THE LAW IN RELATION TO EXPERIMENTS ON ANIMALS

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A MEETING of the Medico-Legal Society was held at the Medical Society Hall on Saturday, 20th August, 1932.

The President (Dr. C. H. Mollison), who presided, said that before commencing the business of the evening he had an announcement to make which would undoubtedly be received as one for congratulation. A cable had been received from Dr. Morris that the Medico-Legal Society in Great Britain will be pleased to allow affiliation, and suggesting that Lord Riddell be elected an honorary member of the Society. (Applause.) The meeting would have the pleasure of hearing Dr. Jona read a paper on "The Law in Relation to Experimenting on Animals." It was a subject on which Dr. Jona, with his experience both in Australia and abroad, was well qualified to speak.

Dr. Jona said: When I was asked by your Hon. Secretary to contribute a paper to this Society, I felt very diffident about accepting the honour, for I felt that I had neither the educational qualifications nor the legal knowledge which would give me sufficient confidence in appearing before you. On thinking the matter over, however, and casting round for a subject, I felt that perhaps an all-round discussion on a subject which directly and indirectly affects most of us, would be of value and interest. I was fortified by the fact that for the last 24 years I have been engaged in experimental research, and have worked both here and in England under Vivisection Acts, and also on the Continent, particularly in Germany, where, I understand, no legal restrictions exist. I trust, therefore, that you will bear with me, for I shall try to deal with the subject on broad lines and shall endeavour to present it impartially.

Until about 1875 there were no restrictions on the practice of experiments on animals in Great Britain, but at about this time an agitation arose, fostered by people who considered that all kinds of atrocities were being committed on

animals by experimenters, who, it was alleged, in the most callous and inhuman fashion were satisfying the blood lust or some other morbid mental or moral conditions by which they were possessed by exhibitions of wanton cruelty and mutilation on their unfortunate victims. This movement resulted in the passing of the Vivisection Act of 1876, which compelled all those who wished to perform experiments on animals to obtain a licence to carry out these experiments. The experiments and experimenters, as well as the places where the experiments were to be performed, were under the supervision of an inspector. It is rather interesting to note that, as a result of this Act, the Physiologists of Great Britain met and decided to form a Society for their mutual protection, and the defence of their rights. This Society is now one of the finest Scientific Societies in the world, and its Journal one of the leading Physiological Journals of the world—so that from an attempted evil came good—*ex malo bonum!* The various colonies and dominions have followed the Mother Country, and Acts of Parliament have been framed to regulate the activities of those engaged in experimental investigations. In the English Act a licence to practise vivisection is first granted to the successful applicant, who must then apply for various certificates to enable him to carry out special investigations, and the privileges in these certificates are very rigidly framed. In undertaking a research, a worker must try to make up his mind beforehand exactly what lines of investigation he is going to pursue, and what animals he will require, and apply for the necessary certificates. If, in the course of his work, he desires to perform an experiment not covered by his certificates, he must apply for a fresh certificate, and this may often involve a delay of a month—at least, that was my own personal experience. If he has a certificate allowing him to perform, say, hypodermic injections into an animal, i.e., injections *just under* the skin, and he wishes to perform intra-dermal injections, i.e., injections *into* the skin, he must obtain a fresh certificate for the purpose before the experiment can be performed. Only under exceptional conditions is it possible to obtain a certificate to perform experiments

on dogs and cats. It is possible, however, for any reputable worker conducting his investigations in a recognized laboratory to obtain a licence and a *certain* number of certificates.

