

ANIMAL EXPERIMENTATION 1876-1976:
HISTORICAL AND CONTEMPORARY PERSPECTIVES

An Analysis of Moves Towards the Reform
of British Legislation Controlling the
Practice of Animal Experimentation and
of Contemporary Trends in the Search for
Humane Alternatives.

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ABBREVIATIONS

A.A.M.R.	<u>Association for the Advancement of Medicine by Research.</u>
A.L.F.	<u>Animal Liberation Front</u>
Autobiography of Cobbe	<u>Life of Frances Cobbe as Told by Herself</u> (2nd edit. London, 1904).
Bernard	<u>Claude Bernard, An Introduction to Experimental Medicine</u> (1957 edit, New York).
Dark Face	<u>John Vyvyan, The Dark Face of Science</u> (London, 1971).
French	<u>R.D. French, Antivivisection and Medical Science in Victorian Society</u> (Princeton, 1975).
Lapage	<u>G. Lapage, Achievement - The Contribution of Animals to Man's Conquest of Disease.</u> (Cambridge, 1960).
Nossal	<u>G.J.V. Nossal, Medical Science and Human Goals</u> (London, 1975).
Pity and Anger	<u>John Vyvyan, In Pity and In Anger</u> (London, 1971).
Rogers	<u>Sir Leonard Rogers, The Truth About Vivisection</u> (London, 1937).
Russell and Burch	<u>M.S. Russel and R.L. Burch, The Principles of Humane Experimental Technique</u> (London, 1959).
Westacott	<u>E. Westacott, A Century of Vivisection and Anti-Vivisection</u> (London, 1949).

A.E.A.C.	Animal Experimentation Advisory Committee (of the R.S.P.C.A.).
AV	Antivivisection.
A.W.	Animal Welfare.
B.M.A.	British Medical Association.
<u>B.M.J.</u>	British Medical Journal.
B.U.A.V.	British Union for the Abolition of Vivisection.

C.I.A.R.	Committee for Information on Animal Research.
C.R.A.E.	Committee for Reform of Animal Experimentation.
D.E.S.	Department of Education and Science.
DNA	Deoxyribonucleic acid.
<u>D.N.B.</u>	<u>Dictionary of National Biography.</u>
<u>D.S.B.</u>	<u>Dictionary of Scientific Biography.</u>
First Royal Commission	<u>Report of the Royal Commission on the Practice of Subjecting Live Animals to Experiment.</u> (1876).
F.R.A.M.E.	Fund for the Replacement of Animals in Medical Experiments.
H.O.	Home Office.
Houghton/Platt Memorandum	<u>Experiments on Animals-Cruelty to Animals Act 1876, (May, 1976).</u>
H.R.T.	Humane Research Trust.
I.U.C.N.	International Union for the Conservation of Nature.
L.A.C.	Laboratory Animals Centre (of the M.R.C.).
LD ₅₀	Lethal Dose 50% (a measure of acute toxicity).
Littlewood	<u>Report of the Departmental Committee on Experiments on Animals</u> (1965).
M.A.C.E.	Movement Against Cruel Experiments.
M.R.C.	Medical Research Council.
N.A.S.	National Academy of Sciences (Washington D.C.).
N.A.V.S.	National Antivivisection Society.
N.C.I.	National Cancer Institute.
P.R.O.	Public Records Office.
R.C.S.	Royal College of Surgeons.
R.D.S.	Research Defence Society.

R.S.P.C.A.

Royal Society for the Prevention
of Cruelty to Animals.

Second Royal Commission

Reports of the Second Royal
Commission on Vivisection. (1906 -
1912).

S.S.P.V.

Scottish Society for the
Prevention of Vivisection.

U.F.A.W.

Universities Federation for
Animal Welfare.

U.F.A.W. Symposium Report 1977

The Welfare of Laboratory
Animals, Legal, Scientific, and
Humane Requirements (U.F.A.W.,
1977).

W.H.O.

World Health Organisation.

PREFACE

This work is not simply a history of events relating to animal experimentation between the years 1876 and 1976. It is, rather, an analysis of changing trends occurring both within the antivivisection movement and the scientific community, together with some commentary upon the impact of the changes upon government and the public.

The years 1876 and 1976 are both significant, the former being the year in which the Act controlling the practice of animal experimentation in Great Britain passed onto the Statute books, and the latter being its centenary, marked both by Animal Welfare Year and by the presentation to the Home Secretary of an important document (the Houghton/Platt Memorandum) by the reform movement.

In order to appreciate contemporary attitudes and controversies, it has been necessary to look at their historical basis. Accordingly, the first two chapters deal with events leading to the passage of the Cruelty to Animals Act (1876) and with arguments presented before the 1906 - 1912 Royal Commission, set up to review the working of the Act; this discussion draws heavily upon the private correspondence of that Commission housed in the Public Records Office.

Apart from a Departmental enquiry held in 1965 (the Littlewood Committee), which has been largely ignored by government, there have been few significant events relating to the subject until very recently. The rest of the thesis is therefore a contemporary history, and it deals with changes in attitudes within the antivivisection movement and the scientific community which have, in the last two years begun to make an impact, and seem likely, in the near future, to lead to changes in the administration of the 1876 Act. For this reason, it has not always

been possible to confine the coverage strictly within the dates given in the title. Some discussion of events prior to the passage of the Act has obviously been necessary, and it has been considered essential to cite important events which have occurred subsequently to 1976. In this discussion I have drawn heavily upon information disclosed to me privately concerning the activities of the reform movement, the promotion of alternatives, and government reaction to these activities. It should be pointed out, however, that with the intensive activity presently occurring within the reform movement, the Home Office, and the scientific community, with respect to both the administration of the Act and the promotion of "alternatives" to animal experiments, it has not been possible to deal with all the possibly relevant events that have taken place during the last eighteen months.

The general conclusion is that, while animal experimentation must be considered indispensable to medical science, there is, even at the present time, and most certainly in the future, considerable scope for reduction in the extent of the practice, both through stricter legislation which should exert greater control over purposes for which such experiments are considered legitimate, and by the development and promotion of non - animal "alternative" research techniques.

Bibliographical note

There may be considerable overlap between the material and conclusions presented here and the book, Alternatives to Animal Experiments by Professor D.H.Smyth (London, 1978). Since this book did not appear until after the completion of this thesis, and since I have not had access to

the material used by Smyth, any overlap is purely coincidental. However, it is extremely interesting to note that Smyth, whose research has been funded by the Research Defence Society, has drawn the conclusion that there is considerable scope for "alternatives" to animal experiments.

P A R T I

BRITISH LEGISLATION AND

MOVES TOWARDS REFORM

CHAPTER 1

INTRODUCTION

THE PASSAGE OF THE 1876 ACT AND EVENTS RELEVANT TO THE SUBSEQUENT REFORM MOVEMENT

The year 1876 saw the passage of the only legislation enacted in Great Britain to control the practice of animal experimentation. Events preceding the 1876 Act are strictly outside the province of this work and since they have been well documented elsewhere¹ will not be considered here in any detail. However, it is necessary to outline the major events which led up to the passage of that Act so that the trends in the subsequent reform movement may be fully appreciated, since the contemporary attitudes and controversies discussed in this thesis have their roots in the nineteenth century.² The events in the late

-
1. Several authors have tried to portray the history of the anti-vivisectionist movement from its roots in the growth of experimental physiology in the mid-nineteenth century. Most of these works are written with a strong antivivisectionist bias. Examples are : John Vyvyan, the Shakespearean scholar, In Pity and Anger (London, 1969), hereafter cited as Pity and Anger, and its sequel, The Dark Face of Science (London, 1971), hereafter cited as Dark Face; and E. Westacott, A Century of Vivisection and Anti-vivisection (London, 1949), hereafter cited as Westacott. The latter is extremely selective and unreliable. The fullest and most objective account is to be found in Richard D. French's excellent Anti-vivisection and Medical Science in Victorian Society (Princeton University Press, 1975), which is based upon an Oxford D. Phil. thesis (1972). French's book will be used extensively in this introductory chapter and is hereafter cited as French. See also Mark N. Ozer, "The British Vivisection Controversy", Bull.Hist.Med., 40(1966), 158-167.
 2. J.E. Hampson, "Changing Trends in the Antivivisection Movement", a paper presented at the R.S.P.C.A. Symposium on Animal Rights, Cambridge, August, 1977. See copy in thesis sleeve.

1800s which resulted in the passage of the 1876 Act, the formation of the antivivisection societies and the organisation of resistance to pressure within the scientific community, sowed the seeds for a polarisation of attitudes which has prevailed over the last hundred years and has resulted in an almost total stalemate in the anti-vivisectionist reform movement until very recently.

These hardened attitudes have now begun to change. This thesis attempts to analyse some of the reasons for this change, to make some tentative predictions about the future of the antivivisection movement and the potential of alternatives to animal experimentation and to outline the most pressing areas for reform in the British system of control.

Important Events Preceding British Legislation

It will be shown later in this work that the vivisectional method of research was first established as a fundamental tool of experimental physiology and medicine by Magendie and his pupil, Claude Bernard in France.³

The first protests against animal experimentation raised in England were directed against the abuses and excesses of foreign experimentalists avidly pursuing the "new scientific method".

Most notable among the "horror stories" which circulated between 1861 and 1863 were those referring to the French veterinary schools at Alfort and Lyons, where horses were reported to have been dissected

3. See Chapter V of this thesis. Note also that the antivivisectionists regarded Magendie as the supreme example of the "evil scientist". Even the Lancet regarded his infamous experiments upon the spinal roots as "too horrible to dwell upon", Lancet, 2(1863), 225.

alive by students seeking to practice their surgical skills. In Britain where experimental physiology had not yet taken firm root, humanitarians found support for their campaign within the scientific community itself, the Lancet, for example, continued to protest against the excesses of Alfort throughout the 1860s.

In 1863 Frances Power Cobbe, who was to become a leading figure in the British Victorian antivivisection movement,⁴ was convalescing in Florence when she heard of the infamous practices conducted at the Physiological Institute there by Professor Moritz Schiff, a pupil of Claude Bernard. So much pressure was to be brought to bear upon this gentleman that he eventually sought refuge in Switzerland. The affair impressed upon Cobbe the urgent need to take up the cause of fighting vivisection. Earlier that year her interest in the subject had been aroused by the reports of the Alfort atrocities regularly appearing in the British press. As a result she had written an article, "The Rights of Man and the Claims of Brutes", which had appeared in the November issue of Fraser's Magazine and was her first serious attempt to deal with the ethical issues of vivisection according to Kantian philosophy. The efforts made by Cobbe and the Anglo-American literary circle⁵ in Florence to persuade Schiff to desist from his barbaric practices were abortive, and all the more calculated to fill the indomitable Cobbe with resolve to act on her return to England. At this time British physiology was yet unprofessionalised and seriously lagging behind its counterpart in France and Germany. Historians

-
4. Cobbe is an immensely rich and interesting character. An analysis of her motivations and her role in the movement cannot be considered here. She is perhaps best portrayed in her autobiography, Life of Frances Cobbe as Told by Herself. (2nd edit., London, 1904).
 5. It included the Brownings, the Trollopes, Landor, the Somervilles and the dying American theologian Theodore Parker.

assessing the reasons for this have indicated that one of them was the failure of England to institute the experimental method in her universities.⁶ It is, therefore, not surprising to find that British physiologists were closely monitoring the work of their foreign colleagues.

In 1870, during his presidential address to the British Association for the Advancement of Science in Liverpool,⁷ T.H. Huxley publicly praised the experimental work of the Anglo-French neurologist, Brown-Séquard. Since much interest was being generated in the popular press by humanitarians criticising foreign experiments, scientists were concerned to show the public that the claims of science could be reconciled with those of humanity.

A member of the Royal Society for the Prevention of Cruelty to Animals, who was present at the Liverpool meeting, suggested that B.A. grants be withheld from members who caused pain to animals. As a result the Association set up a small committee to compose a statement of physiologists' "views upon physiological experiments in their various bearings and how to reduce suffering to a minimum" and "to consider from time to time whether any steps can be taken by them or by the Association, which will tend to reduce to its minimum the suffering entailed by legitimate physiological inquiries; or any which will have the effect of employing the influence of this Association in the discouragement of experiments which are not clearly legitimate on live animals."⁸

6. G. Geison, "Social and Institutional Factors in The Stagnancy of British Physiology 1840-1870", Bull.Hist.Med., 46(1972), 30-58; and R.D. French, "Some Problems and Sources in the Foundations of Modern Physiology in Great Britain", History of Science, 10(1971), 28-55; and French, Chapter 3.

7. Autobiography of Cobbe, 625.

8. Report of the Fortieth Meeting of the British Association for the Advancement of Science, Liverpool, Sep. 1870, BA Reports, 39(1870), lxii. The findings were reported to the Forty-First Meeting in Edinburgh, Aug. 1871, BA Reports, 40(1871), 144.

The committee, which was composed of ten leading anatomists and physiologists, submitted its report to the Association at its annual meeting in 1871. The report amounted to a "moral code" of practice for experimental work such as had been called for by the medical press throughout the sixties :

1. No experiment which can be performed under the influence of an anaesthetic ought to be done without it.
2. No painful experiment is justifiable for the mere purpose of illustrating a law, or fact already demonstrated; in other words, experimentation without the employment of anaesthetics is not a fitting exhibition for teaching purposes.
3. Whenever, for the investigation of new truth, it is necessary to make a painful experiment, every effort should be made to ensure success, in order that the sufferings inflicted may not be wasted. For this reason, no painful experiment ought to be performed by an unskilled person, with inefficient instruments and assistants, or in places not suitable to the purpose; that is to say, anywhere except in physiological and pathological laboratories, under proper regulations.
4. In the scientific preparation for veterinary practice, operations ought not to be performed upon living animals for the mere purpose of obtaining greater operative dexterity.⁹

The report was signed by M.A. Lawson, G.M. Humphrey, J.H. Balfour, A. Gamgee, W. Flower, G. Rolleston and J. Burdon-Sanderson.

9. French (p.45) notes that three of the members (one being Michael Foster) did not sign the document, but he has found no evidence that it was controversial.

R.D. French has noted that other very important occurrences in 1870 were to play a large part in shaping events to come. British physiology was becoming professionalised. As he puts it :

In 1870 a small group of experimentally inclined British physiologists, many of them with continental educations, accepted recently developed institutional positions from which they and their allies and protégés were to dominate the sciences. With the model of French and German physiology clearly in mind, they transformed education and research in the subject in Britain from a poor and rather suspect tributary of gross and microscopic anatomy to a thriving, prestigious and independent discipline whose members were clearly in a position of world leadership by the turn of the century. 10

These appointments included that of J.S. Burdon-Sanderson (1828-1905) as Professor of Practical Physiology and Histology at University College London, (in the following year he became superintendent of the Brown Institution); E.A. Schafer (1850-1935), Assistant Professor of Physiology under Burdon-Sanderson; and Michael Foster (1836-1907), first Praelector of Physiology at Trinity College, Cambridge. The impact of this "new school of physiology" can be clearly seen by contrasting the evidence for the extent of vivisection (negligible) as recorded in the medical press throughout the late 1860s, and that given by these eminent physiologists before the 1875 Royal Commission.¹¹

R.D. French also notes that in 1870 the Royal College of Surgeons began a series of reforms in their examining procedure which were to require progressively more physiological knowledge from their students. Thus British physiologists were increasingly recognising the importance of experimental research and no doubt were of the impression that the

10. French, 42.

11. It is important (though not directly relevant to this outline) to note the impact subsequently made upon the vivisection controversy by the Handbook for the Physiological Laboratory, co-written by E. Klein, J. Burdon-Sanderson, M. Foster, T. Lauder-Brunton; Ed. J. Burdon-Sanderson (London, 1873). The book was widely discussed before the 1875 Commission and in antivivisectionist literature.

1871 B.A. moral code would be sufficient assurance to a small agitated public, and to the humanitarians, of their good intentions to control their own practice within ethical limits and not to institute some of the abhorrent practices of their foreign colleagues.

However, in 1874, an event occurred which was to have a devastating impact upon the whole situation. At the first meeting of the British Medical Association in Norwich, Eugene Magnan, a French physiologist and former pupil of Claude Bernard, gave a lurid display of the differential effects of large quantities of alcohol and absinthe when injected into the veins of dogs. The dog injected with absinthe died. This display occurred just after his lecture to the meeting, and received a mixed and somewhat heated response. Protests were raised by some members of the audience that the experiments were cruel and unnecessary. Nevertheless they proceeded.

As a result John Colam, Secretary of the R.S.P.C.A., instituted proceedings against Magnan and the three Norwich doctors said to have arranged the demonstration, under the Cruelty to Animals Prevention Act (1849).¹² The charge was wanton cruelty to a dog. An important witness in the trial was Sir William Fergusson (1808-1877) sergeant-surgeon to the Queen. Though Fergusson had not been present at the actual demonstration it was highly significant that such an eminent and influential surgeon should have set down on the public record his

12. This trial took place at Norwich Petty Sessions, 9 Dec. 1894. The first English cruelty to animals act, Act 3 Geo.4c.71, An Act to Prevent the Cruel and Improper Treatment of Cattle, was passed in 1822 as a result of the efforts of Richard "Humanity Dick" Martin (1754-1834) in the Commons and of Thomas Erskine (1750-1823) in the Lords, (See French, 25). The Act, which applied only to large domestic animals, was commonly referred to as Martin's Act. The amended act of 1849 was extended to all domestic animals including dogs and cats. It was under this act, Act 12 and 13 Vict.c.92, that the trial took place. More comprehensive legislation was later given by the Protection of Animals Act (1911), 1 and 2, Geo.5.c.27.

distaste and total disapproval of the demonstrations. The prosecution failed because there was insufficient evidence that the three British doctors had actually played a significant part in setting up the proceedings.¹³ Magnan by this time had retreated to Paris. What was more significant was the board of magistrates' conclusion that the R.S.P.C.A. had been justified in bringing the proceedings and it denied a defence motion for costs. The trial was important in three respects. It illustrated to the medical profession that its members were open to prosecution under existing legislation for their doings; secondly it stirred up a considerable public controversy which must be set against a background of the constant agitation which had been occurring throughout the late 1860s and early 1870s;¹⁴ thirdly, it illustrated to the humanitarians the inapplicability of existing legislation to the subject of animal experimentation. Medical scientists were not slow to grasp this point, though they saw the issue from a somewhat different angle. They had been awakened to the prospect of legal censure and feared that existing legislation could not be stretched to cover this new application. The Lancet concluded :

If experiments on animals are to be limited by legal means, fresh provision for effecting the necessary restriction is urgently required. 15

As a direct result of the trial, Frances Power Cobbe drew up a Memorial intended to promote the great and wealthy R.S.P.C.A. to draw up a bill. Cobbe had taken note of the incorporation of live animal experiments in the teaching prospectuses of a number of medical schools and also the appearance of the Handbook of the Physiological Laboratory which was ostensibly a "Manual of Exercises in Vivisection" intended, as the preface stated, "for beginners in physiological work".¹⁶

13. French cites a number of references to reports of the trial, see p.57 footnote 52. See also Lancet, 2(1874), 348, 851-852, 884.

14. See French, Chapter 3.

15. The Lancet, 2 (1874), 877-879.

16. Autobiography of Cobbe, 626-627.

Antivivisectionists saw this book as a direct incitement to moral corruption of future scientists. Cobbe had concluded from such trends that little was being done to impose the strictures of the 1871 B.A. "Moral Code".

