the profession in Great Britain to act as the Authorising Agent and to correct any abuse, if any such should occur.

The History of the Bill brought forward in the House of Commons, and the Indignation which it caused to the Whole Medical Profession as the Distinction which ought to be made upon Whistleblowers, is most well known. The Bill was prejudiced with offence to the public sense, and especially to the Common Humanity of the Profession. It suggested an unworthy Distinction of Medical Duty, both Surgeons and Physicians being treated as objects of permanent Suspicion. The Medical profession were thoroughly dissatisfied with it, and deplored it as an insult. Large and very influential Meetings were specially called together, and that Indignation was universally expressed. No effort was spared to get the Bill amended and passed in such a form as would not be offensive. The Profession is to be congratulated with success of these efforts: the results of the Debates and numerous Conferences with Ministers in office and
Member of the Commission, was to examine them of the propriety of all those modifications which were claimed in the interests of science.

The Bill was passed in a very different form from that in which it first appeared; and as it now stands, it is certainly partial and illogical, but it is, although in some degree, permissible to receive—

The British Medical Association in helping to bring about this successful result played a part which will never be forgotten, and which will always be remembered with satisfaction.

North Shields.
April 1877.