In Victoria, experiments on animals were controlled by the Act of 1890, the Regulations of 1913, and a Section of the Police Offences Act of 1928. In Victoria, however, a licence is obtainable only by very few people, but once the licence has been obtained by an investigator, he may go right ahead and conduct any manner of investigation, so long as the requirements of the law are fulfilled. It may be of interest here to pause and consider the general nature of the experiments performed in experimental laboratories. In the first place, it may be safely stated that 95 per cent. of the experiments performed under the Act in England consist of hypodermic or similar kind of injection—and this is called vivisection! The majority of the rest of the experiments involve some degree of cutting, and are, as far as I know, always performed under proper surgical anaesthetics, and the animal is never allowed to recover consciousness unless it has a very reasonable chance of leading a comfortable existence. At this stage it may be of interest to trace the development of the experimental method in the course of scientific development. The old medicine was largely a matter of induction and deduction from observations—often shrewd and careful—of changes occurring in the human body with, in many cases, a good deal of imagination thrown in. Whether this imagery was the result of a desire to mystify the public or later avoid the wrath of the church, it is not my intention to here discuss. In the pre-Christian era, and early centuries of the present era, we have Greek medicine with its brilliant exponents, Hippocrates and Galen, and in biblical and talmudic Hebrew literature there are careful studies of animal pathology by examination of the carcase and viscera of slaughtered animals, and the various dietary restrictions and the rules of personal and communal hygiene; while later on in the early middle ages the Arab and Jewish physicians had an extensive knowledge of chemistry and materia medica apparently based on observation and human experience.

Passing over the middle ages, when, one cannot help feeling, the observations of experimenters were tainted by the fear of ecclesiastical persecution or the records were destroyed by the religious zealots of that period, one comes, in the 17th century, to that great observer and clear thinker, William Harvey, who based his epoch-making demonstration of the action of the heart and the circulation of the blood directly on experimental observation.

In a glossary such as this is, it is quite impossible to mention the names of all the great investigators, such as Stephen Hales and others, but one cannot leave this period without introducing Albrecht Von Haller (1708-77), who was born at Bern (Switzerland), educated at the University of Leyden, and then went to Gottingen in Germany, where he established the University, and during his career wrote 13,000 scientific papers—his classic research being a demonstration of the irritability of excised muscle as a property of all living tissue. This paper was based on 567 experiments, of which he did 190 himself. This is a lesson in patience and care which many modern experimenters might bear in mind! Passing on to the modern period, one naturally thinks of the great John Hunter, who not only made careful and exhaustive anatomical and pathological studies, but did not hesitate to experiment on himself, even to the extent of inoculating himself with syphilis, and making careful observations and records which stand to-day. He was also a great experimenter, and a description of his work could cover many lectures. I would, however, like to mention a small incident to indicate to you something of the nature of this man, whom the protagonists of anti-vivisection would hold up as a heartless monster. Writing to his brother, William, to whom he was referring a patient, he wrote: "Dear Brother,—The bearer is very desirous of having your opinion. I do not know his case. He has no money and you do not want any, so that you are well met. Ever yours, John Hunter."

Ever bearing in mind the high purpose of his profession, his activities were always directed towards the alleviation of human suffering, even at the expense of personal dis-

ability, without thought of fee or reward. Examples of this nature could be multiplied, but we must pass on. In the last century the pioneers of experimental physiology in the British Empire and U.S.A. are household names, and of these William Sharpey stands out. Sharpey occupied the Chair of General Anatomy and Physiology at University College, London, in 1836. During his regime his assistants and students spread the fame of British Physiology throughout the world and built the foundations on which British Physiology grew up and became the greatest School of Physiology in the world. Dr. George Harley, F.R.S., who had worked with Claude Bernard in Paris, started a class in Practical Physiology at University College, London. Then Michael Foster came in, and later became Professor of Experimental Physiology at University College, London, and later transferred to Cambridge. Schafer followed Sharpey, and is still at Edinburgh. There is hardly a School of Physiology in the British Empire or U.S.A. which has not directly or indirectly been influenced by these pioneers. One result of this growth of British Experimental Physiology was to draw the attention of so-called animal lovers to the fact that animals were being sacrificed. It is not my purpose to discuss the ethics or the religious aspect of this question, although this is the rock to which anti-vivisectionists cleave, for most of them are apparently deeply religious. If one must quote Biblical references to refute them—for the Bible is full of reference to sacrifices of animals—then surely the story of Abraham's intending sacrifice of his son, Isaac, and the substitution of a ram, should suffice.