Furthermore, the Magnan trial had illustrated to her that Martin's Act would not be generally applicable to the practice of animal experimentation since it would be necessary to demonstrate the inutility of an experiment in order to prove an allegation of wanton cruelty. Such a demonstration would, in most circumstances, be impossible. The Memorial was drawn up and widely circulated with two pamphlets written by Cobbe entitled Reasons for Interference and Need of a Bill. Within six weeks she had obtained 600 signatures, "every one of which represented a man or woman of some social importance".¹⁷

Signatories included Carlyle, Tennyson, Browning, Lecky, Sir Arthur Helps, Sir William Fergusson, John Bright, Jowett, Dr. Thomson (Archbishop of York), Sir Edwin Arnold, Marcus Beresford (Primate of Ireland), Cardinal Manning (Archbishop of Westminster), the Duke and Duchess of Northumberland, John Ruskin, James Martineau, the Duke of Rutland, the Duke of Wellington, Lord Coleridge, Lord Selborne, Sir Fitzroy Kelly, the Bishops of Winchester, Exeter, Salisbury, Manchester, Bath & Wells, Hereford, St. Asaph, and Derry, Lord Russell, and a large number of MPs, peers and medical men, several of whom, Cobbe claimed, were eminent in the profession. The four main points of the Memorial were that 1) physiology had grown so rapidly in recent years that vivisection was now an "everyday exercise",

2) physiology involved needless repetition of experiments,

3) anaesthesia was incomplete, absent, or the animal was allowed

17. Ibid, 629

to recover and suffer subsequently, 4) the Norwich trial had proved that unnecessarily cruel experiments could occur in Britain and that new legislation would be required to deal with them.

The memorial was formally presented to the R.S.P.C.A. on the 25 January 1875 by a deputation introduced by John Locke MP, QC. It was warmly received, but subsequently handed down to a subcommittee of the R.S.P.C.A. Council for consideration. French has analysed the reasons why the R.S.P.C.A. was loth to take action on this matter and they need not be discussed in detail here.¹⁸ It suffices to say that the outcome of Cobbe's efforts was that the subcommittee requested that she herself do the very thing she had expected of them, namely to get a bill before Parliament. While Cobbe was nursing her disappointment another event occurred which was to add great impetus to her cause.

On 2 February 1875 the Morning Post published a long letter written by Dr. George Hoggan¹⁹ in which he recounted his personal experiences as an assistant in the laboratory of Claude Bernard. Hoggan related :

In that laboratory we sacrificed daily from one to three dogs, besides rabbits and other animals, and after four months' experience I am of the opinion that not one of those experiments on animals was justified or necessary. The idea of the good of humanity was simply out of the question, and would be laughed at, the great aim being to keep up with, or get ahead of, one's contemporaries in science, even at the price of an incalculable amount of torture needlessly and iniquitously inflicted on the poor animals.

18. French, 64 et seq., esp. 80-91.

19. George Hoggan (1837-1891), M.B. (Edin.). French notes that he was a pensioned Navy officer who had taken up the study of medicine as "a sort of pastime" (p.67). He had also studied in Paris where he worked for four months in the laboratory of Claude Bernard.

From his experiences he had concluded :

I am inclined to look upon anaesthetics as the greatest curse to vivisectionable animals. They alter too much the normal conditions of life to give accurate results, and they are therefore little depended upon. They, indeed, prove far more efficacious in lulling public feeling towards the vivisectioners than pain in the vivisectioned.

The latter argument was to become a constant theme in antivivisectionist writings; indeed, the point was made ad nauseum by witnesses before both Royal Commissions on vivisection. The impact of Hoggan's personal testimony can hardly be overestimated. Cobbe's assessment was that "he struck the greatest blow on our side in the whole battle".²⁰ In French's estimation, Hoggan's letter :

So further roused public opinion that Hutton, Cobbe and other activist antivivisectionists no longer needed the wealth and power of the R.S.P.C.A. to gain access to Parliament. 21

Cobbe, Hutton and Hoggan subsequently joined forces. With the aid of Conservative whip, Sir William Hart Dyke, Cobbe succeeded in getting a Bill for Regulating the Practice of Vivisection drafted by Sir Frederick Elliot and approved by a number of Parliamentarians including Lord Chief Justice Coleridge and, ironically, Robert Lowe (who was later to become opposed to the idea of legislation altogether), MP for the University of London. It was presented in the Lords by Lord Henniker (Lord Hartismere) on 4 May 1875. This Bill²² proposed legislation to be known as the Vivisection Act (1875) which would institute a system of control over experiments upon vertebrates only, incorporating registration of premises, inspection of such premises by Inspectors of Anatomy, use of anaesthetics (not including curare), and the dispensation of anaesthesia on issue of a special licence by the Secretary of State.

20. Autobiography of Cobbe, 639.

21. French, 68.

22. A Bill for Regulating the Practice of Vivisection, quoted as Appendix III, Section 6 of The Report of the Royal Commission on the Practice of Subjecting Live Animals to Experiment, Parl. Papers 1876 C.1337, xli, 277; hereafter cited as First Royal Commission 1875.

Modelled upon the Anatomy Act (1832),²³ the Bill provided for a system of restriction probably compatible with public opinion of the time. However, the clause relating to licences which depended upon whether the secretary of state "thought fit" to grant them, could hardly be accepted as adequate, no further definition having been given and the scientific community not having been consulted. Furthermore, all experiments were to be performed under complete anaesthesia.

Not surprisingly, the experimental physiologists began to close ranks. Darwin and a number of other influential figures had declined to sign Cobbe's memorial. Having seen that the controversy was coming to a head, and wishing to forestall the potential threat of legislation to free scientific inquiry, they decided to take action. Both Darwin (1809-1882) and Huxley (1825-1895) were popular and tremendously influential scientists. Neither was an experimentalist, but both were prepared to fight for the freedom of science. As a result of their meetings with eminent experimental physiologists, drawn together by Burdon Sanderson, a powerful scientific lobby was set up. French has described the leading figures in this group as :

Sir John Simon (1816-1904), then in his last year as medical officer of the local government board; William Sharpey (1802-1880), Professor of Physiology and anatomy at University College London, 1836-1874; Sir Henry Robert Christison (1797-1882), Professor of Toxicology at Edinburgh, 1822-1877; Sir Henry Acland (1815-1900), Regius Professor of Medicine at Oxford 1858-1894; George Rolleston (1829-1881), Professor of Anatomy and Physiology at Oxford, 1860-1881; Sir William Gull (1816-1890) an eminent London physician; Michael Foster (1836-1907), Praelector and Professor of Physiology at Cambridge, 1870-1903. 24

23. Act 3 and 4 William c.75.

24. French, 71.

French also notes that only Burdon-Sanderson, Christison, and Foster were regularly practicing experimentation, illustrating the weakness of the experimental lobby at that time. Differences and disputes soon arose within the group because a number of the members could see no real need for legislation over the issue. Nevertheless, a bill was drawn up by Darwin's son-in-law, R.B. Litchfield, in consultation with Darwin, Huxley, Burdon-Sanderson, Simon, Foster and Sir James Paget. Lyon Playfair (1818-1898)²⁵, chemist, liberal MP for the University of Edinburgh and a frequent parliamentary spokesman for the medical profession, had agreed to take over the drafting and presentation of the bill to the Commons. Lord Cardwell (1813-1886), subsequently Chairman of the 1875 Commission and Lord Shaftesbury (1801-1885), eminent philanthropist and subsequently a leading figure in the AV. movement, supported it in the Lords.

Playfair failed to persuade Henniker to withdraw his bill, but presented the scientists' bill on 12 May 1875 in the Commons. The Huxley/Darwin group was appalled by the bill as finally presented by Playfair. It has been suggested that he had modified it on suggestions of his co-sponsors, Spencer Walpole and Evelyn Ashley,²⁶ both of whom were later to play strong roles in the AV. movement. Alternative explanations given by French are that Playfair had modified the bill, in order to gain the support of Cardwell and Shaftesbury, or that Burden-Sanderson (who had prepared the original material for Playfair) had simply overlooked the consequences the restrictive bill would have upon the teaching of physiology. In any event, French concludes :

25. *Ibid*, 73.

26. W.H. Brock, unpublished M/S (1970), University of Leicester.

the incident reveals a chink of naivete in the apparent political sophistication of the scientists' lobby. 27

The bill, entitled a Bill to Prevent Abuse and Cruelty in Experiments on Animals for the Purpose of Scientific Discovery,²⁸ was drawn up on similar lines to the Henniker bill, though it contained no registration or inspection clauses - major deficiencies as far as the humanitarian movement was concerned, but considered distasteful and unnecessary by the scientists themselves. Experiments without anaesthesia were permitted under licence by the Secretary of State (provided insensibility would frustrate the experiment), but only on condition "that the experiment is made for the purpose of new scientific discovery and for no other purpose". The precise wording rendered this clause absurd. Furthermore, the bill made no provision for permitting lecture demonstrations. The reaction of the scientific community is well expressed in a letter from Edward Frankland to Playfair dated 20 May 1875.²⁹ Frankland wrote :

I see you have brought in a Bill for regulating the practice of vivisection. On reading the first announcement, I thought your intention was to take the matter out of the hands of persons who have no sympathy with the progress of science, and to initiate some mild form of legislation which should calm the present unreasoning excitement on this subject; but if the sketch of your Bill given in the Times a few days ago be correct, this is by no means the case, for you seem to be aiming at even greater restrictions than have ever before been contemplated.

Though not a biological experimentalist himself (Frankland had every sympathy with the humanitarian movement in opposing wanton cruelty) he had clearly recognised the threat such restrictive legislation posed to research of all kinds which, being already "at a scandalously low ebb" in Britain, warranted every possible incentive to promote it. The "new science", if properly developed, promised inestimable rewards in the field of medical application, and he reminded Playfair :

27. French, 76-77.

28. First Royal Commission 1875, Appendix III, Section 7, 330.

29. The letter is contained in the Imperial College Archives. I am indebted to Dr. W.H. Brock (Leicester) for this information.

You know, at least as well as I, that great discoveries in experimental science are rarely made by premeditation - they most frequently arise out of investigations prosecuted with an entirely different object. To prohibit experiments upon animals unless the object be some definite and important discovery would be, virtually, to render such experiments nugatory. No one has insisted more strongly and successfully than yourself that abstract investigation must precede technical discovery and its applications. One of the most essential elements of success is taken from him, if the experimental inquirer be not allowed to pursue his inquiries in the direction prompted by his genius.

Playfair had himself spent half his life using such arguments in the case for education.³⁰ The government, faced with two controversial bills drawn up along the same lines but with very fundamental (if largely unintentional) differences, decided to defer to the calls being made in the popular and medical press for a Royal Commission. Queen Victoria herself, who had strong sympathies towards the anti-vivisection cause, had been pressing Disraeli for such an enquiry.

The Royal Commission of 1875

On 24 May 1875 the Home Secretary, Richard Cross, announced that a Royal Commission had been called

to inquire into the practice of subjecting live animals to experiments for scientific purposes and to consider and report what measure, if any, it may be desirable to take in respect of any such practice. 31

The Royal Commission marked a significant turning point both for the scientists lobby and for the humanitarian movement. We have seen the beginnings of a division which was to deepen and become embittered in the year to come, and was, in fact, to dog the reform movement for a century.

30. See T.W. Reid, Memoirs and Correspondence of Lyon Playfair (London, 1899).

31. Preamble of Report of First Royal Commission, 1875.

During the sittings of the Commission attitudes on both sides were to harden considerably. As French has put it :

In a way ... it is a pity that the announcement of the Royal Commission precluded some sort of legislative compromise between the Henniker and Playfair bills. Never again were the differences between the parties to appear so eminently negotiable; never again would contacts between them be so readily exploitable. 32

The Commission, which was fairly well balanced, was presided over by the statesman Lord Edward Viscount Cardwell³³ (1813-1886), Vice-president of the R.S.P.C.A. It comprised advocates both for and against vivisection. Cardwell himself was well noted for his fairness and objectivity. Speaking for the scientists was the eminent biologist, T.H. Huxley. Devoted to the promotion of scientific knowledge, Huxley was an active teacher from 1854 until nearing the end of his life.³⁴ Michael Foster and E. Ray Lankester were among his first pupils at the Royal College of Science, after 1872 practical laboratory work had become an integral part of the course at that college. Also on the scientific side was the eminent medical spokesman, John Eric Erichsen (1818-1896), Surgeon Extraordinary to Her Majesty the Queen, ex-President of the Royal College of Surgeons, England, and consulting surgeon to University College Hospital.³⁵ His cross examinations reveal a much more moderate approach than that of Huxley.

Non-committed members were Baron Winmarleigh (1802-1902), a strong conservative but advocate of special reforms for benefitting the industrial population throughout his political career³⁶ and Sir John Burgess Karslake (1821-1881), an eminent lawyer and parliamentarian.³⁷

32. French, 80.

33. D.N.B.

34. D.S.B.

35. B.M.J., 2 (1896), 855-857.

36. D.N.B.

37. D.N.B.

On the restrictionist side was William Edward Forster (1818-1886), a Quaker and strong liberal statesman. Forster frequently campaigned for Parliamentary reform on behalf of the poor and oppressed classes and made strong speeches against American slavery. He was also a vice-president of the R.S.P.C.A. and, while a cabinet minister under Gladstone, had clashed with Huxley in an effort to reduce painful experiments carried out under his authority.³⁸ More strongly committed on the restrictionist side was Richard Holt Hutton (1826-1897), theologian and journalist. He was editor of the Spectator from 1861 until a few months before his death. It was under his editorship that the journal developed a strong antivivisectionist flavour.³⁹

During the six months from 5 July to 15 December the Commission heard oral and examined written evidence from 53 witnesses : 47 of them were medical men including George Hoggan, William Sharpey,⁴⁰ Sir James Paget,⁴¹ George Rolleston,⁴² Frederick William Pavy,⁴³ John

38. Huxley, while professor at the Royal School of Mines, was conducting a course of lectures for teachers at summer school in South Kensington. Forster, who was Vice President of the School Council, made a ruling that vivisections must not be shown in the course. While Huxley had no intention of performing experiments, he resented the interference with his teaching methods and threatened to resign. See Leonard Huxley, Life and Letters of T.H. Huxley I (London, 1900), 430-434.

39. D.N.B.

40. W. Sharpey, Professor of Physiology at University College for 30 years, Secretary of Royal Society for 20 years.

41. J. Paget, member of Royal College of Surgeons, President of Medical and Chiurgical Society.

42. G. Rolleston, Linacre Professor of Anatomy and Physiology, Oxford.

43. F.W. Pavy, physician, lecturer in physiology at Guy's Hospital.

Burdon-Sanderson, Michael Foster, William Rutherford,⁴⁴ Edward Albert Schäfer,⁴⁵ Joseph Lister,⁴⁶ Sir William Withy Gull,⁴⁷ Thomas Lauder-Brunton,⁴⁸ and finally Charles Darwin. The Commissioners' Report was presented in January, 1876.⁴⁹

Evidence for the necessity of physiological experiments in research and teaching had been overwhelming. Had it not been for the evidence of Emanuel Klein (1844-1925), an Austrian physiologist, who was then lecturer in histology at St. Bartholomew's Hospital and assistant professor at the Brown Institution, it is unlikely that there would have been a majority recommendation for legislation. Klein asserted, repeatedly and emphatically, that he used anaesthetics purely for his own convenience and had no regard whatever for animal pain. A physiologist had not the time to be bothered with such considerations.⁵⁰ Klein's evidence was so emphatic and repetitious that it could hardly be

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- 44. W. Rutherford, Professor of Institute of Medicine and Physiology, University of Edinburgh for five years, and previous teacher in physiology at King's College London.
 - 45. E.A. Schäfer, Assistant Professor of Physiology (to Burden-Sanderson) at University College London.
 - 46. J. Lister, Professor of Clinical Surgery at University of Edinburgh, Surgeon Ordinary to the Queen.
 - 47. Sir W. Gull, previously teacher in physiology and medicine and a practising physician at Guy's Hospital. Formerly Fullerian Professor of Physiology at the Royal Institution.
 - 48. T. Lauder-Brunton, Lecturer in Materia Medica at St. Bartholomew's Hospital.
 - 49. Parl. Papers 1875.C.1397, xli, 277. French has made a brief and selective analysis (97-109), but no historian has yet presented a detailed analysis. In view of the precedence finally given to the second Royal Commission in this thesis, such an analysis is not attempted here.
 - 50. See evidence of Emanuel Klein, q.3528-3674. Note especially : 3538, 3540, 3541, 3542, 3599, 3604, 3606, 3629-3633, 3641-44, 3600-3661.

open to misinterpretation. Yet, subsequently, no doubt following the remonstrations of his fellow physiologists, he attempted to amend it, on the grounds that he could not properly understand English, (Klein had been living in England since 1871).⁵¹ The amended proof was so different from the original that the Commission was unable to accept it. It was published along with Klein's correspondence as an appendix.⁵² It is noteworthy that Klein had also destroyed a proof which the Commission had frequently requested should be returned.

Even the eminent Charles Darwin - drawn from his sickbed by the agitated Huxley who had himself been absent on the day of Klein's evidence - could not undo the damage done by Klein. Public opinion would never again be placated by assertions that the scientific community could be entrusted to apply its own ethical restraints without being subjected to legislation. As Huxley wrote to Forster several months after the Final Report :

It is not Hutton who has beaten me, but Klein. He has done more for our enemies than they could have done by their joint efforts, without him, by his wantonly and mischievously brutal talk. 53

Without Klein's evidence humanitarian witnesses would have been unable to put forward a single case of wanton cruelty amongst English physiologists which could be fully substantiated.

Having thoroughly reviewed the extent and application of animal experimentation, the Commission accepted its indispensability to science and medicine but concluded that it was necessary to reconcile the needs of science with the just claims of humanity and to make the practice fully accountable and acceptable to public opinion. In the words of the Commissioners' Report :

51 French, 103.

52. First Royal Commission 1875, Appendix II(a).

53. Huxley to Foster, 25 May 1876, Huxley Papers, 4.120, in the Library of University College London, cited by French, 105.

It is moreover much to be regretted that a feeling of suspicion and even of abhorrence should have been permitted to grow up against those who are devoted to the improvement of medicine and to the advancement of science. Publicity is the antidote of suspicion, and we look to the reasonable superintendence of constituted authority as affording the means of reconciling in the public mind the sentiment of humanity with the desire for knowledge. .54

This did not, however, go nearly far enough for Hutton, who added a reservation memorandum to the effect that dogs and cats should be exempted on account of their greater sensibility, the nature of their relationships with man and the evidence received that there had been some illicit trade in stolen pets.

While the Commission was sitting, the antivivisection movement had begun to organise. In November 1875 Hoggan and Cobbe, with the support of Lord Shaftesbury and the Archbishop of York, had founded the Victoria Street Society for the Protection of Animals from Vivisection.⁵⁵ Cardinal Manning and Lord Chief Justice Coleridge were also among the early supporters. By the time Cobbe had studied the Commission's Report published the following January, she had concluded that it was not merely isolated cases of the abuse of animals which was at issue, but the whole moral future of society. On 20 March 1876 a deputation of her Society, headed by Lord Shaftesbury, was received favourably by the Home Secretary, Richard Cross, and it was assured that legislation would soon be passed in line with the recommendations of the Commission. The suggestions put forward by Cobbe's Society were subsequently incorporated into the government bill presented by Lord Carnarvon on 15 May 1876. It received its second reading in the Lords on 22 May 1876.