I have attended meetings of anti-vivisectionists, and discussed the subject with them. I have asked the simple question, "Do you consider a dog's life more valuable than a human?" and I have received an unhesitating "Yes" in reply, "for the dog cannot protect itself and the human being can." In the great majority of cases this is rank hypocrisy. What they mean is, a dog's life is more valuable than "the other fellow's," for on many occasions I have had occasion to demand whether they were willing to allow me to use diphtheria anti-toxin to save their child or whether their

child's life was to be sacrificed to an idea, in which case I would report the matter to the Coroner if the child died. You need not doubt that the anti-toxin was urgently called for. But I do know of a case in England where an anti-vivisectionist would not allow her child suffering from diphtheria to receive anti-toxin, and the child died. The doctor in the case was a pillar of the anti-vivisection movement, and the necessary death certificate from heart failure was readily produced. The work of Jenner was also the target of much abuse, and the results of his investigations on smallpox and vaccination decried. I ask you, Gentlemen, how many of you have seen smallpox or its results? Travel in Russia or in the Balkans, as I have, and see the despoiled faces of beautiful women, and hear the mothers' tales of decimated families during epidemics, and you need not argue about statistics or effective quarantine. Later, we come to the great work of Lister, who, applying the results of the great French scientist, Pasteur, made modern surgery possible. Regarding Lister, and particularly of Pasteur's work in regard to hydrophobia and tetanus, volumes have been written, and those of you with war experience will recognize the enormous value of the tetanus work. As Sir Lauder Brunton says, "But for experiments on dogs, abdominal surgery would not now exist." Lister was first and foremost a physiologist, graduating to experimental work through careful training with the microscope, and investigating by means of these methods the problems with which he found himself surrounded. A man of charm and great personality, imbued with the love of his fellow-men and the desire to help, he earned the respect and reverence of his students and disciples. No greater tribute to the character of the man could be paid than is found in the poem, "The Chief," by one of his students. The condition of affairs in the operating rooms which Lister found is best described in the words of Wrench, in his biography of Lister. Contrast this with the picture of a modern operating theatre, which perhaps some of you know by personal contact!

From this period on, great discovery followed great discovery; one of the greatest as far as saving of human life

was Behring's discovery of diphtheria anti-toxin. So great was its influence that even the caricaturists had "copy." You will notice the interested expression on the horse's face! I will show you a picture of the conditions under which these horses live, and also one showing the method of obtaining the serum. I cannot see anything suggesting cruelty in these, although no anaesthetic is used. In all modern physiological laboratories where animal experiments are performed you will find facilities provided for the comfort, ease and resuscitation, which very few operating theatres for human beings in the world provide. Where will you find the tables warmed as our experimental tables are warmed, and how often do you find air and oxygen laid on and ready to be tapped to resuscitate? An artificial respiration pump to hand and ready to use at an instant's notice? In the case of dogs we give 4 to 8 grains of morphia as a preliminary injection to the administration of chloroform in all cutting experiments, and I show you the pictures of a modern laboratory and of a physiological experiment. Compare this with the state of affairs in pre-Listerian days. I venture to say that the operating theatre we have in the Physiological Department of the University of Melbourne is superior to the theatres in most private hospitals in Melbourne!

Even the simplest physiological experiments are called cruel. Compare this picture of Sanctorius several centuries ago in his metabolism apparatus with the same type of apparatus used for animals and human metabolism experiments to-day. If all this is cruel, and is to be stopped by law, what will become of our pastoral industry, with the "docking" and "marking" or castrating of lambs, and the castrating of bulls and stallions, and the speying of the female kind? And what are we to do with those vicious and terrible people who chop off the tails of puppies and drown kittens? And what of those who boil lobsters alive and kill fish and allow them to die of asphyxiation after they have been caught in nets? All of which things entail more cruelty and suffering than any animal experiment I have ever seen. As for the "sports" who destroy or maim living animals for

the sheer pleasure of the "sport," well, I think they are completely out of the picture.