54. First Royal Commission 1875, p.xvii.

55. Autobiography of Cobbe, 644-650.

The bill made remarkably swift progress through both Houses, possibly because of pressure exerted by Queen Victoria upon Disraeli to get some legislation through. Though presented so late in the session the bill had passed its second reading and Committee stage in the Common by 12 August. Parliament prorogued on 15 August.

The bill⁵⁶ proposed restrictions upon all experiments calculated to give pain to living animals. Such experiments were only to be performed with a view to the advancement by new discovery of knowledge which would be useful for saving or prolonging human life or alleviating human suffering. All experiments would be conducted under licence granted by the Secretary of State in a place registered for the purpose. No experiments whatever were to be permitted upon dogs, cats, horses, asses or mules, or upon any animal not completely anaesthetised from beginning to end. Experiments without anaesthesia, or in which animals were allowed to recover, or demonstrations under anaesthesia, were allowed only on certification by specified individuals such as the presidents of the Royal Society or Royal Colleges of Physicians and Surgeons (London, Edinburgh and Dublin) and of a physiological or medical professor. It was suggested that pain would result in such experiments only very infrequently. Experiments for the attainment of manual dexterity, or for public exhibition, were absolutely prohibited.

The core of the bill was based upon a scheme drafted by the R.S.P.C.A. which had been endorsed by the Royal Commission. However, some of its provisions had been excluded from consideration. The Commission had noted that it was not possible to draw any strictly defined line between pure research and research with medical objectives; neither had it been willing to endorse Hutton's reservation memorandum

56. Bill entitled An Act to Amend the Law relating to Cruelty to Animals, 1876 (250)I, 531.

concerning restriction of species. In these important respects the bill laid down stricter provisions than those recommended by the Commission. Even so Lord Shaftsbury, now President of the Victoria Street Society, felt that it "did not go as far as could be wished",⁵⁷ claiming that the climate of public opinion was in favour of total abolition. However, the bill did largely satisfy the reformists, the majority of whom were not at this stage abolitionists. Cobbe noted that it did practically fulfil Hutton's aspirations and her spirits were high. As she saw it :

It only needed, to all appearance, that the bill should be pushed through its final stage in the Lords and sent down to the House of Commons, to secure its passage intact that same Session. 58

At this critical moment and throughout the whole of June, Lord Carnarvon, in whose hands the bill lay, was called away from London and fully occupied by the illness and subsequent death of his mother.

Meanwhile the scientific community had received the bill much less favourably.⁵⁹ It had not expected any government measure to go so far beyond the recommendations of the Royal Commission. After the second reading the scientific community rapidly mobilised itself and impressed the need for amendments to the bill upon Parliamentarians, notably Lord Cardwell. The absence of Lord Carnarvon, which caused the Committee in the Lords on the bill to be postponed for almost a month, allowed the scientists considerable time to reinforce their activities. At the instigation of a small core of experimental physiologists and other scientists almost the whole of the medical profession became mobilised.

57. Autobiography of Cobbe, 653.

58. loc. cit.

59. See French, 118 et. seq.

The result was a memorial forwarded by the General Medical Council to the government setting out objections to the bill. The most important of these was that experimentation should not be restricted to that carried out for medical purposes. French notes that these objections were endorsed in an additional memorial presented by the British Medical Association and signed by every teacher of physiology in Britain with the exception of Rolleston. Although Richard Cross was to receive several deputations on behalf of the medical and scientific communities throughout the next few weeks, the crucial pressure was to be applied by the British Medical Journal. Ernest Hart, its editor, produced a supplement in which the various objections to the bill were outlined and it was stressed that the profound dissatisfaction of the medical profession should be made clear. It was suggested that every member of the profession oppose the bill by writing to his MP and to the press.⁶⁰ This activity culminated in the most impressive deputation yet visited upon the Home Secretary. It consisted of several hundred medical men who presented a petition on 10 July, signed by 3,000 members of the profession. The B.M.A. had demonstrated its strength. Influential as they were, neither the R.S.P.C.A. nor the Victoria Street Society could prevent modification of the bill after this.

The detailed organisation of the various scientific and anti-vivisectionist pressure groups and the tactics they applied need concern us no further, since they have been considered in detail by French.⁶¹ What, however, was the practical effect of the polarising activity which has been so briefly outlined ?

60. B.M.J.II(1876),40,quoted in French, 132.

61. Esp. 121-144.

Far from wishing to see the bill withdrawn, the experimental scientists (Paget, Foster, Burdon-Sanderson and others) desired to see it pass with amendments, for it was becoming clear that some measure of legislation would be necessary both to reassure public opinion and to undo the damage currently being done by antivivisectionists.⁶² The possibility of even more stringent legislation would remain if the bill were dropped. The major changes desired by the scientists lobby were made after a meeting of the government with the scientific contingent on 22 July.⁶³ The amended bill was introduced into the Commons by Cross on 9 August, read for a second time and the amendments instituted in Committee two days later. The altered bill permitted private as well as public laboratories to be registered, allowed acute experiments upon any species without special certificate, was applicable only to warm blooded animals (this was altered in the Commons to vertebrates, so including frogs) and prohibited any prosecution without special permission from the Secretary of State.

Some reformers, notably Coleridge and Hutton, felt that it would be better to postpone the bill rather than accept such amendments. Shaftesbury, however, despite reservations, believed that any bill was better than no legislation at all. He explained his acquiescence to the changes to Cobbe :

62. By this time attitudes in the A.V. movement had begun to harden. Two societies for total abolition had already been formed and local organisations in various parts of the country were soon to follow. The subject of vivisection was receiving considerable attention in the press.

63. French, 137 et seq.

In the bill as submitted to me, just before the second reading at a final interview with Mr. Cross, Mr. Holt ⁶⁴ and Lord Cardwell being present, some changes were made which I by no means approved. But the question the, was simply "the bill as propounded, or no bill", for Mr. Cross stoutly maintained that without the alterations suggested, he had no hope of carrying anything at all. I reverted, therefore, to my first opinion, stated at the very commencement of my cooperation with your committee, that it was of great importance, nay indispensable, to obtain a bill, however imperfect, which should condemn the practice, put a limit on the exercise of it, and give us a foundation on which to build amendments hereafter as evidence and opportunity shall be offered to us. The bill is of that character. I apprehended that if there were no bill then, there would be none at any time. No private member, I believed, and I still believe, could undertake such a measure with even a shadow of hope; and there was more doubt, whether a Secretary of State would entangle himself with so bitter and so wearisome a question in the face of all science and the antipathies of most of his colleagues. ⁶⁵

A segment of antivivisectionist opinion was not in agreement with Shaftesbury,⁶⁶ though it did agree that humanitarians should not block the bill. Thus the bill was read in the Lords on 12 August, received Royal Assent on 15 August and became An Act To Amend the Law Relating To Cruelty to Animals - short title Cruelty to Animals Act (1876), Act 39 and 40 Victoria, Chapter 77.⁶⁷

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64. J.M. Holt, once a committee member of George Jesse's total abolition society, had introduced a Bill To Make More Effective Provision For The Prevention of Cruelty to Animals; with Hardcastle, Wait and Watson in the same session - 1876 (168)I, 523, (French seems to be mistaken here, the total abolition bill was introduced on 9 Feb. 1877 and another on 6 Dec. 1878.
65. From a letter dated 16 Aug. 1876, Autobiography of Cobbe, 655 (my italics). Later discussion in this thesis will illustrate how mistaken was Shaftesbury's anticipation of subsequent amendment to the Act.
66. See French, 142.
67. The original title was amended in the Lords' Committee, See Appendix I of this thesis.

The Act of 1876

The Act as it was finally passed is unusual among British statutes in that an elaborate certification system allows licensees not only to perform procedures which are illegal under other laws, but which are also prohibited by the Act's own basic provisions. That is to say that almost every one of the Act's basic provisions can be dispensed with under certificate. Similar precedents exist elsewhere, though not in written law. Members of H.M. Forces, for example, may be permitted to drive under orders though otherwise disqualified; and the Law Society determines admission and expulsion from its profession in a way similar to the possible Home Office expulsion of licensees. The complexity of the Act, as created by the certification system, was heavily criticised by the Littlewood Committee and is long overdue for simplification.

Many of the shortcomings of the Act are of a technical nature. For example, a common irregularity has occurred when the licensee has given a local anaesthetic for a simple procedure even though he is technically carrying out the experiment under certificate A and therefore must not give one. The Act contains a large number of definitions which may well be considered too subjective to incorporate into written Statute. An example is the term "absolutely necessary" (clause 3, provisos (1) and (4)). Since the term "experiment" is not defined at all, there is no legal precedent to determine whether certain procedures conducted under the Act can truly be considered experiments or whether procedures performed outside its provisions ought really to be included under it. The use of each animal constitutes an experiment. Similarly, the term "pain" is not defined. In 1876 it can only have meant physical pain. There is no legal precedent to determine whether procedures resulting in mental stress can properly be protected under the Act.

Administrative precedents may, of course, be set up by the British government's advisory machinery. However, as subsequent chapters will illustrate, the criticisms levelled at this machinery suggest that more clearly defined guidelines are essential.

The assertion made by the First Royal Commission that no restriction as to the purpose of experiments was feasible has been upheld by both the Second Royal Commission and the Littlewood Committee.

Carnarvon had attempted to run against this recommendation in his original bill which permitted experiments only "with a view to the advancement by new discovery of knowledge which will be useful for saving or prolonging human life or alleviating human suffering".

The essential amendments were made in the Lords. Lord Rayleigh, the physicist, amended the clause to "with a view to the advancement of medical or physiological knowledge" and the Earl of Portsmouth, President of the Royal Veterinary College, inserted the phrase, "or animal" after human. Cardwell subsequently amended the phrase to "with a view to the advancement of medical or physiological knowledge or of knowledge which will be useful ...".

It will be seen that these words "or of" were retained in Clause 3(1) of the final Act and have allowed of an almost unlimited interpretation as to legitimate purposes for animal experiments. It will also be shown by subsequent discussions in this thesis that critics of the Act have maintained that many applications of the Act are not in line with the intentions of the First Royal Commission or indeed with the intentions behind the amendments to the bill which were no doubt added simply in order that pure research should not be unduly inhibited.

The 1876 Act - Administrative Practice⁶⁸

Because the Act is so loosely drawn it has been left to the Home Secretary to interpret and to administer it as he sees fit.

The following interpretations are currently applied :

1. The term 'experiment' has been interpreted as any procedure designed to find the answer to a problem.
2. The Home Office has interpreted the term 'pain' in its widest sense to include disease, discomfort or disturbance from normal health, and has insisted that an experiment lasts from the beginning of the first procedure until observation of the effect ceases.
3. The purpose for which experiments may be performed has been given the widest possible interpretation. The pursuit of physiological knowledge under the Act need have no evident or direct usefulness.

All licences are issued in the same form, but may be subject to conditions imposed by the Secretary of State; these are usually dependent upon certificates also held by the licensee. Each application is referred to an inspector who satisfies himself as to the suitability of the applicant and advises the Secretary of State accordingly. He may or may not do this by personal interview, but seldom consults the statutory signatories. Since 1932 all licensees (except those issued to students which are valid for two years) have been issued for five years and are renewed as necessary for similar periods. The licence may be revoked for misconduct. In 1965 the Littlewood Committee was informed that this measure had not been

68. This section provides a brief description of the basic provisions of the Act, as currently administered. A more complete description of current practice is given in Chapters 7 and 8 of the Report of the Departmental Committee on Experiments on Animals, (Cmd 2641) which is critically analysed in Chapter IV below and hereafter cited as Littlewood.

considered necessary "in recent years", however, as it will be shown in Chapter IV, the Home Office attitude on this seems to be changing.

There is no minimum educational standard required to be reached in order to obtain a licence; the Littlewood Committee was informed "Home Office practice has been generally to insist that an applicant be at least eighteen years of age and educated to G.C.E. standards." The licence is authority by itself to carry out acute experiments, i.e. those in which anaesthesia is employed throughout, from which the animal is not allowed to recover. Provisos 1-4 of Section 3 of the Act are ensured by issue of the following certificates :

Certificate A - dispenses with anaesthesia (3 (3) proviso (1)).

It is issued in the case of non-surgical experiments only.

There is no requirement to kill the animal.

Certificate B - permits recovery from anaesthesia (3 (4) proviso (3)), the animal to be killed as soon as the object of the experiment is attained.

Certificate C - permits demonstrations upon fully anaesthetised animals without recovery (3 (5) proviso (1)).

Certificate D - allows experiments for confirmation of already established results (3 proviso (4)), but this certificate has never been used.

Certificate E - used in conjunction with Certificate A allows the use of dogs and cats in non-surgical experiments with anaesthetic, Section (5).

Certificate EE - used in conjunction with Certificate B allows the use of dogs and cats in surgical experiments with subsequent recovery from anaesthesia. Dogs and cats may be used without certificate in acute experiments under licence alone, but where certificates are requested, the Home Office examines with

care the reasons why dogs and cats are considered indispensable.

Certificate F - allows the use of equidae in any experiment
(Section 5).

The Secretary of State has full power to grant and refuse licences; certificates, however, are granted by the signing authorities. Certificates have no authority except as used in conjunction with the licence over which the Home Secretary exerts full control. He cannot extend the operation of a certificate or alter any provisions set down by the signatories regarding the time limit or numbers of animals to be used. He does, however, have full power to disallow any certificate.⁶⁹ It is now Home Office practice to issue certificates for an unlimited time period and not to insist upon any restriction of numbers of animals to be used except in the case of exceptionally severe experiments. Neither licences nor certificates (except in the case of certificate C) are restricted with regard to the purpose of proposed experiments and both may be used for purposes other than that specified on application.

The Secretary of State has the power to control the operation of certificates in a limited way by imposing conditions upon the licence with which the certificate must operate, (Section 8 of the Act). The following conditions are now in force (the first two are binding and are attached to every licence).

Condition 1 - this specifies the place or places at which the experiments may be performed.

Condition 2 - this requires that experiments under certificate must not be performed until the licensee is notified that the certificate has not been disallowed.

Condition 3 - commonly referred to as "the pain condition", gives effect to a recommendation made by the Second Royal Commission

69. See Chapters II, 49 and IV, 186-195.

(1903-1912). It is attached to all licences to be used in conjunction with Certificates A or B and requires that :

- a) If an animal at any time during any experiment performed under Certificate A is found to be suffering pain which is either severe or is likely to endure, and if the main result of the experiment has been attained, the animal shall forthwith be painlessly killed;
- b) If an animal at any time during any such experiment is found to be suffering severe pain which is likely to endure, such animal shall forthwith be painlessly killed;
- c) If an animal appears to an inspector to be suffering considerable pain, and if such inspector directs such animal to be destroyed, it shall forthwith be painlessly killed.

Condition 4 - is attached to all licences used in conjunction with Certificate A and states :

"No operative procedure more severe than simple inoculation or superficial venesection may be adopted in any of the said experiments."

Condition 5 - is attached to all experiments used in conjunction with Certificate B and states :

- a) All operative procedures in connection with experiments under Certificate B shall be carried out under anaesthetics of sufficient power to prevent the animal from feeling pain;
- b) The animals upon which experiments are performed shall be treated with strict antiseptic precautions, and if these fail and pain results, the animal shall be immediately killed under anaesthetics.

Condition 6 - requires that on completion of any experiment under Certificate C the animal must be painlessly killed by, or in the presence of, the licensee.

Condition 7 - prohibits (except on a decerebrated animal) the use of curare or curare-form substances without special permission from the Secretary of State; and requires that 48 hours notice of any such experiment permitted be given to the inspector.

Condition 8 - requires that the licensee keep a record of all his experiments and send a report to the Secretary of State at the end of each year.

Condition 9 - requires that the licensee send to the Secretary of State information about any experiment he has performed which is described in a printed publication.

Condition 9a - forbids the making of cinematographic films showing animals under experiment without special consent of the Secretary of State.

Events Subsequent to the Passage of the 1876 Act

The passage of the 1876 Act marked a turning point after which a clear polarisation of attitudes occurred. A number of those humanitarians who had fought for legislation became deeply disillusioned. For a century the Act has been regarded by most antivivisectionists as a "Vivisector's Charter", conferring more protection upon the vivisectors than upon the animals. Cobbe wrote emotionally of her initial reaction to the passage of the Act :

The world has never seemed to me quite the same since that dreadful time. My hopes had been raised so high to be dashed so low as even to make me fear that I had done harm instead of good, and brought fresh danger to the hapless brutes for whose sake, as I realised more and more of their agonies, I would have gladly died. I was baffled in an aim nearer to my heart than any other had ever been, and for which I had strained every nerve for many months; and of all the hundreds of people who had seemed to sympathise and had signed our Memorials and petitions, there were none to say "this shall not be"! Justice and mercy seemed to have gone from the

earth ... In my despair I wrote several letters of bitter reproach to the friends in Parliament who had allowed our bill to be so mutilated that the British Medical Journal crowed over it, as affording full liberty to "science"; and I also wrote to several newspapers saying that after this failure to obtain a reasonable restrictive Bill, I for one, should labour henceforth to obtain total prohibition. 70

In October 1877 the Victoria Street Society resolved to monitor the Act with a view to effectively enforcing its restrictions and to its eventual abolition. Thus began the production of a tirade of lurid posters, handbills and literature which were subsequently to characterise the antivivisection movement in the late Victorian and Edwardian period.⁷¹ French has amply described the subsequent development of policy and tactics in this period⁷² and my own work attempts to complement this with an analysis of some contemporary trends.⁷³ It is necessary here only to outline briefly the most important results of the Act's passage and early administration, as background to that analysis.

In June 1876 two sizeable total abolition societies had already been formed in London, the London Antivivisection Society and the International Association for the Total Suppression of Vivisection. In 1877 the Victoria Street Society gave support for J.M. Holt's total abolition bill, developed under the auspices of the International Association. Throughout the next few years there was hardly to be a Parliamentary Session in which at least one total prohibition bill did not appear. The adoption of the abolitionist standpoint, on the instigation of Cobbe in August 1878, cost the Society some of its

70. Autobiography of Cobbe, 654. See also discussion in French, Chapter 5.

71. An excellent illustration of the hardening of Cobbe's own attitude is a comparison of her restrictionist policy of 1875 with that adopted in her pamphlet "The Fallacy of Restriction Applied to Vivisection" (18??), republished in The Antivivisection Question (London, 1884).

72. French, Chapters 6 and 8.

73. See chapters III and VI.

notable members, among them George Hoggan and two Vice Presidents, the Bishop of Gloucester and the Archbishop of York. Shaftesbury, however, had by this time altered his standpoint; he wrote to Cobbe in September of that year :

We were right to make the experiment. We were right to test the men and the law, Mr. Cross and his administration of it. Both have failed us and we are bound in duty, I think, to leap over all limitations and go in for the total abolition of this vile and cruel form of idolatry. 74

The new policy also encouraged recruits and French notes that by 1878 the organised AV movement was uniformly total abolitionist, such convictions continued to gain strength throughout the eighties. Public opinion, however, did not support the policies, and the numerous attempts of the antivivisectionists to secure total abolition in Parliament were fruitless. French has described the administration of the Act in its early years and noted that up until 1882 it did significantly interfere with the pursuit of research. 75 He concludes : "The lack of sympathy for a sensitivity to the demands of scientific research with which the H.O. administered the Act of 1876 disturbed and demoralised the scientific and medical community. There were bitter regrets by the moderates that they had ever acquiesced in the passage of any legislation". 76

The Physiological Society, 77 formed with a view to securing amendments during lobbying prior to the passage of the Act, and including some of those individuals prominent in the scientists' lobby (e.g. Huxley, Burdon-Sanderson, Foster) had, like the antivivisectionists, determined to watch the Act and its administration during the first crucial months. In June 1877 the Society complained to the General

74. Zoophilist (official organ of the Victoria Street Society), 5 (1885), 115, quoted by French, 162.

75. French, Chapter 7.

76. Ibid, 192.

77. See E. Sharpey-Schäfer, The History of the Physiological Society During Its First Fifty Years, 1876-1926 in Supplement to. J.Physiol., (London, 1927).

Medical Council of restrictions to research resulting from outright refusals of licences and certificates and administrative delays, but no action was taken. In French's assessment, "As a small, elite group of scientists, the society had little influence and no power without the backing of the medical profession as a whole".⁷⁸ However, the Society began to air its grievances more publicly in 1881, notably in the pages of Nineteenth Century. In August of that year it was also able to make use of the International Medical Congress (held in London) as a public forum for its complaints. The proceedings of this meeting received wide publicity, publicity which ironically provided Cobbe with the information she needed to institute a prosecution under the Act of the Neurologist, David Ferrier (1843-1928).⁷⁸

The prosecution was a failure, and French has noted the profound impact this event made upon the two opposing camps. The antivivisectionists saw it as the final proof of the total ineffectiveness of the Act, while the scientific community was astounded that the Act could be used to persecute so eminent a physiologist as Ferrier. The small and elite Physiological Society did not provide a broad enough power base to contend with such a threat. The subsequent calls for unity within the scientific and medical communities resulted in the formation in 1882 of the Association for the Advancement of Medicine by Research (A.A.M.R.), a large and prestigious society whose membership included the most eminent researchers and medical practitioners of this time. It sought to promote research and to secure the "just administration" of the Act.⁷⁹ In the next chapter it will be seen from the discussion of Coleridge's evidence before the Second Royal

78. The prosecution is described by French, 200-202. Cobbe's own account is to be found in her autobiography, 672-675.

79. See French, chapter 7 and Coleridge's evidence before the Second Royal Commission, discussed in Chapter II.

Commission that the most important function of this society was its manipulation of the administration of the Act by means of its self-appointed role as advisory body to the Home Office from 1882. The Commission was to put an end to this practice by recommending the setting up of a permanently constituted advisory committee. This was established in 1913 and has survived to the present time.

The A.A.M.R. did succeed in easing the burden imposed upon research by the Act and between the years 1883 and 1906 physiological research was to enjoy unprecedented growth. Furthermore, in order to ensure its effectiveness in this role, it was a deliberate policy of this society to avoid public controversy. Thus when efforts at public education needed to be renewed in the face of a barrage of Edwardian antivivisectionist propaganda, it was necessary to set up an entirely separate organisation for this purpose. The Research Defence Society was founded on 27 January 1908 by the surgeon, Stephen Paget, in order to make known to the public the facts concerning animal experimentation, the conditions and regulations under which experiments are conducted in the United Kingdom, to emphasise the value and importance of such experiments to medical and veterinary science, to give guidance to licencees and to defend them against the attacks of the antivivisectionists.⁸⁰

It is clear that the passage of the 1876 Act marked a turning point both for the humanitarian and for the scientific communities. During the next decade attitudes polarised and the foundations had been laid for a seemingly irreconcilable controversy.

80. Reports describing the setting up of the Research Defence Society are contained in P.R.O. papers, H.O.45, 165993/1. No official history of the R.D.S. seems to have been written.

The first return of experiments performed under the Act was ordered in 1877. Subsequent returns presented each year showed the tremendous growth in experimentation which ensued during the 1880s and 1890s. In 1876 less than 3,400 experiments were performed, but by 1900 the number exceeded 10,000, five out of every six being without anaesthesia.⁸¹ The first commercial laboratory was registered in 1901 and by 1905 almost one-sixth of all recorded experiments were for the purpose of testing sera and vaccines and for the standardisation of drugs. These statistics led to strong criticism from the anti-vivisectionists and resulted in the appointment in 1906 of a second Royal Commission.

81. Littlewood, para 19.

CHAPTER II

THE SECOND ROYAL COMMISSION 1906-1912

The Commission was called in September 1906, and given the following terms of reference :

To enquire into and report upon the practice of subjecting live animals to experiments, whether by vivisection or otherwise and also to enquire into the law relating to that practice, and its administration; and to report whether any, and if so what, changes are desirable. 1

During the next six years, the Commission was to hold more than 70 meetings and to examine 58 witnesses, including representatives of medical and scientific bodies, medical and veterinary practitioners, the Home Office, R.S.P.C.A., and various antivivisection societies. It also scrutinised numerous papers from various official, medical, scientific and other sources. Some of these were printed and annexed to the first five reports of the Commission. The seventh and Final Report was presented in 1912.²

Composition of the Commission

The Commission was chaired by the first Viscount Selby, former speaker in the House of Commons (where he was noted for dignity,

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1. Preamble to the First Report of the Royal Commission on Vivisection 1906-1912, Parl. Papers, 1907 Cd. 3325, xli., 645. The Commission is hereafter cited as the Second Royal Commission.
 2. Final Report of the Second Royal Commission, Parl. Papers, 1912/13 Cd. 6114, xlviii., 401

courtesy and impartiality) who could be expected to command public confidence.³ Selby had also served on the Royal Commission on Vaccination, 1889-96. His Commission was fairly evenly composed of experts in law, medicine and science, with a bias towards the medical and scientific side. Its members included at least three strong pro-vivisectionists (Gaskell, Church and Collins), and only one fairly strong critic of some aspects of animal experimentation (Wilson), no antivivisectionists or animal welfare representatives were included. Members with experience of law were Chalmers,⁴ Tomkinson,⁵ and Ram.⁶ Chalmers, a judge, parliamentary draftsman, and a civil servant, had performed much work in the fields of law reform and the drafting of bills. He represented the Home Office, holding the position of Permanent Under Secretary of State for the first two years of the Commission's sitting.⁷ Tomkinson, a magistrate, was a member whose sympathies might not perhaps have been expected to lie on the antivivisectionist side (he is said to have met his death on the hunting field);⁸ however, his cross-examinations revealed a bias in favour of antivivisectionist witnesses. He has been described as an abolitionist,⁹ but the B.U.A.V. complained that as a lay member he would be swamped by the experts. Ram was a barrister of very considerable experience.

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3. William Court Gully Selby (1835-1909), raised to peerage in 1905, D.N.B. Selby died during the Commission and was succeeded in the chairmanship by Ram in 1909.
 4. Sir Mackenzie Dalzell Chalmers (1835-1909), D.N.B.
 5. James Tomkinson (1840-1912?), Westacott.
 6. Abel John Ram (1842-1920), Who's Who.
 7. A number of antivivisectionists complained about the inclusion of a Home Office official but were informed that it was standard practice to include such a representative on a commission.
 8. Westacott, 212.
 9. See Sir Leonard Rogers, Honorary Treasurer of the R.D.S., The Truth About Vivisection (London, 1937), hereafter cited as Rogers.

Pro-vivisectionist members with medical and scientific interest numbered four in all. Church had been a physician at St. Bartholomew's Hospital and was President of the College of Physicians from 1899-1905. During two of the years in which the Commission sat (1908-1910) he was President of the Royal Society of Medicine.¹⁰ He was also a Fellow of the Royal College of Surgeons. It has been claimed that Church was an ardent supporter of vivisection,¹¹ though others have noted that he had himself done little or no experimental research.¹² Gaskell¹³ was a physiologist who had studied the subject at the famous university of Leipzig, noted for its emphasis upon vivisection. At Cambridge he had studied under Michael Foster, co-author of The Handbook of The Physiological Laboratory which had evoked much criticism and controversy at the time of the First Royal Commission. Gaskell, a fellow of the Royal Society, was often responsible for selecting, with Foster, papers for the Journal of Physiology. As a lecturer in physiology at Cambridge with a licence under the 1876 Act, his own research revolutionised current ideas of the action of the heart and cardiac disease. McFadyean,¹⁴ distinguished veterinary surgeon seems, like Gaskell, to have displayed a definite bias against antivivisection in his cross examinations. He held a licence himself and had experimented each year from 1887. Collins¹⁵ appears to have been a medical man of outstanding merit.

Educated at University College School, London, and at St. Bartholomew's

10. Sir William Selby Church (1837-1928), D.N.B.

11. Vyvyan, Dark Face, 68.

12. Ibid. 9. The B.U.A.V. also pointed out that at the time of the Commission Church was Chairman of the Executive Committee of the Cancer Research Fund, which it described as having in its last report a record of 'wholesale torture' by ingrafting tumours into mice, dogs, cats, rats and a horse. The Society further contended that these had been useless, whilst Church described them as having attained real progress. Letters from British Union for the Abolition of Vivisection to H.O. in P.R.O. No. 114/2(2), 138422/25.

13. Walter Holbrook Gaskell (1847-1914), D.N.B., D.S.B.

14. Sir John McFadyean (1853-1940), Westacott.

15. Sir William Job Collins (1856-1946), Who's Who.

Hospital (where he held a licence from 1886-1888), he was a fellow, scholar and a gold medallist in sanitary science and in obstetrics at the University of London, where he had obtained honours in physiology, forensic medicine and surgery. He was twice Vice-Chancellor of that University. Like Selby, the Chairman, he had served on the Vaccination Commission of 1889. Vyvyan¹⁶ claims that Collins was an ardent supporter of vivisection but gives no evidence for this statement other than his fellowship of the Royal Society. Rogers,¹⁷ on the other hand, notes the impartiality with which he questioned witnesses both for and against the practice. The latter view is supported by the fact that Collins, along with Lockwood and Wilson, signed a reservation memorandum calling for greater restrictions than did the Commission's Final Report.

Lockwood¹⁸ a retired Colonel and Conservative M.P., was noted for his great interest in horticulture. As parliamentary member for Epping he had secured the abolition of pigeon shooting in England, while as Vice President (and for many years an active member) of the R.S.P.C.A. had voiced his dislike of the practice of vivisection, though his views were not extreme. He had several times moved a restriction bill in the House. Of all the Commissioners, Wilson¹⁹ showed the strongest bias towards reduction of vivisection. He was himself a medical man, but with a strong leaning towards unorthodox views on sanitary and hygiene aspects. A Medical Officer of Health for Warwickshire and Cambridgeshire for thirty years, in 1873 he issued a Handbook of Sanitary Hygiene which went through eight editions. By 1898 it contained views on bacteriology not conforming to the accepted

16. Vyvyan, Dark Face, 68

17. Rogers, 9.

18. Amelius Mark Richard Lockwood (1847-1928), D.N.B.

19. George Wilson, Westacott, 212.

germ theory. He refused to alter it when pressed by medical opinion and even expressed the same unorthodox views at his Presidential Address to the State Medical Section at the annual meeting in Portsmouth of the B.M.A. in 1899.²⁰ There is some evidence for Westacott's statement that Wilson occupied a "corner seat" on the Commission because of these unorthodox views. Before publication of the Final Report, Ram, by then Chairman, wrote to the Secretary, Captain Bingham, complaining of the length of time Wilson was taking to draft his memorandum. In this correspondence he stated that he did not anticipate much trouble from Wilson though he greatly feared that Collins, who had always been bent on a dissentient note, might try to press for new legislation.²¹ Antivivisection Societies often claimed Wilson as a supporter, though Rogers notes that he himself repudiated being an antivivisectionist.²² He was, however, recommended for a seat on the Commission by leading antivivisectionists, including Coleridge.

Although he makes no mention of the total lack of a single antivivisectionist among its ranks,²³ Rogers has concluded that the Commission was unbiased and representative of all viewpoints. Vyvyan, on the other hand, complains that the unrepresentative composition of the Commission resulted in the examination of antivivisectionist witnesses by determined and skillful enemies and of pro-vivisectionists by their friends.²⁴ There was, in fact, considerable complaint from the

20. The views he expressed, quoted by Rogers (p.9), were as follows :
 "I accuse my profession of misleading the public as to the cruelties and horrors which are perpetrated on animal life ... Not a few doubt if the agonies have saved one single life or appreciably lessened human suffering."

21. See Commissioners' Letters and Odd Papers in P.R.O., H.O. 114/1(1), Ram to Bingham, 19 Nov. 1911.

22. Rogers, 9.

23. The B.U.A.V. complained that even Wilson could not be said to wholly represent their case since he had publicly stated that he was not an antivivisectionist, B.U.A.V. to H.O. 12 Oct. 1906, in P.R.O., H.O. 114/2(2).

24. Vyvyan, Dark Face, 65.

general public about the composition of the Commission and the fact that its meetings were not open to the public or the press.²⁵ Numerous societies and individuals expressed the view that no confidence could be held in such a Commission.

The press was also unsympathetic. The Star for 25 October 1906, carried a plea for the reversal of the Commission's decision to meet in private, under the heading A Secret Commission on Secret Vivisection. The columnist had concluded that the decision could only be the result of a desire on the part of the Commissioners to prevent general diffusion of the appalling details of experiments. The article pointed out that since Parliament had not intended the sittings to be in camera the decision was a flagrant violation of Parliament's intentions. Even the Police Commission, which was then investigating much more delicate matters, was sitting with open doors. One could only conclude, said The Star, "if vivisection cannot bear publicity, then it must be unfit to exist".

The second largest antivivisection society in Britain - The British Union for the Abolition of Vivisection - declined to take part in the proceedings of the Commission because there was no medically qualified antivivisectionist among its ranks.²⁶ They had put forward their own

25. See letters to Herbert Gladstone M.P. in P.R.O., H.O. 114/2(2), and The Post and The Tribune, 25 Oct. 1906. In a letter to George Greenwood, M.P., H.C. 114/1(2), Coleridge complained bitterly about exclusion of the press. He claimed that antivivisectionists had nothing to fear from publicity because of the strength of their case, whilst the vivisectors had much more to fear. He also complained (as he subsequently did to the Commission itself) that no truths could be ascertained unless the Commission was to grant his request that vivisectors and Home Office officials be examined by properly instructed Counsel (see footnote 57). The whole situation, said Coleridge, was biased towards the vivisectors. There would be little point in bringing back an experimenter for re-examination by the Commission after he had had time to "plug the holes in his evidence with the help of his good friends from outside".

26. B.U.A.V. to Commission, 7 Nov. 1906 in P.R.O. H.O. 114/2(2).

expert, Dr. Walter Hadwen²⁷, whom the B.U.A.V. felt was uniquely qualified to present the antivivisectionist case, but his appointment had been declined. The Society had also complained to Gladstone that dissatisfaction concerning the composition and secrecy of the Commission was widespread. It was pointed out that commissions were usually composed of uncommitted persons, but if it was felt necessary to include those with definite views, it was usual practice to balance them evenly on either side:

As the matters stands, however, we have before us one of the most remarkable Commissions of modern times, on which men are called to sit as judges upon work with which their own name and reputation are most closely associated, and it is contrary to all knowledge of human nature to suppose that anything other than a favourable judgement of the practice will be recorded by them. In our opinion such selection renders the work of the Commission little else than a farce. 28

The London Antivivisection Society also declined to give evidence on the grounds that the Commission was unfairly constituted,²⁹ as did the Surgeon General, Sir J. Thornton, K.C.B.; who complained that the Commission's bias towards vivisection was illustrated by the refusal to allow Coleridge to read a very important letter (from Huxley to Darwin concerning the First Royal Commission) as part of his evidence.

The N.A.V.S., the largest British Antivivisection Society, decided to

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27. Walter Robert Hadwen (1854-1932) was a medical man of considerable merit. A surgeon at St. Bartholomew's Hospital, he was First Prizeman in Physiology, Operative Surgery, Pathology and Forensic Medicine. He was also a Clarke Scholar and Double Gold Medalist in Surgery and Medicine. Hadwen was President of the B.U.A.V. for many years and devoted much of his spare time to campaigning for the abolition of vivisection, repeal of the Vaccination Acts and to reform movements connected with temperance, food, hygiene, sanitation, education and the burial laws. He was responsible for numerous publications on these subjects, Who Was Who.
28. B.U.A.V. to H.O. 138 422/25. (H.O. received 16 Oct. 1906) in P.R.O., H.O. 114/2(2). Note also the rivalry between the anti-vivisection societies, in particular the animosity between Coleridge of the N.A.V.S. and the other societies. In letters to the Commission (P.R.O. H.O. 114/4) he was disparaging of Hadwen and of the Church Antivivisection League. A letter from the B.U.A.V. to the Commission, dated 15 Nov. 1907, repudiates Coleridge's claim to represent the antivivisectionist case in Britain.
29. Letter to the Commission 6 Nov. 1904 in P.R.O., H.O. 114/5.

take part in the proceedings only when the Commission announced its intention to publish its evidence monthly. The World League of Opponents of Vivisection forwarded to the Commission the following resolution passed at a committee meeting :

The Committee of the English Branch of the World League of Opponents to Vivisection desire to record their strong protest against the composition of the Royal Commission on Vivisection and especially against its determination to exclude the press and counsel from participation into its proceedings, the former in view of the deep interest in this question which pervades the whole country. 30

Evidence Before the Commission

The bulk of the evidence was solicited with a view to answering a variety of questions about the practice of vivisection and the general administration of the law. Some witnesses also gave evidence of a somewhat unusual nature which the Commission saw fit to consider and report upon separately. Topics covered by the Commission may be categorised as follows :

1. The Cruelty to Animals Act (1876) and its administration.
2. Utility of the experimental method as a means of advancing medical and general scientific knowledge.
3. Vivisection as a method appropriate for the instruction of students in medicine and physiology
4. The question of sensitivity in animals and infliction of pain in experiments
5. Anaesthesia
6. Supply and classification as to species
7. The Moral Question
8. The Commissioners' Recommendations

The evidence presented on each of these subjects, and the conclusions of the Commission are considered here in some detail.

30. See footnote 57

31. 14 Nov. 1906 in P.R.O., H.O. 114/4(2) from the English Branch of the World League of Opponents of Vivisection (established 1896). Its President was the Princess Ludwig von Lowenstein-Wertheim.

1. The Cruelty to Animals Act(1876) and its Administration.

There were very few complaints from scientific quarters regarding the hindrance of research by the restrictions of the 1876 Act or its administration.³³ The administration of the Act was outlined by W.P. Byrne, chief Home Office clerk, who gave repeated assurances as to the efficiency of administration and the compliance of licensees with the provisions of the Act. Had it not been for the evidence later presented by Stephen Coleridge, a record might well have been set down in the Blue Books which would have resulted in almost total reassurance of the public regarding the efficiency of the administrative system and the level of control exerted.³⁴ Before dealing with this evidence, the administrative system as presented by Byrne, will be briefly outlined.

Licences

Since competence of the licensee was assured by the signatories to the application, refusals were consequently rare. Most licensees had medical or veterinary qualifications; persons with no scientific qualifications whatever were always refused.³⁵ Licences were granted to aliens (long visits only) provided they demonstrated the necessity of their work and their fitness to carry it out, subsequently submitting a written report to the Home Secretary before they left the country. Byrne added, perhaps not surprisingly, that no complaints as to the licencing of unsuitable persons had been made to the Home Office by

33. French has noted that from the late 1880's on (significant changes then having been made in the administration of the Act) medical and scientific interest seemed to be generally satisfied with it (see especially 214-215). This would seem to hold largely true to the present day.