There is also another practical side to the laws relating to experiments on animals which has a very personal touch. According to the Victorian law, no experiment shall be performed on an animal for the purpose of gaining manual skill, i.e., in order to gain proficiency in surgery. Soon after my graduation, when I had to attend courses of operative surgery in Australia, I went abroad and I attended courses of surgery in England and in Germany. In Australia we did these operations on the cadaver (when we could get on to one!), and in England I did bowel surgery on sheep's guts obtained from the nearest butcher's shop; everything else was done on the cadaver. In Germany, however, I was able to attend and perform courses of surgery on the living dog. The dog was anaesthetized, and the operation was performed under the professor's supervision, with all the proper aseptic conditions as in human surgery. Day by day we were able to follow the results of our operations, and in cases of failure the error of our ways could be demonstrated and corrected. Under the conditions as existing in this country, this is not permissible, and you, who have the opportunity of making our laws, or influencing those who do, must ask yourself the question I ask of the vivisectionist: Is a dog's life more valuable than the human? And in the acquisition of surgical technique and skill, and in the investigation of disease, and the study of drugs or remedies which are you going to have, this—the dog sacrificed under conditions of perfect analgesia or anaesthesia, and every experimental detail controlled and observed; or a reversion of this—the sacrifice of "cheap" human lives to further our knowledge, as was done by Nero and Locusta in their investigation of the action of poisons?

We may close here with a single conclusive example, by which anyone may be convinced by his own eyes.

If a snake be cut open, the heart may be seen quietly and distinctly beating for more than an hour, moving like a worm and propelling blood when it contracts longitudinally, for it is oblong. It becomes pale in systole, the reverse of

diastole, and almost all the other things we mentioned as proving the truth may be clearly observed, for here all happens slower and more distinctly. This especially may be seen more clearly than the mid-day sun. The *vena cava* enters at the lower part of the heart, the artery leaves at the upper. Now, pinching off the *vena cava* with a forceps or between the finger and thumb, the course of blood being intercepted some distance below the heart, you will see that the space between the finger and the heart is drained at once, the blood being emptied by the heart beat. At the same time, the heart becomes much paler even in distention, smaller from lack of blood, and beats more slowly, so that it seems to be dying. Immediately on releasing the vein, the colour and size of the heart return to normal.

On the other hand, leaving the vein alone, if you ligature or compress the artery a little distance above the heart, you will see the space between the compression and the heart, and the latter also, become greatly distended and very turgid, of a purple or livid colour, and, choked with blood, it will seem to suffocate. On removing the block, the normal colour, size, and pulse returns.

This is evidence of two kinds of death—failure from a lack and suffocation from excess. In these examples of both, one may find proof before his eyes of the truth spoken about the heart. "Harvey's Experiment on a Snake—An Anatomical Study on the Motion of the Heart and Blood," p. 82-83.

DISCUSSION

Dr. Weigall said he hesitated to touch on the subject, but by way of showing the anomalous position of the law on vivisection at present he would like to ask what would happen if the following letter were addressed to the Governor-in-Council, who has the task of issuing licences for such work: "A large number of deaths occur annually as the result of shock or sepsis following compound and comminuted fractures of the leg caused by motor and other accidents. For the purpose of investigating the cause and treatment of such conditions, I desire to produce similar fractures in the legs of animals, by direct violence, and, of

course, without anaesthetics, which (if used) would obviate the necessary shock. The animals will be detained for some twelve hours alive to allow symptoms to develop. Some of the animals will be detained until they die of starvation. Large numbers will be so treated in unspecified districts at unspecified times and no records will be available. As they are cheap and easily obtainable, I propose to use rabbits for the purpose, and would ask you on what conditions such a permit would be granted." It would be easy to guess what answer would be received. But if he put it in another way and said, "I am a rabbit trapper out of work," he could do the same thing, would be supplied with traps free, told where to get the rabbits and be paid a few pence for each rabbit so treated. It was rather reducing things to an absurdity to bring such an imaginary letter into a discussion of vivisection. Yet cruelties such as those mentioned are committed by rabbit trappers in following their calling, and no notice was taken. But were a request made to carry out the experiment under scientific restrictions it would not be granted. He hoped some of the legal gentlemen would explain the difference between conducting experiments for scientific purposes and slaying rabbits for sale at a few pence per head.