34. Aspects of Home Office practice which were later criticised by Coleridge are italicised below.

35. This is no longer the case. See chapter IV, Section 2.

scientific bodies, and he dismissed such complaints from antivivisectionist quarters as being of a "vague nature".³⁶ Before licences or certificates were granted by the Home Office they were first passed to the advisory body - The Association for the Advancement of Medicine by Research,³⁷ which passed the application, with its recommendations, to the inspector. In the case of licence applications it was standard practice for the inspector to uphold the recommendations of the A.A.M.R. unless he had reason to believe that the applicant had previously broken the law. The inspector would look into the qualifications of the applicant, though not into questions of his humanity. In the case of certificates, recommendations might frequently be made concerning the number or species of animal or the question of pain or utility. The inspector did not usually make recommendations opposing those of the A.A.M.R., though this happened on occasions. The Secretary of State was at liberty to overrule all previous recommendations when he considered each case on its merits.

Conditions attached to Licences

Two conditions not originally described in the Act, but devised by the Secretary of State, were conspicuously attached to each licence. These were the aseptic condition which stipulates that measures to prevent sepsis following operative proceedings must be taken, and if they failed, and pain ensued, the animal was to be killed forthwith; similarly an

36. Such complaints were usually based on reports in scientific journals and concerned experiments considered to be cruel. There are, in fact, few other sources of information open to the public. Note the citation in Cook's evidence of one of Klein's experiments reported in J. Pathol. and Bacteriol., 2 (1894), 35-51. This could hardly be dismissed as a case of "vague nature" given the other numerous complaints concerning the continued licensure of Klein.

37. See pp. 61-65, 71, 121-122 of this chapter.

animal had to be killed if pain ensued following an inoculation, provided the object of the experiment had been obtained.

Revocation of Licences

This had taken place occasionally. Breaches of the Act were usually due to technical irregularities rather than deliberate infringement of the law, and they usually required only a warning. For the last ten years such cases had been included in the inspector's annual report. Revocation of a licence due to serious contravention of the Act had taken place in only four instances.³⁸ The only complaints received by the Home Office regarding experiments without a licence occurred where the licensee had forgotten to renew it.³⁹ Legal proceedings had never been instituted by the Secretary of State.

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38. i) Experiments on "woolsorters disease" requiring certificates A and B were performed under licence alone. The same licensee inoculated rabbits with rabies without obtaining certificate B and failed to provide a satisfactory explanation to the Home Office. The licence was revoked on grounds of gross carelessness.
- ii) A licensee not holding certificates B and EF performed a gastric fistula on a cat and allowed it to recover. This was considered to be a deliberate violation of the Act since he had been previously warned about the necessity of obtaining certificates. He was subsequently granted another licence and certificate A after a special enquiry a few months later.
- iii) Two licensees gave injections leading to convulsions without anaesthetic and without obtaining certificate A. They also showed gross carelessness in the submission of their annual returns. In one case the licence was revoked, in the other renewal was refused.
- iv) A licensee performed twenty experiments under Certificate B without submitting a report to the Secretary of State as required by Section 2 of the Act. The licence was revoked.
39. This statement was inaccurate. In her evidence (Third Report, Parl. Papers, 1908 Cd.3757, lvii, 283, q,8786-8898) Woodward, representing the Church Antivivisection League, drew attention to allegations made by a Dr. Kerr at a public meeting of the League in Bradford on 1 September 1906, to the effect that persons known to him had performed experiments without a licence. The case was brought to the attention of the Home Office and the allegations seem to have been substantiated by reliable witnesses, however, after an enquiry, the Home Office concluded that no illegal experiments had been performed. The Church A V. League was a body made up of some 375 clerical members and some 496 lay members.

Certificates

Byrne himself made the point, so often bemoaned by antivivisectionists, that all except three of the stringent restrictions of the Act could be removed by certificate. Certificates were restricted as to time or number of animals, and ceased to operate when the licence expired (on the last day of February of each year). The procedure for application was the same as for licences, but the granting body was the A.A.M.R. The inspector was then at liberty to recommend to the Home Office that the certificate be disallowed.⁴⁰ Byrne claimed that the Secretary of State frequently asked if the experiments proposed had any bearing on therapeutics, and further that the Home Office had frequently refused both licences and certificates.

Certificate A

Both Byrne and G.D. Thane, Chief Inspector⁴¹ under the Act, asserted that this certificate, dispensing with the obligation to use an anaesthetic, was never granted for surgical operations. It was usually used for injections, inoculations, vaccinations, feeding experiments and blood samples. It had, however, been granted also for the testing of the effects of compressed air (Caisson's disease)

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40. Evidence was later presented by a number of scientists qualified to sign applications for licences and certificates. They included Douglas Powell, President of the Royal College of Physicians, and E.H. Starling, Professor of Physiology at University College, London. Both stated that all applications were thoroughly scrutinised with regard to the qualifications of the applicant and the purpose of the proposed experiments. They did not sign unless detailed information regarding the object of the experiment was submitted. Starling stated that he had returned many deficient applications. Neither believed that certificates were ever granted for painful experiments without anaesthesia but this was clearly not the case.
41. G.D. Thane, L.L.D., M.R.C.S., Chief Inspector under the Act from 28 June 1889. For further details see Final Report, para. 11 and footnote 104.

and for the drowning and resuscitation of dogs.⁴²

Registration of Places

This was done under Section 7 of the Act, on the inspector's recommendation. A list of such premises was published as Table 1 of his annual report. In a very small number of special cases experiments were allowed to take place on private property (such as research into the diseases of farm animals). These temporary locations were known to the inspector and amenable to inspection. The Home Office took no steps to investigate whether vivisection was ever carried out in unlicensed premises by unlicensed persons, and saw no method by which it could carry out such a policing. Any such practice would have been outside the province of the Act and, from 1911, liable to prosecution under the Protection of Animals Act.

Annual Returns

Each laboratory kept full reports of all the experiments which were amenable to scrutiny by the inspector. In addition, a full annual report of work carried out under licence was submitted by each licensee to the Secretary of State. These technical reports were reviewed by the Home Office and by the inspector; it was in them that any irregularities were usually discovered. The reports contained full details of each experiment, not included in the Home Office Annual Return.⁴³ In

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42. In his evidence E.A. Schäfer described a new and more effective method of resuscitation which had been developed as a result of his experiments. There was much antivivisectionist criticism of these and a general misapprehension that a large number of dogs had been drowned and resuscitated. The experiments had been performed on behalf of the Royal Humane Society of Edinburgh; 36 dogs were drowned, two without anaesthetic, but these were not allowed to recover—they were done as a control to the experiments on the anaesthetised dogs. Home Office permission had, in fact, been granted for ten such controls, but two had sufficed.
43. Byrne stated that any recommendation made by the Commission for the expansion of details published in the Annual Return would be welcomed. A Home Office conference concerning this was to have taken place had the Commission not been called.

addition licensees could be asked to forward full reports of current work at any time.

Irregularities and Infringements of the Act.

The Home Office had, not surprisingly, received few complaints from scientists concerning fellow workers. Those from antivivisection societies had generally been related to cases of alleged cruelty; there were also a few general criticisms of H.O. efficiency. The irregularities occasionally revealed in the annual reports of the licensees were usually minor and inadvertant (such as the administration of an anaesthetic for the benefit of the animal under a certificate for its dispensation).

Byrne outlined several guarantees against infringement, none of which were likely to be very reassuring to critics of the Act : surprise visits made by the inspector,⁴⁴ the scrutiny of the experimenter by his co-workers, and the publication of experiments. In the opinion of the Home Office, the greatest assurance was the humanity of the licensee himself.

Antivivisectionists have always been critical of such statements, demanding what other law depends for its success upon the compliance of those it is intended to control ?⁴⁵ However, the Home Office has

44. This view takes no account of the "bush telegraph" effect, and in any case the inspector is not intended to play a detective role. See pp. 72-74 of this chapter and also chapter IV, Section 5.

45. The First Royal Commission made the point that laws are passed not for the benefit of those who could be trusted to uphold them but for those who could not, stating, "It is manifest that the practice of vivisection is from its very nature liable to great abuse; and that since it is impossible for Society to entertain the idea of putting an end to it, it ought to be subjected to due regulation and control. Those who are least favourable to interference assume, as we have seen, that interference would be directed against the skillful, the humane and the experienced. But it is not for them that the law is made, but for persons of the opposite character. It is not to be doubted that inhumanity may be found in persons of very high position as physiologists. We have seen that it was so in Magendie." Report of the Commission. p.xvii.

always taken the view that the licensing system is sufficiently strict to ensure that persons of an inhumane character who could not be trusted to uphold the law would not receive licences in the first place. There has been considerable criticism of this position,⁴⁶ although it is fair to say that the practice of animal experimentation is hardly amenable to stringent policing from outside and that the most effective control must ultimately be exercised from within.

Byrne congratulated the Home Office on the fact that only once had permission been requested to institute a prosecution.⁴⁷ This is hardly surprising since the necessary information would seldom be available to the public.⁴⁸

Changing Trends in Research, 1876-1906

Byrne drew attention to the great increase in the number of licences issued between 1900-1906,⁴⁹ and explained that this was due to an increase in public health work and investigations carried out for government departments and public authorities. There had also been a general increase, independent of this, which was not due to any change in Home Office practice or operation of the law, but rather to the mode of investigation of disease. The tremendous increase in the number of certificates A granted was similarly due to the extensive increase in the use of inoculation experiments for the study of disease. In 1904 the number of certificates A granted was 8,954, by 1905 this had risen to 35,429.

46. See chapter IV.

47. In 1892 the R.S.P.C.A. complained that the admission of a newspaper reporter to see some experiments constituted an exhibition to the public, forbidden under Section 6 of the Act. The Secretary of State did not institute a prosecution though he gave the Society permission to do so. No prosecution did take place.

48. See chapter IV, 173-174 and Section 10.

49 See Appendix A(1) to the First Report.

Administration of the Act in Northern Ireland

Thornley Stoker, Inspector under the Act for Ireland, stated that the Act had worked well and had been more free of irregularities in Ireland than in England. However, the licensing authority there was the Chief Secretary for Ireland, who was frequently in England on business, and Thornley Stoker felt that this continued absence and consequent delegation of work to his officials had led to some want of standard in the Irish administration of the Act. As in England the majority of experiments was inoculations. He had never witnessed a surgical experiment and was of the opinion that they were few in number. Thornley Stoker stated that it was his habit to scrutinise medical journals for cases of cruelty or infringement, but he had come across only one such case.⁵⁰

Criticism of the Act and its Administration

The scientific community was generally satisfied that the Act had worked efficiently to prevent cruelty and abuse whilst not impeding the progress of research. Much of the antivivisectionist criticism was extreme and called for total repeal of the Act. Many antivivisectionist witnesses presented long lists of examples in support of their contention that the Act, as structured and currently administered, did not prevent cruelty. For example, Mrs. K. Cook,⁵¹ of the Parliamentary Association for the Abolition of Vivisection, felt that the system of inspection was totally valueless as a means of protecting the animals.

50. These experiments, performed by Cecil Shaw, were described in the B.M.J., (1898) 1580-1583, see also p.150 of this chapter. They related to inflammation of the eyes of rabbits, and were, in the opinion of Thornley Stoker, cruel and unjustifiable. In addition, the author himself possessed no licence, he was merely associated with other licencees. Thornley Stoker had been advised by law officers that there was insufficient evidence to press a case.

51. Mrs. K. Cook (Mabel Collins), authoress, journalist and Chairman of this Association. For a description of the aims of her Society see First Report, q.1785.

Since the Act protected the practice of vivisection on all sides, it would be preferable to have no Act at all, so that the public could bring prosecutions under Martin's Act.⁵² The 1876 Act allowed for such prosecutions in theory but in practice they were precluded by the "six-month" restriction.⁵³ (The only source of public information was scientific journals which were published almost invariably at least six months after the experiments had been carried out).

Other critics pointed out that registration of places further protected experimenters from the vigilance of the R.S.P.C.A., the public and, usually, the police.

By far the most devastating criticism of the Act and its administration came from the Honorable Stephen Coleridge, Honorary Secretary of the National Antivivisection Society,⁵⁴ in what might perhaps be better described as a tirade of invective than a piece of evidence. John Vyvyan has described the dramatic effect of Coleridge's first appearance before the Commission :

52. See chapter I, footnote 12.

53. Clause 14 of the Act states that in England offences shall be prosecuted by a Court of Summary Jurisdiction directed by the Summary Jurisdiction Act, 11 and 12 Vict.c.43 (1848), which states (Clause XI) that complaints of an offence must be laid within six months of the time when the offence allegedly took place. Similarly, the six month ruling applied in Scotland, (prosecutions to be instituted under the Summary Procedure Act (1864) and in Ireland (prosecutions to be instituted in a summary manner subject to the Petty Sessions (Ireland) Act (1851). Clause 21 of the 1876 Act states that written permission of the Secretary of State must be obtained before a prosecution can be brought.

54. Coleridge also described in some detail the work and achievements of his Society, see Third Report, q.10,251-11, 629.

In the six years through which the Commission sat, this must surely have been its most dramatic day. Those commissioners who championed vivisection were stung by the attack. Neither they, nor the Home Office, had anticipated an offensive launched on so wide a front and with such ferocity. Coleridge appeared before them not so much a witness as a warrior; and with his keen mind, legal training, and thorough command of fact, he made a formidable assailant. There were no platitudinous exchanges in the cross-examination that followed. This was warfare. Both sides, moreover, knew that every word they uttered would be published, and that, in a sense, the world was their jury. 55

Vyvyan may well be overstating the case, but the fact remains that the Commission was to recommend at least one important change in the administration of the Act⁵⁶ which might not have been made without Coleridge's evidence.

Coleridge began by observing that Byrne's evidence had amply substantiated the view of his Society that the whole truth could not be elicited from Home Office officials without cross-examination by properly instructed Counsel.⁵⁷ He then proceeded to bring forward twelve specific charges against the Home Office concerning its administration of the Act. They may be briefly summarised as follows :

55. Vyvyan, Dark Face, 73.

56. This was a change in the constitution of the advisory body, see Final Report, para. 122, and pp.55, 121-122 of this chapter.

57. In a letter to Ram, 2 Nov. 1906, Coleridge had repeated his complaint that the N.A.V.S. regarded exclusion of representative Counsel as fatal to the Commission as an instrument for receiving the truth (see footnote 25). On the same date he indicated in a letter to Wilson that it was impossible for anyone adequately to cross-examine officials and inspectors of the Home Office without having studied the 29 Annual Returns issued since the passage of the Act. The truth as to the administration of the Act over the last 30 years would only be reached by a perusal of the large correspondence passing between the N.A.V.S. and the Home Office. Similarly, Thane would need to be closely cross-examined by someone with full acquaintance of questions and answers in Parliament and only the N.A.V.S. had compiled these. Coleridge added that the actions of Lord Selby and the vivisectors had precluded the Commission from bringing its enquiry to a just conclusion (the italicised words had been deleted in red on the original letter).

I. It had repudiated its duty to protect animals from unjustifiable suffering.⁵⁸ Since 1892 practically no allusion had been made to the "innoculation condition" appended to certificate A which, in any case, allowed any amount of pain to be inflicted provided the object of the experiment had not been attained.

II. Home Office officials had constituted themselves the injudicial defenders of vivisectors from the criticisms of the N.A.V.S. and in their evidence before the Commission. Coleridge cited a number of cases where complaints had been put to the Home Office by the N.A.V.S., and where his Society had received what he considered to be inadequate replies. The evidence relating to at least one of these examples, experiments on surgical shock conducted by Dr. Crile in Sir Victor Horsely's laboratory⁵⁹ was controversial and discussed at length by the Commission. However, close examination reveals little substantiation of Coleridge's claims.

III. Coleridge alleged that the Home Office had appointed inspectors biased against exerting a detective duty. The Home Office has, in fact, never envisaged such a role for the Inspectorate.⁶⁰ It was not uncommon

58. Byrne had plainly stated (First Report, q.129-130), that this was outside the Home Secretary's province, while Coleridge maintained that the execution of such a responsibility was, in fact, envisaged by the framers of the Act. See the discussion of contemporary criticisms in chapter IV esp. Section 3. The Home Office had abandoned the practice of categorising experiments into painful or painless in 1905, Thane stated that it had been impossible to make the distinction. Coleridge saw this as an abrogation of the responsibility placed upon the Home Office by Parliament which had ordered a return of all experiments distinguishing painful from painless. See Coleridge's letter to the Home Office of 21 Jul.1809 in P.R.O., H.O.45 344/16; see also chapter IV, Section 2.

59. The details of these experiments were later presented by Horsely himself, see Fourth Report, Parl. Papers 1908 Cd.3955, lvii, 559. q.15688-15730. The controversy turned upon whether the terms "incomplete" and "light" anaesthesia were interchangeable, the former having been used to describe Crile's experiments. Coleridge had obtained a written definition from the Home Office showing that the two terms did not have the same meaning. He had subsequently obtained the statements of many eminent surgeons in support of his contention but in doing this he had omitted a sentence from the Home Office definition which had altered its sense. See also pp. 68 and 102 of this chapter.

60. See chapter IV, Section 5.

for antivivisectionists to institute personal attacks upon inspectors at this time. If they succeeded in eliciting a reply this could in turn be cited as evidence of their bias.⁶¹

IV. Coleridge accused Home Office officials and inspectors of making disingenuous statements in their official utterances. One example was the Chief Inspector's frequent statement in the Annual Return that experiments under licence alone or with Certificate C were completely unattended by pain. Coleridge felt this to be a thoroughly improper and misleading statement, but there was little substantiation to this accusation since any such experiment which did result in pain would in fact have been illegal. There was more basis for criticism of similar statements frequently made by the Home Office concerning experiments under Certificates A and B. Such experiments, quite clearly, might be productive of considerable discomfort, distress or pain, though statements have frequently been made to the contrary.⁶² Coleridge also complained that the public were frequently misled by complacent statements which took no account of the misdoings of licencees which were not revealed to the inspector. One such example had been the case of the "Brown Dog" of University College.⁶³ In

61 See French, 170. There would, however, seem to be some fair criticism of the appointment of inspectors at this time. G.D. Thane, for example, while at the same time holding the post of Professor of Anatomy at University College, London, was in fact inspecting his colleagues.

62. See also contemporary complaints discussed in chapter IV below.

63. This dog had allegedly been experimented upon twice by Starling under certificate B and then handed over to William Bayliss for another major operation. Whether or not anaesthesia was fully maintained throughout, such practice was against the law. In this case the incident only came to the notice of the Inspector as the result of a legal action brought by the N.A.V.S. Coleridge wondered how many other incidents might occur which contradicted statements frequently made in the House to the effect that animals operated on under licence alone or under certificate B were killed immediately the object of the experiment had been attained. The case of the "Brown Dog" was widely publicised and was not insignificant among events resulting in the setting up of the Second Royal commission. See Vyvyan, Dark Face, 59-65, and J.H. Baron, "The Brown Dog of University College", in B.M.J., II (1956), 547-548, 661, 827, 942.

accepting the word of licencees that suffering did not take place in specific experiments, and in their failure ever to criticise the statements of licencees, the Home Office had adopted the position of mere spokesmen of the vivisectors.

V. Coleridge then charged the Home Office with accepting suggestions made to them by some nameless adviser (presumably referring to A.A.M.R.) that starving animals was not cruel, while in ordinary circumstances such an action would be prosecuted under Martin's Act. The experiments referred to were those of N.Paton(J.Physiol, XIX (1896), 766-216). When asked if these were considered cruel and what certificate was used, the Home Office left the first question unanswered and replied that no certificate was used. Coleridge pointed out that if no Certificate A was taken out the law had been broken. To this he received the reply that Paton did not consider these experiments to be under the Act, since the question of whether they were calculated to cause pain was in serious doubt. The Home Office itself declined to express an opinion as to whether it considered them to come under the Act, and by the time of publication it was already too late to institute proceedings. Clearly, however, the experiments could not legally have been conducted under protection of the licence without Certificate A. If the Home Office explanation is accepted the experiments were open to prosecution under Martin's Act - a possibility to which Coleridge makes no allusion.

VI. This charge related to public accountability. The First Royal Commission had recommended that names of signatories to applications for licences and certificates be made known to the profession and the public.⁶⁴ Despite the Commission's intention that the names of these eminent persons be a reassurance to the public, their names had been continually suppressed in the Annual Parliamentary Return. Curiously, Home Office officials themselves might not be aware of their identities,

64. See chapter I, 20, note also the discussion in chapter IV, esp. Sections 2 and 10.

since only the position held needed to be stated on the application. It was thus impossible to find out the names of persons whose very grave duty it had been to sign certificates dispensing with the use of anaesthetic.

VII. Coleridge complained about Home Office treatment of irregularities. He stated that the First Royal Commission had clearly recommended the publication of names of licensees who had broken the law when it spoke of this disgrace acting as a deterrent. The Home Office had instituted no proceedings for such breaches of the law, but had merely issued warnings. The strongest action taken had been revocation of licences, but these were often shortly reissued. He had been informed by the Home Office that it saw no useful purpose to be served in the publication of the names of offenders against the Act. On these grounds he charged the Home Office with shielding such licensees as were known to have broken the law.

VIII. Coleridge charged the Home Office officials with preparing evasive and insufficient replies in the House of Commons to plain questions on the administration of the Act; also with making such replies in their communications with the N.A.V.S., and with leaving perfectly proper questions unanswered altogether. He illustrated this charge with several examples.

IX. This was little more than an elaborate repetition of the fourth charge. The Home Office Annual Return asserted on the official authority of a governmental department that not one in thousands of experiments carried out annually in Great Britain could be specified as entailing any pain at all, but this conclusion was based purely on the testimony of the vivisectors themselves.

X. Coleridge complained that Sir Victor Horsley had been placed year after year beyond reach of the safeguards of the Act by special permission to experiment outside licensed premises. This charge proved to

be baseless. Horsely later explained that he had been given permission to perform two very strictly defined experiments, but the permission was, in fact, never used. Home Office witnesses also informed the Commission that the inspector held a list of unregistered places where permission had been granted to perform experiments (such as farms), and these were indeed amenable to inspection as long as the permission was in force.

XI. Coleridge charged both Home Office officials and inspectors with having made no inquiry into the character or humanity of licensees, despite the warning of the First Royal Commission that cruelty might occur in high places⁶⁵ and their recommendation of the need to guard against this possibility. Here Coleridge felt it necessary to draw attention once again to Klein's evidence before the First Royal Commission, and to the fact that he still possessed a licence.⁶⁶ Klein was in fact regularly licenced after 1884. This is noteworthy since his evidence (and subsequent conduct)⁶⁷ before the First Commission ought to have rendered such a person ineligible for a licence if Home Office and scientists' assurances regarding the strictness of the licensing system as a guarantee of humanity were taken at face value.⁶⁸ Such assurances have never been accepted by the antivivisectionists. Coleridge believed that publication of the signatories' names would be sufficient to prevent the licensing of persons such as Klein.

65. See footnote 45.

66. With reference to this case Coleridge attempted to read the contents of a letter written by Huxley to Darwin three days after Klein gave his evidence. He was restrained from doing this by Selby, who objected to his alluding to events which took place prior to the passage of the Act. However, this letter was of great importance since a) it was referring to a scientist who still held a licence, and b) it was a statement of the opinion of one of the country's most eminent scientists concerning the matter, which supported Coleridge's point. The ensuing argument in fact took up far more time than the reading of the letter would have, though lack of time was given as another reason why it should not be read. Klein himself was asked to give evidence before the Commission, but he declined on grounds of ill health. See letters in P.R.O., H.O. 114/5.

67. See chapter I, 18-19.

68. See chapter IV, Section 2.

XII. Significantly Coleridge saved his most detailed and devastating charge until last. If some of his specific charges could be contradicted by the licensees concerned, here the Commission was faced with a most damning criticism of the general administration of the Act which it could hardly ignore. The charge was that the Home Office had placed itself in improper private and confidential relations with a private society, composed of supporters of vivisection and entitled to no more consideration from the Home Office than was the N.A.V.S. which was composed of its opponents.

He was referring to the A.A.M.R., the society drawn together in 1882 by William Jenner for the purpose of :

bringing the legitimate influence of the medical profession to bear more effectively on the promotion of those exact researches in physiology, pathology and therapeutics, which are essential to sound progress in the healing art. 69

R.D. French, in his excellent and informative critique of this society,⁷⁰ has noted that it was in fact formed as a result of what scientists took to be significant interference with the progress of research due to the "just administration" of the Act. French notes that, during the first ten years of the Act's administration, refusal of licences and certificates were not uncommon. However, in June 1882, William Harcourt, then Home Secretary, accepted the voluntary services of this society as adviser to the Home Office on the administration of the Act. Thereafter all applicants for licences and certificates were to be recommended by the Council of the A.A.M.R. before reaching the Home Office and consequently refusals of applications became a very rare occurrence.

69. Evidence of E.H. Starling, First Report, q.3865.

70. See French, Chapter 7 - "Administration of the Act and the A.A.M.R.", 177-219.

It is clear that this was the real object for which the society had been formed, an object which Coleridge had most diligently uncovered, and not without difficulty, since it was the definite policy of the Association to operate out of the public eye.

Coleridge's suspicions had been aroused by Byrne's evidence before the Commission, during which the Association had been briefly alluded to with very little detail. The Association had no statutory recognition, and Coleridge had found it impossible to locate any mention of it in reference works. He therefore posted a letter addressed simply to its Secretary, requesting an annual report and list of members, and left it to the post office to locate the address. The Society's reply stated that it could furnish neither, but the letterhead enabled Coleridge to track down information relating to the Society's formation and real objects. In the British Medical Journal, 12 April 1882, he found the following explanation :

The working physiologists of the three kingdoms have expressly stated that they do not desire (at least for the present) to abolish the Act, of which we are all ashamed, but to secure its being harmlessly administered. To speak with authority to public opinion and to bring effective pressure upon officials, needs other means than those which are suited to the arena of controversy. 71

Controversy was something the Society certainly did not engage in. French has noted that its deliberate policy was to operate in silence, flaunting a public image of working towards utilitarian aspects of research, i.e. the promotion of medicine, whilst at the same time bringing pressure upon the Home Office in exactly the opposite direction,

71. B.M.J., I (1882), 599, from a letter signed by "a member of the provisional Committee of the A.A.M.R.", (my italics). The statement provides a strange contrast to today's constant assurances from the Home Office and the scientific community to the effect that British scientists have always been proud of their humane legislation. See chapters III and IV below.
For a description of the formation of the A.A.M.R. see B.M.J., I (1882), 476-478.

to remove utilitarian criteria from work carried out under the Act. Having only recently uncovered the true constitution and machinations of this society, Coleridge was nevertheless able to bring forward a devastating indictment of it. He had tracked down its first report which stated that its primary duty was to promote research. He had also found out that soon after its formation the Association had appointed two sub-committees: one to report on present hindrances to research due to the Vivisection Act and one to seek the best ways of promoting research.

It also ran a competition, offering a £500 prize for the best essay on the usefulness of vivisection as a method of scientific research. The very composition of the Society seemed to be its own indictment. Any licensed vivisector could become a member on the payment of a subscription. The composition of the Association's Council (after 1883 the advisory body to the Home Office) had already been given before the commission by E.H. Starling, President of the Association. It was composed of the following :

- President of the Royal College of Physicians (London)
- President of the Royal College of Surgeons (England)
- President of the Royal Society
- President of the General Medical Council
- President of the Royal College of Physicians (Edinburgh)
- President of the Royal College of Surgeons (Edinburgh)
- President of the Royal College of Physicians (Ireland)
- President of the Royal College of Surgeons (Ireland)
- President of the Royal College of Veterinary Surgeons
- Regius Professor of Medicine, Oxford
- Regius Professor of Medicine, Cambridge
- President of the British Medical Association
- and, in addition, a certain number of members elected to the Association by ballot.

Starling had gone on to outline some of the specific objects of the Association. These were to advise on the granting of licences and certificates, to protect where necessary the interests of licencees, to watch proceedings in Parliament affecting the subject of vivisection, to publish information and foster the interests of research. It also undertook to distribute to medical men and to others who might desire it,

literature concerning the importance of research and the necessity of experimentation.

Notwithstanding all the evidence laid before them the Commissioners refused to admit, at least openly, to Coleridge, that the Home Office had entered into any relations with the A.A.M.R. which were improper. Selby refused to accept his conclusion that bringing pressure to bear upon Home Office officials was, in fact, an object of the Association, and Chalmers contested that no such pressure had been felt. However, it would seem clear that the A.A.M.R. was indeed born out of frustration within the scientific community that the Act was interfering with the pursuance of their work.⁷² R.D. French's most thorough study has shown that the pressure exerted by the A.A.M.R. was certainly felt, and that experimental medicine enjoyed tremendous growth under the H.O. - A.A.M.R. arrangement; he concludes :

It is hard to imagine such growth occurring under circumstances in which there was any significant interference with research. 73

Stephen Coleridge was not the only party to complain of this removal of the last shred of protection to animals by the delivery of the Act's administration into the hands of the vivisectors themselves. Thornely Stoker, inspector under the Act for Ireland, when asked if the Irish administration should be put on the same footing as that in England, replied :

72. French has noted that during the first few years of the administration of the 1876 Act, before the H.O./A.A.M.R. liaison was established in 1883, there was considerable restriction of experimental research, notably toxicology. An example is the case of T. Lauder-Brunton, who was unable to get permission to carry out his work on Cobra poison and was forced to have Major Rogers continue the studies in India on his behalf. This case was cited by Brunton himself before the Commission. French presents evidence of widespread discontent within the scientific community during this period over the degree to which the Act was restricting their freedom.

73. French, 214. Note also the evidence of Starling (q.3836) who stated that the A.A.M.R. had never, to his knowledge, finally refused a licence even though some applications had been sent back for further information before the licence was granted. Final Report, para.12.

I am inclined to doubt the wisdom of bringing in an irresponsible society like the society that advises in England. It appears to me that if any intermediary is to be introduced between the licensing authority and the inspector, it ought to be some more elaborately and carefully constructed body than that - and some body, the wisdom and knowledge of which could be depended upon.

74

In his summing up, Coleridge concluded that the Home Office had failed in the solemn duty imposed upon it. The practice of vivisection had been shielded from public scrutiny, and the Act as presently administered, could not achieve protection for an animal unless the experimenter was humane; yet the Home Office made no attempt to assess the latter quality. Whatever criticisms might be made of Coleridge's evidence and tactics, his indictment of the A.A.M.R. must stand as one of the greatest antivivisectionist triumphs in public controversy.

John Vyvyan has summarised the importance of his evidence :

He made his point. Not even the most biased of the commissioners could openly endorse this manipulation; and their Report, when at long last it was presented, recommended a new advisory body. It may be difficult to assess the practical value of this change; but the value of Coleridge's evidence, as an object-lesson to the anti-vivisection movement in other countries, can hardly be over-estimated.

75

In its attempt to assess the efficiency of Home Office administration and to what extent, if any, the Act had been disregarded or evaded, the Commission dealt with antivivisectionist criticisms in some detail. Much of this evidence had been repetitious, somewhat eccentric and poorly argued. Coleridge's evidence did not fall into this category and it was his evidence in particular which the Commission was unable to

74. Evidence of Sir W. Thornley-Stoker, First Report, q.1066, (my italics).

75. Vyvyan, Dark Face, 77.

ignore.⁷⁶ The Commission did not uphold a single one of Coleridge's charges, but the manner with which it dealt with them is of some importance, not only because the treatment gives some indication of the state of mind and bias of the Commission, but also because many of the criticisms brought forward by Coleridge are still being made seventy years later, and are relevant to the present reform movement.⁷⁷

The opinion of the Commission regarding Coleridge and his evidence is expressed more candidly in their private correspondence than in the Final Report. With reference to Coleridge's specific charges, Chalmers wrote confidently to Selby that it would be "easy to deal with him".⁷⁸ Again, in a letter to Ram, Chalmers wrote :

I hope in the Report we shall merely refer to the specific instances, and not give too much prominence to that self-sufficient gentleman.⁷⁹

The conclusions of the Commission were largely based upon a memorandum requested from Thane which presented a critique of Coleridge's charges.⁸⁰ Coleridge asked that the same publicity be afforded his reply to this, as was to the critique itself,⁸¹ this request was, not surprisingly, ignored.

In concluding that there was no evidence to support the charge that Home Office officials and ten successive Home Secretaries had failed in their duty of solicitously administering the law, the Commission pointed out that the legislation had never enacted the provisions laid down by

76. Coleridge was an eloquent speaker and was well equipped to argue his case convincingly. He felt that he had been born into the antivivisectionist cause, his father having been a Vice-President of the N.A.V.S. His family also had long experience in law. Both his grandfather and one of his brothers were judges, and his father was Lord Chief Justice of England. He was, himself, a barrister.

77. See chapter IV.

78. Letter dated 31 Mar. 1908, in P.R.O., H.O.114/ 1 (1).

79. Letter dated 6 Apr. 1908, loc.cit.

80. Published as Appendix III to the Fifth Report, Parl. Papers, 1908, Cd.4147, lvii, 897.

81. See letter to the Commission dated 23 Sep. 1908 in P.R.O., H.O. 114/ 1(1).

the 1875 Royal Commission. The wording of the Final Report suggests⁸² that critics were expecting the Home Office to enforce a protection which the Act did not in fact give. This salient point also underlies contemporary criticisms of legislation,⁸³ that the Act as drafted gives insufficient protection, which is not in accordance with the intentions of the First Royal Commission or of those who drew up the original 1876 Act.⁸⁴

Similarly, with regard to the charge that the inspectorate was biased against executing a detective duty,⁸⁵ this accusation was avoided rather than repudiated. The Commission concluded,

the visits of the inspectors, being generally surprise visits, serve as such as safeguards, but they are made, not in the anticipation of discovering wrong doing, but in order to secure the due performance of the requirements of the Act. The licensees are persons who have been recommended by the heads of their professions and approved by the Home Office. 86

Such has always been the interpretation of the Home Office, and it was upheld by the Littlewood Committee.⁸⁷ If it could have been suggested that the stringency of the licensing system renders a detective inspectorate superfluous, although this may well have been true when the number of licencees and certificates was small, the efficiency of this system is now under severe criticism⁸⁸ from the reform movement.

82. Final Report, para.18 (1).

83. See chapter IV, Section 1.

84. See chapter I, and Appendix I.

85. This was based upon the statement of James Russell before the Commission and related also to a speech made by Poore shortly after he retired from the inspectorate, in which he denounced the methods of the anti-vivisectionists. See Thane, q.1085, 1145-7, Russell 530, and Final Report, para.14.

86. Final Report, para.14.

87. See chapter IV, Section 5.

88. Ibid.

Furthermore, as we have seen, the First Royal Commission had concluded that inhumanity and abuse could occur at the highest levels and anti-vivisectionists have continued to ask what other law is administered on the assumption that it will always be complied with.

In dealing with Coleridge's second charge that Home Office officials had constituted themselves the injudicial defenders of vivisection, the Commission simply concluded that the specific examples he brought forward were insufficient to support the general charge. This may well be so, but it would seem to be a moot point. The facts remain (and were acknowledged by the Commission) that Crile's experiments, described by Crile himself as being carried out under "incomplete anaesthesia", would have been cruel, unjustifiable, and indeed illegal, unless when he used the term he really meant "light anaesthesia".⁸⁹ The Commission heard evidence from an eminent anaesthetist⁹⁰ to the effect that these terms are not interchangeable, and that the Home Office enquiry which concluded no action need be taken, based its conclusions solely on the testimony of the experimenters themselves. Similarly, in the case of alleged contravention of the Act by Grunbaum,⁹¹ the Home Office enquiry was simply of the experimenter himself. If these specific cases had been dispensed with, the general charge had not, namely that vivisection was shielded from public scrutiny and not amenable to any exertion of control from outside. This concern has never been allayed.⁹²

89. See footnote 59.

90. Dudley Wilmot Buxton, past President of the Society of Anaesthetists, Third Report, q.12431-12438.

91. See evidence of Coleridge, Third Report, q.10330-10370.

92. See chapter IV, esp. Section 10.

Again, Coleridge's charge that Home Office officials had made entirely disingenuous statements and constituted themselves the mere spokesmen of the vivisectors was an overstatement. But the underlying criticism merited deeper consideration than it received at the hands of the Commission.

The statement routinely made by the inspector in the Annual Return to the effect that inoculation experiments were not attended by any great suffering could not have been based upon personal experience except in a tiny fraction of cases. It took the judgements of the experimenters at face value, and in view of the seriousness of diseases often produced by such experiments (sometimes terminal), it would seem to have been the inspector's duty not to simply accept it (which was misleading to the public) but rather to challenge it.

In respect of Paton's starvation experiments,⁹³ the Home Office had not seen fit to express an opinion as to whether the experiments came under purview of the Act. It clearly was the duty of the Home Office to have advised licencees on such matters. The Commission made no criticism of this.

The Commission was quite correct in dismissing the charge that the Home Office had repudiated its responsibility to publish the names of the statutory signatories. The responsibility lay with Parliament, for this important recommendation of the First Royal Commission had never been implemented. Similarly, in the case with the names of licencees, the Home Secretary had never been placed under any obligation to publish them. The Act clearly did not fulfil one function envisaged by the First Royal Commission, that publicity should act as a deterrent to evasion of the law.

93. J. Physiol., xix (1896), 166-216.

With regard to evasive answers given by the Home Office in Parliament, the Commission simply concluded :

We do not think that these cases afford
justification for the general charge which
Mr. Coleridge makes. 94

This comment does not answer the basic criticism that while the Home Office may not be deliberately evasive, vital information is simply unavailable. For many years this has been the reply to a large percentage of questions in the House. Moves are now at last under way to obtain more information.⁹⁵

With regard to pain in experiments, the decision to dispense with the categorizations of experiments into painful and painless in the Annual Return had not been based upon the testimony of licensees, as stated by Coleridge, but on the advice of the inspector in 1878,⁹⁶ due to the overriding difficulty of making this extremely subjective distinction. Vindication of the Home Office on this point does not, however, dispense with the fundamental criticism underlying Coleridge's charge that painful experiments are permitted under British law.⁹⁷ The Commission accepted this⁹⁸ and was to recommend what it considered to be additional safeguards, namely amendments to the "pain condition".⁹⁹ The Commission's conclusion that it would be futile and offensive to require affirmative evidence of humanity in the case of every applicant for a licence or¹⁰⁰ certificate would seem to be quite a reasonable one. Further, it accepted the Home Office reassurance that any case of inhumanity brought to its notice would be dealt with promptly.¹⁰¹

94. Final Report, para. 18(8).

95. See chapter IV, Section 10.

96. Final Report, para. 18(9).

97. See chapter IV, Section 3.

98. Final Report, paras. 86-88.

99. Final Report, para. 121. See also chapter I, 30-32 and chapter IV, Section 3.

100. Final Report, para. 11.

101. Loc. cit.

Coleridge felt that the Home Office had failed to follow through such an assurance by the continual licensing of Emanuel Klein.¹⁰² The Commission upheld this specific criticism with the following statement :

It appears to us that to grant a licence or certificate to any person holding such views as those formerly expressed by Dr. Klein, and as those entertained by Dr. Pembrey, is calculated to create serious misgivings in the mind of the public. . . 103.