Dr. Maxwell said that introductory to the few words he was going to say he would explain that for the last twenty years he had been a teacher in the physiological school at the University. Dr. Jona had pointed out certain shortcomings relating to the law respecting the use of animals for experimental purposes. The Act provided that a person may apply for a licence to carry out a productive experiment provided that a satisfactory anaesthetic was used — one which rendered the animal analgesic. Before administering the anaesthetic it was usual to give the animal four grains of morphia. A quarter of a grain of morphia would make most of the persons present to-night very sleepy. Still it was usual to give four grains to a dog. But there was a certain section of the community that insisted that chloroform would not produce a complete analgesia in a dog. As a matter of fact, it did give a most effective analgesia, and it kept the animal under its influence as long as desired, provided it was properly administered. Then there was the question of gaining skill—manual dexterity. The provision against the use of animals for that purpose is very unfortunate, and it would be well if the law was altered in that respect. It is very difficult to gain surgical skill on a dead

animal or cadaver. The next point was that a person may not experiment on animals for the purpose of the advancement of physiological knowledge. If an operation was performed on an animal, it had to be destroyed while it was still insensible. During the last few decades great knowledge had been gained by experimenting on animals which could not have been gained in any other way. Take, for instance, the function of the spleen. A surgeon may have wished to remove the spleen of a patient, and not known whether he could remove it without risking death. The problem was one that could very well be solved on an animal. An operation, it would be found, could be performed on a dog for the removal of its spleen and the dog would continue to live in good health. Therefore, it was determined that the spleen could be removed. But take the removal of the pancreas. Could it be removed from a human being, and he continue to live? It could not. How was the surgeon to know that? He knew that by removing it from a dog and observing that its removal was followed by death, that the pancreas could not be completely removed. By those experiments it could be said in the one case—the removal of the spleen—it could be done, for if removed from the animal it continued to live. In the other, it could not be done without risking death, for the experiment on the animal proved such to be so. Take other instances of the advantages that have accrued by experimental investigation. There were the investigations by Banting with insulin for the treatment of diabetes. It was only as a result of the work on animals, coupled with biochemical investigations, that insulin had been prepared and used to the wide extent it was at the present time. Then there was the work of Sir Edward Schafer in extracting adrenalin out of the adrenals of animals. The drug was now used in conjunctivitis, was applied to mucous surfaces before operations to prevent bleeding, and in the treatment of asthmatic attacks. There was also the case of digitalis, a drug most extensively used in the treatment of heart failure. In the past it was used very unsatisfactorily. The dose for the result desired was not known, because it had not been standardised. But the standardisation has been achieved by experimenting on animals. By that means the vascular effect on human beings was determined. The animal experimented on was the frog. In the case of the standardisation of insulin the animal providing the experiment was the rabbit. In the community there were quite sensible and responsible people who would like to see the law which allows controlled ex-

perimenting on animals abolished. With its abolition advantages similar to those described could not eventuate.

Dr. Farran-Ridge said he was the possessor of a vivisection licence himself, and he knew its advantages—and its responsibilities. But as an illustration of clear thinking on the subject he would read an extract from a report of the Stephen Paget Memorial Lecture by Sir Arthur Keith. Sir Arthur was one of the outstanding biologists of the world, and one of the outstanding realists of the world, too. The report reads: "He began his lecture with a reminder that in other fields of scientific research—in physics, chemistry, geology, and botany—experimental work was not impeded by considerations of sentiment. The conflict between sentiment and reason was felt acutely by medical students when they had to spend sessions in the post-mortem room; some were indeed so upset by the experience and the dread of such intimate contact with the dead that they forsook the study of medicine for something less harrowing. The judge on the bench had in a measure to divest himself of his natural instincts if he was to administer the law to the criminal; while the crowd, bemoaning the end which awaited the man in the condemned cell, forgot the justice due to the woman whom the criminal had widowed and the children he had made fatherless. Among teachers, again, there was a growing feeling that the physical punishment of scholars was an unjustifiable form of cruelty. In fact, sentiment exerted itself more and more as a ruling force. The repugnance to eugenic measures of surgery sprang from sentiment rather than from reason, and the domination of sentiment was seen in a growing degree among highly civilized peoples. But if sentiment was completely to subjugate reason, the ultimate result for civilisation would be disaster and not progress. Man's powers of sympathy, primarily intended for the succour of his fellows, had been extended in recent times beyond the confines of the family or the tribe to include all animals which enter into friendly relations with him. Four thousand years ago, when failure to hunt involved starvation, the animals pursued had a sporting chance to escape, but under present conditions the animal grazing within enclosures had no chance of avoiding slaughter when time was ripe. In some of the civilizations of the East, sentimentalism had been enthroned to such an extent that animal life in every form was accounted sacred, and the more vermin a devotee harboured between his skin and his garments, the greater was his merit. To place animal life on equality with human life meant that the

proper religion was Buddhism. It was better, honestly, to recognize the conditions of existence, and that there was no alternative to living on the products of life. If to nature was ascribed the endowment of man with the god-like qualities of goodness and mercy—and sympathy, to what source was the vice of cruelty to be traced? By his spoken and written words he could outdo the worst wounds caused by the poisoned darts of savages. The power of being cruel may be latent or suppressed, but it was never missing from the gamut of human nature. What purpose could cruelty have served in the survival of the people? In the creation of man it could be assumed that nature had done nothing in vain. . . . Everyone wished to see thoughtless cruelty eliminated, none more so than the members of the Research Defence Society; but there seemed to exist beings in human shape who caused cruelty for the sake of the pleasure they experienced from it. It had been his privilege to know many of those who had advanced the resources of medicine by operations on anaesthetized animals, and all had been tender-hearted men, who were convinced that by a present sacrifice of animal life they would make the world better for both man and beast. To watch a surgeon operating would convince anyone that if the patient had been his own child he could not have been more tender and careful. Yet he heard such men branded as malefactors and criminals. Of all forms of cruelty there were none more diabolical than those forms which depended upon a wilful misrepresentation of motive. If there was a need for a society to save animals from unnecessary suffering, there was also need for an organization to save scientific men from the cruelty of misrepresentation and injustice. If reason were the sole arbiter in deciding whether or not vivisection was justifiable, the public jury of England would long ago have returned a verdict in favour of that society; and if reason could convince its opponents, backed by masses of evidence, they would long ago have been reduced to silence. But reason did not hold the sceptre of public opinion, and it was necessary to continue to produce evidence and so enlighten the public. The Research Defence Society also had to do more than defend those who sought to relieve suffering by research, but on occasion it had to take the offensive when it saw the charitable heart of the public being misdirected." This set out in admirable clearness the position.

Dr. Dale said that he had two reasons for contributing to the debate. One was to congratulate the lecturer on his