Finally the Commission dealt with Coleridge's most devastating charge, his indictment of the A.A.M.R.-H.O. liaison. It need only be noted here that while it saw fit to uphold Coleridge's suggestion that Home Office advisers should be chosen along the lines recommended by the First Royal commission, it was not prepared to condemn the relationship between the Association and the Home Office as improper. Perhaps the very fact that the Commission was to recommend that this non-statutory body be replaced by a properly selected committee of advisers to the Home Office was indication enough of its opinion regarding the true nature of the A.A.M.R.-H.O. arrangement.

After providing what may well be considered rather insubstantial answers to each of Coleridge's charges in turn, the Commission simply concluded that, on the whole, the Act had been administered with a desire faithfully to carry out the objects which its framers had in view. No attempt was made to question whether or not the provisions of the Act were in line with the 1875 Commissioners' recommendation, or with public opinion, though such a question clearly lay within its terms of reference.

102. See chapter I, pp.18-19.

103. Final Report, para. 29. For Pembrey's views on the subject of pain see Final Report, para. 28, and Footnote 188 of this chapter.

Inspection

In 1906 three inspectors were employed under the Act, these were the Chief Inspector for England,¹⁰⁴ the Assistant Inspector¹⁰⁵ (covering Scotland and Northern England) and the Inspector for Ireland.¹⁰⁶ None occupied a full time position. The duties of the inspector (as designated in Section 10 of the Act) were outlined by Thane.¹⁰⁷ There were 353 licensees in Great Britain (209 in Thane's district and 133 in the northern sector, mostly operating on licensed premises connected with colleges, hospitals or government boards.)¹⁰⁸ Both Russell and Thornley Stoker felt that the present force of the Inspectorate was adequate but Thane pointed out that the sciences of physiology and medicine were rapidly expanding and the Inspectorate would soon have to be increased; 38,000 experiments had been performed in his district alone in 1906, and he noted that the previous year he had seen only 15 experiments out of a total of 2,506. It was becoming increasingly difficult to cover the work on a part-time basis.

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104. G.D. Thane, (1850-1930) member of the Royal College of Surgeons, England. Professor of Anatomy, University College London for almost thirteen years. Appointed Chief Inspector for the whole of Great Britain, 28 June 1899.
105. Sir James Alexander Russell (1846-1918). Fellow of the Royal College of Physicians, Edinburgh; Fellow of the Royal Society of Edinburgh; Doctor of Laws; Russell had considerable managerial and educational experience; he had himself carried out animal experiments. He was appointed Assistant Inspector in 1890. He was also Inspector under the Anatomy Act for Scotland.
106. Sir W. Thornley Stoker (1845-1910), Surgeon to Richmond Hospital, President of the Royal College of Surgeons, Ireland (1893-1896), Professor of Anatomy at the Royal College of Surgeons, Ireland, (1876-1889); President of the Royal Academy of Medicine, Ireland, for the last three years. Stoker had been Inspector for Ireland under the Act since 1879.
107. For a summary of these see H.O. Memorandum to the Commission in P.R.O., H.O.45 138422/68. The modern interpretation of the inspectorate, and some suggestions for its reform are discussed in Chapter IV below.
108. There were 24 premises. Commercial experimentation was in its infancy and the only premises registered for such purposes were the properties of two pharmaceutical companies, Burroughs and Wellcome, and Brady and Martin.

Evidence concerning the Inspectorate did present some cause for disquiet. Most licensees felt the system to be superfluous since no unsuitable person would ever be licensed in the first case.¹⁰⁹ Some of the utterances of licensees before the Commission might not inspire such a degree of confidence in the public mind. One example was a statement by E.H. Starling, one of Britain's most eminent physiologists, who seemed to be under the impression that no certificate would allow the performance of a deliberately painful experiment.

Testimonies of the inspectors themselves provided no greater reassurance. On his visits G.D. Thane had noted no irregularities, but some had been spotted in laboratory registers or disclosed during conversation with licensees. Most were inadvertent and involved experiments being carried out under the wrong certificate. Other cases were more serious breaches of the Act, such as performance of experiments without a licence, i.e. where an experimenter had delegated his authority to an unlicensed assistant. Admonitions and more detailed instructions had been supplied by the inspector and the Home Office, but no prosecutions had been instituted.

Regarding the case of the Brown Dog, which the Commission discussed with Thane, he stated that he was "not quite clear" about the legal points, though it is clearly a condition of certificate B (and one which the Chief Inspector must have been aware of), that the animal be destroyed after the experiment. He stated that had the case never come to trial¹¹⁰

109. See also chapter IV, esp. Section 2.

110. Since it had not been possible to prosecute this case (see footnote 53), Coleridge had made a public accusation, thus inducing the second experimenter, Bayliss, to sue him for libel. The price of obtaining all the relevant information of the case had been over £5,000 in costs, awarded against the N.A.V.S. For details of the case see the evidence of Coleridge, Third Report, q. 10469-10477.

he would not have known about it¹¹¹ - further fuel for antivivisectionist contentions that the inspectorate was totally ineffective.

Notwithstanding the controversial evidence concerning irregularities (and especially the 'Brown Dog' affair) the Commission satisfied itself that there had been no deliberate attempt to violate the Act; that the Act was working well and the Inspectorate was adequate. Regarding the controversy as to whether the role of the inspector ought to be a detective one, the Commission drew attention to the duties of the inspectors as defined in the Act itself, which simply stated :

The Secretary of State shall cause all registered places to be from time to time inspected for the purpose of securing a compliance with the provisions of the Act. 112

The Commission upheld the opinion of the inspectors that the force had been adequate in proportion to the work and recommended an increase as suggested by Thane, to correspond with the current expansion of experimentation.¹¹³

Deficiencies and Suggestions for Amendment

Most scientific witnesses felt that the Act had on the whole worked well, though some felt it superfluous given the intrinsic humanity of British experimenters.¹¹⁴ Victor Horsley and W.F. Dixon went so far as to endorse the antivivisectionist criticism that the Act worked primarily to protect the vivisectors, though their view was that honest workers needed protection against misinformed antivivisectionists. All were against the imposition of further restrictive measures. Some

complained of serious administrative delays, which could wreck a research

111. See Thane's evidence, First Report, q.1558, 1561,1563, 1564, 1663.

112. Cruelty to Animals Act, (1876), 39 and 40 Vict.c.77, Section 10.

113. See pp.122 of this chapter.

114. Most claimed that all antivivisectionist feeling had been stirred up around foreign experiments and had no basis in England.

programme.¹¹⁵ Byrne had stated that some delays were the result of licensees' inability to fill out the forms properly. Indeed, lack of understanding of the complex machinery of the Act was largely responsible for most of the irregularities. Despite constant assurance regarding their meticulous compliance with the Act, few licensees seemed to be fully acquainted with its provisions.¹¹⁶

In only a few instances did licensees complain that the Act had seriously restricted their work.¹¹⁷ Some wished to see dispensation of the Certificate system altogether, finding it unnecessarily cumbersome, difficult to interpret and often too restrictive.¹¹⁸

A number of witnesses offered detailed suggestions for new methods of control, mostly without recourse to a system of certification.¹¹⁹

A controversy arose concerning special provision for certain species. Some licensees felt that provisions relating to the use of dogs were already unnecessarily restrictive. Witnesses for the Canine Defence League,¹²⁰ however, presented an opposing case. On the other hand,

115. It is noteworthy that such delays were still being bemoaned at the time of the Littlewood Committee, and that recently proposed reform measures could be productive of even longer delays unless much detailed consideration is given to the mechanism of their implementation.

116. More recently guidance notes have been produced by both the Home Office and the R.D.S. to help licensees with the technical difficulties. See chapter III, footnote 38.

117. See footnote 72.

118. See also the discussion of contemporary criticisms in Chapter IV, Section 1.

119. For example, see the evidence of J.N. Langley, Fourth Report, q.15099-15425.

120. Charles Swan, a member of the Royal College of Surgeons and a licentiate of the Royal College of Physicians, argued for greater restriction. His colleague, R.J. Cowen, a practicing surgeon and licentiate of the Royal College of Physicians and Surgeons, Ireland, who, like Swan, represented the Canine Defence League, argued for the total prohibition of the use of dogs. Most licensees argued against any restriction.

Thornley Stoker was of the opinion that primates should be specifically mentioned. A number of scientific witnesses felt that animal experiments should be permissible for the attainment of manual skill. Most prominent amongst these were : E.H. Starling, Professor of Physiology, University College London, Douglas Powell, President of Royal College of Physicians, Frederick Taylor, Senior Physician to Guy's Hospital, Henry R. Swanzy, President of Royal College of Surgeons, Ireland (representing their view), Sir Victor Horsley, representing the British Medical Association and E.A. Schäfer, representing the Royal Society of Edinburgh. Some argued for the use of acute experiments for such training while others felt that, for teaching in preparation for both human and veterinary surgery, the animals should be allowed to recover and given nursing treatment. The Commission's attention was drawn to the fact that such a system had been instituted and was working extremely well at Johns Hopkins University, Baltimore, where many of the animals used were actually brought in for veterinary treatment.

Regarding future amendments to the Act, a number of scientists stressed the value of pure physiological research and the importance of not restricting licences and certificates to work which appeared to have direct and immediate utilitarian value. It was also important not to restrict licences to medically qualified persons, for there was no reason to believe that workers in pure physiology were less humane than those in the medical field.¹²¹

Antivivisectionist witnesses were naturally extremely critical of the Act. Some called for repeal; few offered constructive suggestions for reform, the evidence of one witness,

121. Licensees stressing these points included E.H. Starling, C.J. Martin, F. Gotch and J.N. Langley. The viewpoint was upheld by the Commission and by the Littlewood Committee and consecutive Home Office administrations. This point is clearly germane to discussions within the contemporary reform movement, see chapter IV.

Herbert Snow, representing the Parliamentary Antivivisection League, was rendered worthless by his own admission that he had never read the Act. Many witnesses made it clear that their movement would not have chosen the hard line of abolition had they been assured that the Act really worked to prevent cruel or objectionable experiments.¹²²

Louise Lind-af-Hageby¹²³ founder and President of the Animal Defence and Antivivisection Society and co-authoriess of The Shambles of Science, admitted that the Act had improved conditions in England and the state of things was certainly preferable to that prevailing in other countries such as the U.S.A., France, Germany and also Sweden (of which she had personal experience). Notwithstanding this, she objected to the licence of vivisection and wished to see it totally prohibited; failing this she suggested the following amendments to the law :

1. all demonstrations to students should be forbidden on account of their demoralising nature;
2. the use of morphia as an anaesthetic should be made illegal;
3. the use of curare should be altogether forbidden;
4. experiments on all the 'higher' animals - dogs, cats, monkeys, horses, asses, etc., should be totally forbidden;
5. students should not be allowed to experiment on 'pithed' frogs where the spinal cord had not been destroyed in addition to the brain. (She contended that purposive movement and pain remained when the spinal cord was left intact). 124

Sensible suggestions for reform of the Act might have been expected from the R.S.P.C.A., but the evidence presented by this Society can only

122. See chapter I, p.32 et seq.

123. Emile Louise Augusta Lind-af-Hageby (1878-1963), daughter of a Swedish judge. Hageby came to England to study medicine with her friend Leisa Schartau after both had been shocked by experimental conditions they had witnessed at the Pasteur Institute, Paris. Hageby subsequently carried on much antivivisectionist agitation in Sweden before coming to England where she determined to ascertain the truth about experimentation by studying medicine. The book, The Shambles of Science, (London, 1903) was in essence a diary kept by the two girls while they were studying at University College. Hageby seems to have been the chief authoress. (See footnote 167). In 1909 Hageby founded the International Federation of Animal Protection. Throughout her life she received various prizes and literary awards for the services she rendered to animals. She became a naturalised British citizen in 1912. Who Was Who.

124. See pp. 108-109.

be described as a shambles. The witnesses were A.G. Scott, the Society's chairman, and Sir Frederick Banbury-Bart, M.P.; the two presented their evidence together. They stated that their Society, by definition, was opposed to all cruelty, and therefore only to those experiments which involved cruelty. However, they disagreed on their definition of the word. Scott defined it as the infliction of unnecessary pain, while Banbury chose to omit the word unnecessary. The evidence presented on behalf of this great and influential society is hardly likely to have made any impression at all upon the Commission, except perhaps to convince it that it made only an exceedingly feeble attempt to present its evidence. Both witnesses seemed decidedly confused as to what they were talking about. For example, when outlining their recommendations for amendment they stated that all experiments involving pain would be under complete anaesthesia throughout. Then it became clear that Scott was under the impression that anaesthetics were employed under Certificate A, and he finally admitted that he had never read the Act in full. Banbury had read it, but admitted that it was "some time" since he had done so. For two representatives of such a large and influential society, one being its Chairman, to appear in order to give evidence, not even having made themselves familiar with the provisions of the Act, might easily have been regarded as an insult to the Commission. However, in fairness to this Society it must be pointed out that it had originally intended to send a Dr. Cottle¹²⁵ to represent it, but he had been unable to do so due to ill health. Cottle was a Fellow of the Royal College of Surgeons and a member of the R.S.P.C.A. Council, and he would presumably have been better informed than Banbury, who was evidently sent at short notice. There would seem to be little excuse for Scott not having informed himself better. The only workable

125. See letter from R.S.P.C.A. to the Commission dated 9 Dec. 1907 in P.R.O., H.O. 114/3B(2).

and valuable suggestion offered by the Society was that the required permission of the Secretary of State to prosecute be abolished and left to the discretion of the magistrate, and that the period for prosecution be extended to within six months either of publication or the giving of information concerning that which was impugned, and not of the experiment itself as it now stood.¹²⁶

More positive suggestions for amendment of the Act came from Stephen Coleridge who outlined the main points of a proposed bill drafted by the N.A.V.S. Like the R.S.P.C.A., this Society sought to make the impracticable suggestion that the inspector be present at all experiments (with the exception of inoculations). The chief aim of the bill, which had already been placed before several sessions of Parliament, was the total abolition of pain in all experiments. The most controversial aspect of it was the abolition of certificate B, a provision which seems to have been based on the Society's misconception of the way in which restrictions under this certificate were applied.¹²⁷ The amendment would have prevented work such as that of E.H. Starling on the digestive juices involving the insertion of fistulae. All other certificates (with the exception of A) were also to be abolished, dispensing totally with demonstrations, and experiments upon dogs, cats and equidae.

The bill would also have prevented experiments involving the introduction of painful diseases which had to run their course, since it would be compulsory to kill, or to place under complete anaesthesia, any animal seen to be suffering. Other provisions, which stipulated restriction of licences to one experiment and the submission of

126. The Society has instituted only one prosecution, a successful one concerning advertising, under section 6 of the Act. See chapter III, footnote 18.

127. Coleridge was convinced (erroneously) that nothing in the Act precluded recovery from the anaesthetic before cutting operations were completed. In fact, conditions appended to certificate B have always precluded this.

detailed reports, might well have been unworkable administratively, this would have certainly have been the case in later years as the number of pharmacological and other tests started to rise. A provision which made it compulsory for each licensee to obtain a certificate of humanity signed by at least two persons, either justices of the peace or ministers of any religious denomination in the U.K., was later to be described by Lord Chief Justice Sir Fletcher-Moulton as an insult to the scientific profession; (It is perhaps relevant to note here that a similar provision was included in the bill presented by Lord Willis in 1973).¹²⁸

The Commission duly noted and reported, mostly without comment, the various suggestions made to them by both the antivivisectionist and the scientific sides.¹²⁹ The recommendations it finally made seem not to have been influenced by the more extreme suggestions of either side, but related primarily to changes in administration of the existing statute.¹³⁰ The Commission was, of course, afforded the opportunity to recommend considerable changes in the statute itself, either to increase and to make more effective its existing restrictions as urged by the antivivisectionists, or to remove some of the restrictions already in force, such as the certificate system. It chose to do neither. It should be stressed, however, that the antivivisection case (with the exception of Coleridge's indictments of the Act's administration and his proposals for amendment), was an exceedingly weak one, and also that the number of scientists complaining that serious impediments to research were posed by the Act was small. The majority of witnesses were satisfied with the provisions of the Act and with its administration.

128. See chapter III, table III.

129. See Final Report, 1912/13.

130. See pp.120-125.

On the strength of this the Commission inevitably saw fit only to make a number of minor alterations to the existing Statute and improvements as to its administration. Perhaps given the evidence presented before it the Commission could not have been expected to do any more or less than this; though it could be argued that the certificate system ought to have been simplified, and that more specific recommendations on the use of approved anaesthesia (in view of the increase in knowledge concerning this subject since 1876) might have been enacted. Both the N.A.V.S. and R.S.P.C.A. suggestions regarding the six month restriction also seem to have been reasonable.¹³¹

2. The Utility of the Method of Vivisection as a Means of Advancing Medical and General Scientific Knowledge.

The Commission received an impressive collection of evidence on this subject presented by a multitude of expert witnesses from various scientific disciplines. Central to this evidence was a memorandum drawn up by the Royal Society¹³² presented by its President, Lord Rayleigh, the physicist. The memorandum expressed not only the Society's own view, but that of the general scientific community, which was, as Rayleigh stated, that :

There can be no doubt that the main cause of the remarkable development of science in modern times has been the adoption of the experimental method of investigating nature. 133

Every scientist appearing before the Commission concurred in this view.

A committee representing the major scientific bodies had been drawn up

131. See also chapter IV, 282-283.

132. See Royal Society Minutes of Council (1903-1908). In July 1906 the Society had decided not to nominate any members to the Committee drawn up by the Physiological Society (see Ch.I, footnote 77) as it had been requested to do by Starling, but instead to draw up its own statement for presentation to the Commission. The statement was approved by the council on 30 Nov. 1906.

133. Second Report, Parl. Papers 1907 Cd.3462, xli, 817, q.5532.

to present evidence relating to the various fields and almost every one of these expert witnesses used the argument of utility in support of their plea against further restrictive legislation,¹³⁴ as may be seen from Table I.

As might be expected, there was a good deal of controversy over the utility of the experimental method, with antivivisectionist witnesses coming forward to dispute, somewhat volubly, the testimony of the leading scientists. Particular cases such as the interpretation of figures used by pro-experimental witnesses to illustrate the drop in diphtheria mortality since the introduction of vaccination,¹³⁵ were hotly disputed ad nauseum. The futility of such controversies will be discussed in Chapters V and VI, and more positive approaches, representative of present day scientific and antivivisectionist attitudes, are highlighted throughout the whole of the second section of this thesis. More relevant here is a discussion of what this great mass of evidence before the Commission revealed regarding the quality of the antivivisectionist arguments at that time, and also the attitudes of the Commission towards them.

134. The Commission was first informed about this Committee in a letter from Starling, dated 23 Oct. 1906, in P.R.O., H.O. 114/3 (3). Bodies represented were : The University of London, The Pathological Society, The Pathological Society of Great Britain, The Royal Veterinary Society, The College of Veterinary Surgeons, The Lister Institute of Preventative Medicine, The Neurological Society, The Medico-Chirurgical Society, The Medical Society, The Royal College of Surgeons, The Society of Apothecaries, The Society of Anaesthetists, The British Medical Association, The Physiological Society and the Society for the Advancement of Medicine by Research.