very interesting paper, and the other was to draw attention to the way in which the work of investigation suffered from the action of the local branch of the Anti-Vivisection League. With regard to the latter aspect, he felt that his medical colleagues had dealt with the matter too apologetically. There was no need for him to advocate to them to free the experimental physiologist and biologist from the charge of cruelty. Dr. Weigall's test letter struck the keynote. In conducting these experiments, there was no cruelty unless there was intention on the part of the operator to inflict pain. No operator inflicted pain for the purpose of exhibiting the creature under the experiment in pain; the animal was rendered insensible to pain, and therefore there was no cruelty. The term cruelty presupposes the deliberate infliction of pain. It is an unfortunate fact that in many cases where people are advised of the existence of preventive or immunizing measures, and recommended to employ them, the Anti-Vivisection League interferes with pamphlets and accounts of tragedies. It will refer to the unfortunate accident which resulted in twelve deaths — an accident impossible to happen now. But it makes no mention of the fifty to one hundred thousand deaths every year of people who were not immunized. Pamphlets of this kind are paid for and actually circulated by this League. The pamphlets are ridiculous. Naturally in treating a large number of children, one of them may get whooping-cough or pneumonia or epilepsy. If that happens, the incident is trotted out, and there is a tremendous fuss about it, in the ridiculous publications of the Union. If means exist to render people less liable to suffering, and, therefore, more effective social units, those means should be used, particularly when they can be used in absolute safety, and the operation be explained to and be understood by persons of ordinary reason. A small measured amount of diphtheria toxin is injected, and it is called by these enemies to society "pumping poison into the blood of an innocent child." Perhaps the pumping would not have mattered if the child were not innocent. The people should be educated to these preventives. What is there in a hypodermic injection? Doctors do it to themselves. But go to a school and begin to do this work by asking the teacher if he will be done. His answer will be, "No." There is a big field for propaganda to make the people more reasonable and more alive to the importance of bacteriological and biological work.

Dr. Jona, in closing the discussion, said there was not very much additional to be said. In preparing the lecture,

he had in mind that it would be best not to say too much, but to say sufficient to provoke discussion, or the privilege of the last word would then lie with him. With regard to the points raised: Dr. Weigall was quite right. He believed, however, that Dr. Weigall would not need a licence to do what he liked with rabbits, for they were vermin and not animals under the Act. As a matter of fact he could do what he liked with quite a lot of creatures, because they were vermin. Dogs, cats, horses, and goats came under the Act, but rabbits, foxes, wild dogs, being vermin, did not. It was difficult to get a good universal definition of vermin. Rabbits are not vermin in England. In some countries the experimentor was allowed to do what he liked, but the Act and Regulations were specific in Victoria. The intentional infliction upon any animal of pain was forbidden, likewise mutilation to gain manual dexterity, and the animal experimented on had to be insensible to pain during the whole time of the operation, and if in the course of the operation it is so injured that its recovery would involve suffering, it had to be destroyed while still insensible. But how can it be determined what degree of pain is felt by the animal? Take a frog and destroy its brain, leaving its spinal cord, and see how it can react to tests. Touch its operated section with a little acid to give it pain, and it will bring its leg up and attempt to wipe away the cause. Yet it has been deprived of its brain or sentient organ. Many people suffer from an over-supply of sentimentality or morbidism, and mistakenly think that animals feel pain as human beings. Even the degree of pain felt by human beings differed. He recollected a refrigerating engineer who got his thumb caught in a fan, which ripped it off. He went down to a doctor at Rockhampton and asked him to trim it up. The doctor said he would give him an anaesthetic. "Oh! no," said the engineer, "I want to see what you are doing." Could it be imagined that that man felt pain as a sensitive girl might? Then there was the pain associated with obstetrics. Women there suffered as he would not like to suffer, and yet they didn't seem to say so much about it. Various people suffered pain differently, and it seemed wrong to attempt to compare the emotions affected by painful stimulus. Take the case of fighting dogs. They seemed to be little affected by the pain they inflict. A dog chasing a slut seemed more or less indifferent to such pain as that inflicted by being run over by a motor car, for he generally jumped up and continued his quest. The feelings of an animal were not comparable with those of a human being. People taking up

the stand against experimenting on animals were inclined to set false standards, and to allow their commonsense to be snowed in with their emotions. There was no doubt that the care taken as a rule with the experimented animals was very much greater than that taken with human beings in most hospitals. It could be left at that. He quite agreed with Dr. Dale regarding the mistake of the apologetic attitude towards the anti-vivisectionist. The advice of the prize-fighter to get in early and get in well was deserving of attention. Rather than to defend against the efforts of the enemy, it would be better tactics to take the fight into his camp. Dr. Dale had also introduced quite an interesting point in regard to the Bundaberg fatality. It was an unfortunate happening that could be debited to unsatisfactory experimentation, and of the victims it should be said that they died to save the lives of hundreds of others. They belonged to the noble army of martyrs. About the only true charge that could be brought against vivisection was an economic one—it tended to make people live longer, which in these days of economic depression was a grave disadvantage. He was disappointed that the legal gentlemen had not taken a more active part in the discussion. Their help was needed to overcome some of the obstacles preventing animal experiments. For, while such investigations are interfered with, valuable lives were going to be lost.

Mr. Ham said he had much pleasure in proposing a vote of thanks to Dr. Jona for his very interesting paper. On behalf of the legal members of the Society, he took the opportunity of disclaiming responsibility for the position of the law in relation to vivisection. The legal profession would be responsible for the law if it were the larger proportion of the electors. Its votes were too small in number to permit it to determine what should or should not become a law. There is no doubt that the anti-vivisectionist movement is dictated by ignorance, and people were always suspicious and antagonistic about things they knew nothing about or did not understand. They argue that it is not cruel to inflict pain in killing animals for food, for profit or for sport, and they argue so because they understand those things. But as soon as anyone suggests that an animal should be used for scientific work they immediately become suspicious. The only theory they can conjure is that it is to be used for the pleasure of inflicting pain. They suspect science because of their own preconceived idea of the subject. But that the legal profession should be blamed for

that prejudice is wrong. If Dr. Jona thought the legal profession was going to get up and attempt to put up an argument in favour of anti-vivisection, he could understand his disappointment. In so far as influencing the community on the advantage of experimentation and encouraging the State to give facilities for scientific investigation, the legal profession, he was sure, would join heartily with the medical profession to accomplish its desire.

Professor Allan, in seconding the vote of thanks, said that the right to scientific knowledge, through experimentation, should need no advocacy. Those responsible for the pain inflicted in the work with which he was particularly associated (obstetrics), had not to apply for licences. The tragedy at Bundaberg had very much held up scientific work in this country. The object of the medical profession was to convince their legal brothers of the need of these experiments, and to secure their help in the removal of the statutory obstacles. If medical men are not free to work here without these restrictions, they must go abroad. His personal knowledge of his confreres on the Continent dispelled the thought that they go in for cruelty as a pleasure, as a figment in the minds of the anti-vivisectionists. The real object of the lecture was to remind the legal profession of what it owed to animal experimentalism through the ages. He had very much pleasure in seconding the vote of thanks.

The vote was carried by acclamation.

ILLUSTRATIONS:

(1) Harvey: dem. to Chap. 1, Circ. of the Blood.—Facing title leaf, p. 11.

(2) V. Haller: Photo.—Hist. Med., p. 247.

(3) John Hunter: Photo.—Hist. Med., p. 275.

(4) Jenner: Picture of Statue.—Med. Cong., opp. p. 65.

(5) and (6) Lister: Photo Frontispiece, and Poem, "The Chief."—The Edinburgh Book.

(7) Conditions in pre-Listerian Theatre.—Wrench's Lister, p. 129.

(8) Modern Operating Theatre.—Universitals Klinik, Jena, Fig. 19, p. 32.

(9) Caricature of Behring: Supplying Antitoxin Serum.—Med. Cong., p. 103.

(10) Horse Boxes at Elstree (Lister Institute).—Fig. opp. p. 11: Joseph Lister.

(11) Horses Providing Antitoxin: "For and Against Experiments on Animals."—Fig. opp. p. 112.

(12) Modern Laboratory.—Fig. 21, p. 35.

(13) Modern Physiol. Exper.—Brodie, p. 169.

(14) Amputating a Leg: Calendar.—Aug., Sept.

(15) Sanctorius Metabl. Exper.—History of Medicine, p. 191.

(16) Metabolism, Apparatus.—Human, Animal.

(17) Nero and Locusta: Poisoning a Slave.—Mysteries of History, opp. p. 14.