135. See the evidence of Frederick Taylor and Douglas Powell, Second Report, q.5580-5834, Lord Rayleigh, Second Report, q.5530-5579, Arabella Kenealy, Second Report, q.5275-5529, E.A. Schäfer, Third Report, q.9980-10250, C.J. Martin, Third Report, q.11630-12140, S.F. Smith, Fourth Report, 13030-13538, G. Bantock, Fourth Report, 14530-15098 and G. Sims Woodhead, Fourth Report, 15426-15582. See also R.D.S. pamphlets forwarded to the Commission in P.R.O., H.O. 45, 165993/2.

TABLE I

BRIEF ANALYSIS OF TOPICS DISCUSSED IN ILLUSTRATION OF THE UTILITY
OF THE EXPERIMENTAL METHOD TO MEDICAL SCIENCE.

<u>SUBJECT</u>	<u>SCIENTIFIC WITNESSES .</u>
Bacteriology & relevance to the treatment of human disease.	E.A. Schäfer, representing Royal Society of Edinburgh, where he was Professor of Physiology at the University.
Diseases discussed included : Diphtheria, Tuberculosis, Typhoid, Tetanus, Hydro- phobia and Puerperal Fever.	C.J. Martin, Director of the Lister Institute of Preventative Medicine E.H. Starling, Professor Physiology at University College; London J. Glaister, Professor of Forensic Medicine and Public Health, University of Glasgow. Henry Morris, President of the Royal College of Surgeons, England Frederick Taylor, Senior Physician to Guy's Hospital Sir Douglas Powell, President of Royal College of Physicians The Rt. Hon. Lord Rayleigh, President of Royal Society Sir Lauder Brunton, Pharmacologist and Consulting Physician to St. Bartholomew's Hospital
Cancer	Herbert Snow, former senior surgeon to the Cancer Hospital, Brompton Henry Morris, member of Executive Committee of Imperial Cancer Research
Glandular Disorders, e.g. myxodema, cretinism, Grave's disease, Addison's disease	W. Osler, Regius Professor of Medicine University of Oxford. Lord Rayleigh Henry Morris
Poisons and Public Health	John Glaister E.A. Schäfer

Continued...

TABLE I Continued.

<u>SUBJECT</u>	<u>SCIENTIFIC WITNESSES</u>
Nervous Disorders	Henry Head, Physician to London Hospital
Pharmacology, Drug Development and Standardisation	A.R. Cushney, Professor of Pharmacology and Materia Medica at University College, London
Snake Bites	Major L. Rogers, Professor of Pathology, Medical College of Calcutta. C.J. Martin
Mediterranean & Tropical Diseases, e.g. Malta Fever, Nagana, Sleeping Sickness, Yellow Fever, Malaria, Plague in India	Col. D. Bruce, member of Advisory Board of the Army Medical Service, Chairman of Mediterranean Fever Committee (1904-1906) W. Osler E.A. Schäfer Lord Rayleigh
Diseases of the Eye and Surgery of the Eye, e.g. Karatispunctata, Ulcus Serpens, Trachoma, Tubercle of the Eye, Sympathetic Ophthalmitis, Glaucoma, Senile Cataract, Detached Retina	Henry Swanzy, President Royal College of Surgeons, Ireland
Surgical Practice	Henry Morris Lord Rayleigh W. Osler
Diseases of Animals, e.g. Anthrax, Glanders in Horses, Rinderpest, Swine Fever, Swine Erisipelas, Diseases of Sheep, e.g. Braxy, Louping-ill.	S. Stockman, Chief Veterinary Officer for the Board of Agriculture and Fisheries. Henry Morris, Head of Indian Laboratory of Bacteriology (1898-1899) D.J. Hamilton, Professor of Pathology, University of Aberdeen, Chairman Commission of Board of Agriculture - researching into diseases of highland sheep, 1906.

The arguments put forward by antivivisectionist witnesses could have carried little weight against the impressive evidence presented on behalf of the general scientific community, even given a Commission which was more favourably disposed towards them than this one. The arguments were confused, poorly presented, contradictory and based upon incomplete knowledge of the relevant facts or of the true nature of scientific methodology and the current state of modern medicine, in almost every case.

Some of the antivivisectionist witnesses held medical qualifications, but none was representative of orthodox medical viewpoints. R.D. French¹³⁶ has noted the strong inter-relationship between antivivisectionism and unorthodox medical views such as homeopathy, and the strong revulsion against drug therapy and vaccination in the nineteenth century (such connections are still seen to persist in the twentieth century, but to a lesser extent). In the nineteenth century the antivivisection and anti-vaccination movements (both often intimately connected with the vegetarian movement)¹³⁷ could be perceived as part of a general revolt against the "new science" of physiology and experimental medicine. Antivivisectionists were inclined to put their trust in natural cures and sanitary methods of prevention rather than the new scientifically based methods of treatment. In addition, both antivaccination and antivivisection movements had several other elements in common, notably the struggle against legislation¹³⁸ and the deployment of religious and moral arguments.

136. French, 277 and 323.

137. Julia Twigg has drawn attention to these connections in her D.Phil. thesis The Vegetarian Movement from the Early Nineteenth Century to the Present Day, to be presented to the London School of Economics, in progress.

138. See R.M. MacCleod, "Law, Medicine and Public Opinion : Resistance to Compulsory Health Legislation 1870-1907", Public Law, (1967), Part I, 107-128; part II, 189-211. MacCleod notes that after the cessation of compulsory vaccination in 1907 a small core of Londoners kept the National Antivaccination League operative against immunisations while also pooling their resources with British hydropathic, vegetarian and antivivisection societies.

Another factor drawing the two movements together was the need for both to seek alternative methods of attacking the problems of disease than those offered by the "new science". Such methods were sought not only on utilitarian grounds, but in the belief that both vaccination and vivisection were morally wrong, this directing the search towards guiltless alternatives.

The argument was often extended to encompass the idea that disease itself was retribution for sin. Vivisection and vaccination then became merely methods of introducing additional pain which ought not to be in the world.¹³⁹ The emphasis was placed instead upon the prevention of disease by better hygiene and sanitation, an exemplification of both inner and outer cleansing.¹⁴⁰ Such viewpoints were expressed by antivivisectionist witnesses appearing before the Commission. Most vociferous among them was Arabella Kenealy, an authoress and journalist. Kenealy stated that she had practised medicine for some nine years but had not done so for the last eight, being fully engaged in literature.¹⁴¹ Her evidence was eloquently presented, if somewhat melodramatic. Kenealy's violent condemnation of vivisection and of experimental biology in general, seems to have been based on a very ill-assorted collection of emotions and prejudices, and she was unable to bring forward factual evidence in support of her view that the experimental method using animals was totally and utterly useless.

139. Note the view of George Richard Jesse, Honorary Secretary of the Society for Abolition of Vivisection (Macclesfield), which he gave before the First Royal Commission; "Folly, vice, ignorance, dirt and selfishness create disease. To torture animals to escape the natural penalty of viciousness is ridiculous." (q.6475).

140. A well known example of this was the advocacy of open air treatment for tuberculosis, especially stressed after the failure of Koch's tuberculin as a prophylactic.

141. Arabella Kenealy (1872-1938), L.E.C.P. (Dublin), representing the Parliamentary Association for the Abolition of Vivisection. She was a journalist and had also written several novels. Kenealy was educated at the London School of Medicine for Women and had practiced medicine from 1888 to 1894 but had then been compelled to retire after a severe attack of diphtheria. One of her publications, was a prize essay entitled "The Failure of Vivisection and the Future of Medical Research", Who Was Who.

Most of her evidence was drawn from textbooks of general physiology, and she was obviously totally unacquainted with current medical literature.¹⁴² Some of her examples were less than accurate and inextricably bound up with her own opinions and conclusions which often incorporated non-scientific or moral arguments. Kenealy was of the opinion that no scientific advance could be made unless the method was in harmony with moral progress. She was violently opposed to the germ theory of disease and described vaccination as unclean, unwholesome and thoroughly obnoxious. She even went so far as to state that disease was a normal operation of nature and any attempt to thwart it by "unnatural" methods was a fight against evolution itself.

G.H. Burford, giving evidence at the request of the World League of Opponents of Vivisection (though himself not a member of that society) was a practising homeopath who based his entire argument on the premise that experimental medicine, pharmacology and related sciences could all be superceded by the homeopathic philosophy, and that more reliable results could be obtained by testing drugs on human volunteers. This argument was reinforced by Francis Smith, surgeon to the Antivivisection Hospital, a London institution founded and supported by antivivisectionist funds. George Granville Bantock, consulting surgeon to the Samaritan Free Hospital for Women, and representing the Parliamentary Association for the Abolition of Vivisection (though not a member), was, like Kenealy, opposed to the entire germ theory of disease and any methods of treatment consequent upon it. In Bantock's opinion, medicine ought to be considered an art rather than a science.¹⁴³

142. For example see Gaskill's criticism, Second Report, q.6666.

143. No detailed treatment of the Edwardian antivaccination movement is given in this thesis, but the general flavour may be captured from a study of anti-vaccinationist works such as The Story of a Great Delusion, W.White and J. Swan (London, 1885); The Vaccination Problem, J. Swan (London, 1936). For analysis see French, esp. 307-308, 313 and 331-332, and Lloyd G. Stevenson, "Science Down the Drain - on the Hostility of Certain Sanitarians to Animal Experimentation, Bacteriology and Immunology", Bull. Hist. Med., 29 (1955), 1-26.

The attitude of the Commissioners towards both scientific and antivivisectionist witnesses is interesting. Weaknesses in Kenealy's arguments would hardly seem to justify the Commission forbidding her to bring forward the examples she had collected to illustrate her point that vivisection was useless, while on the other hand it was prepared to listen patiently and sympathetically to numerous "glowing" reports of the benefits reaped from the method, presented ad nauseum by scientific witnesses. Similarly, when A.L. Woodward (Honorary Assistant Secretary of the Church Antivivisection League and World League of Opponents of Vivisection) attempted to relate a story concerning a student protest over the constant cries of animals believed to be undergoing vivisection, in order to illustrate her point that complaints had been made concerning such things, she was asked by Chalmers, "What is the use of your coming here to tell us what somebody else says?"¹⁴⁴

By contrast, Fletcher Moulton (Lord Chief Justice of Appeal) was patiently heard when he reiterated a story he had heard some years before concerning tuberculosis. When asked by Collins who the experimenter was, this was the somewhat long-winded reply :

I cannot tell you the name of the doctor, because it was not given me, but I heard it long ago, in the early days of research upon tuberculosis, and I believe it to be true. But if it was not actually performed, it would still serve as a typical example of experiment. I have no reason to doubt that this experiment was actually performed, because the man who told me was a most intelligent man, and he told it to me at the time as having been done, quite privately, by a doctor whom he knew. 145

144. Third Report, q. 8860.

145. Third Report, q.12711.

The interjection by Selby at this point seems quite sympathetic :

You would say that it is rather an illustration
than a typical example if it is not given us
first hand in some way ? 146

In arguing the inutility of the method of vivisection, a popular antivivisectionist tactic was to appeal to a higher authority, often with incomplete representation of the facts. A number of such examples was cited repeatedly before the First Royal Commission. Most were statements which had been made by Lawson Tait¹⁴⁷ and Sir Frederick Trèves.¹⁴⁸ Chief Inspector Thane noted that those two examples were always taken out of context. Lawson Tait had not totally condemned the practice of vivisection as was frequently stated, but had admitted only that his research as a young man had led him astray with regard to abdominal surgery. Some of Tait's statements would seem to support this view, however, on other occasions he stated that he was categorically opposed to all vivisection on grounds of its inutility. Both Henry Morris and Sir Lauder Brunton later criticised a pamphlet by Surgeon General Sir James Thornton, The Principal Claims of Vivisection - A Refutation, which drew upon these two examples. Trèves had merely stated that he had been misled by one specific experiment and had himself complained that he had been entirely misrepresented

146. Third Report, q.12712.

147. Robert Lawson Tait (1845-1899), F.R.C.S. (Edinburgh). Tait was a most distinguished surgeon. He was instrumental in organising the Birmingham Medical Institute and was one of the founders of the British Gynaecological Society; he served as its President in 1885. He was a Council member of the British Medical Association, D.N.B.

148. Sir Frederick Trèves (1853-1923), a demonstrator and leading abdominal surgeon at the London Hospital from 1884. He was appointed Hunterian Professor of Anatomy at the Royal College of Surgeons in 1885. In 1900 he became Surgeon Extraordinary to the Queen. Trèves acquired world fame by his operation for appendicitis performed upon King Edward VII in 1902. He was Sergeant Surgeon to King Edward from 1902 and to King George V from 1910. In 1901 he was awarded the K.C.V.O. and he was created a Baronet in 1902, D.N.B.

149. For example, contrast the views Tait expressed in a letter in the B.M.J., I (1882), 510, with those he puts forward in his essay "The Uselessness of Vivisection", reprinted in The Antivivisection Question (London, 1884).

by antivivisectionists.¹⁵⁰ Henry Morris pointed out that Trèves could not have attempted some of his great feats of abdominal surgery (e.g. the removal of a kidney) without the background information obtained from animal experimentation.

The most famous example used in illustration of the contradictory results of vivisection was cited by Arabella Kenealy. It concerned the four thousand experiments upon dogs supposedly performed by Flourens and Magendie to illustrate the theory of Sir Charles Bell on the function of the motor and sensory nerves, and the further four thousand he supposedly performed to disprove it.¹⁵¹ The figures were obviously greatly exaggerated and really irrelevant, since the point concerning the great controversy over those experiments had been well made. What is more noteworthy is that Lockwood, in challenging the authority of this example when quoted by Kenealy, admitted that he had never heard this classical story. That a member of the Commission should be unaware of something so well documented before the Commission of 1875 is somewhat incredible, and did not indicate much hope for the antivivisectionists, since Lockwood was one of the two Commissioners likely to be sympathetic towards their case.

After reviewing the evidence the Commission could hardly fail to

150. This was an experiment concerning the function of separated intestines in dogs. See Trève's address to the Midland Medical Society, Birmingham, in *B.M.J.*, II (1898), 1385-1390, and his letter to the *Times*, 18 April 1902.

151. The story was well documented by J.C. Scholl, see *Ayez Pitié : Quelques Mots sur l'Urgence d'Abolir Totalemment la Vivisection* (Lausanne, 1881).

conclude :

There can be no doubt that the great preponderance of medical and scientific authority is against the opponents of vivisection. This is more markedly so now than was the case before the Royal Commission of 1875. 152

The Commission fully acknowledged the importance of the experimental method to the science of physiology and the relevance of pure physiological research to the practice of medicine. Indeed many benefits to medicine had been discovered accidentally during the pursuance of pure research.¹⁵³ Animal experimentation had played a direct and most significant role in the development of the aseptic method, introduction and development of anaesthesia and innovations in operative technique, all of which had led to a revolution in surgical practice.¹⁵⁴ The importance of the method in the conquest of human and animal diseases was also indisputable.¹⁵⁵

The Commission, therefore, concluded that without the knowledge obtained from animal experiments it was highly improbable that medical science would have attained its present status or that the mortality from human and animal diseases would have been as significantly lowered as it had been. There was no reason to believe that these methods of investigation would not be attended by similar positive results in the future.

152. Final Report, para.74.

153. Examples were given in the Final Report, para. 35 (b).

154. Final Report, paras. 39-42.

155. Final Report, paras. 43-49.

3. Vivisection as a Method Appropriate for the Instruction of Students in Medicine and Physiology.

Until the beginning of the nineteenth century most scientists interested in biology were medical men. Non-conformists gravitated towards the sciences, whilst Test Acts excluded dissenters, Catholics and Jews from Oxford and Cambridge. It is, therefore, not surprising that scientific subjects were fostered and developed more rapidly in the dissenting academies, and the Scottish universities which were more democratic and open to all.¹⁵⁶ It was in the Scottish universities, where the example of the continental laboratories was followed, that experimental physiology was first systematically taught. The move towards such practical teaching was vigorously encouraged by the physiologists who were bitterly complaining throughout the nineteenth century about the poor standard of English physiology in comparison to that of the Continent.¹⁵⁷ Throughout the late nineteenth and early twentieth century there was much movement towards expansion of the teaching of practical physiology in universities, whether as a subject per se, or as part of a medical course. The merits of such instruction were widely discussed during the First Royal Commission and the method was to meet its critics again before the Second. Since experiments performed in the illustration of lectures had to be done under complete

156. See Open University Course AMST 283, Science and Religious Belief From Copernicus to Darwin, Unit 8, "Nonconformity and the Growth of Technology".

157. For an analysis of this situation see for example, D.S.L. Cardwell, The Organisation of Science in England - a Retrospect (London, 1957), or R.D. French, "Some Problems and Sources in the Foundation of Modern Physiology in Great Britain", History of Science 10 (1971), 28-55. See also G. Geison, "Social and Institutional Factors in the Stagnancy of English Physiology 1840-1870", Bull.Hist. Med. 46 (1972), 30-58 and E.H. Starling, "The Pressing Need for More Universities", Nineteenth Century, 49 (1901), 1028-1037.

anaesthesia throughout and the animal not allowed to recover,¹⁵⁸ the objection of antivivisectionists in this case was usually based on the demoralising effect upon the student rather than on any cruelty which might be involved. Cobbe was a prolific writer on this subject both before and after the First Royal Commission. She noted the move away from the arts towards the sciences in an age of scientific triumph, and stressed the need for great caution, lest the finer intellectual studies, enhancing the spiritual side of man, be neglected at the expense of material studies. The latter, she claimed, enhanced man's animal nature.¹⁵⁹ She was particularly concerned about the way in which such an attitude could corrupt the young mind. It is noteworthy that many of the critics of demonstrations to students before the Royal Commissions also stressed the impressionability of young minds and the growing awareness of moral aspects which developed with maturity. Cobbe saw an evolution of men's moral sense in time, and pointed out that contagious emotion (exemplified in delight at public executions) was dead now in most fields except that of animal experimentation, which, she claimed, excited it. In addition, she believed, there was developing in her time a certain type of arrogance and hardness among the ranks of scientists. She felt that physiology was the most likely science to be taught without a religious spirit, and while some scientific teaching was necessary in a liberal education, the more ennobling sciences, such as botany and astronomy, ought to be taught first, while the young impressionable mind should not be exposed to the science of physiology. This discipline (though she never advocated the employment of living animals in its teaching) was more suitable for

158. Section 3 of the 1876 Act, Proviso (1) under Certificate C with condition 6. see chapter I, 29-32.

159. Frances Power Cobbe, The Study of Physiology as a Branch of Education, a pamphlet printed by the Victoria Street Society (undated) in British Library 8425, 19-25, volumes of pamphlets of The Society for the Protection of Animals from Vivisection.

the mature mind. Cobbe urged parents to check the current tendency to materialise the mind by this morbid interest. In support of this argument she cited the evidence of Rolleston before the first Royal Commission. Rolleston had quoted W.B. Carpenter¹⁶⁰ as saying that an exhibition of vivisection (even upon an anaesthetised animal) to a mass of students tended to excite the "emotional" nature.¹⁶¹

Such arguments were also posed by antivivisectionist witnesses before the Second Commission, (it may also be noted here that this argument is still prevalent in contemporary antivivisection arguments and can be related to current campaigns against the dissection of animals in schools).¹⁶² We have already seen that the bill proposed by the N.A.V.S. and discussed by Coleridge sought to dispense with such experiments totally, and most antivivisectionist witnesses were in favour of this. A.L. Woodford¹⁶³ spoke of the corruption of youth, and cited the case of a caterer's boy who sold dogs (presumably stolen) to University College in his youth and who was later brought before the courts for theft. Woodford held the University authorities responsible for his moral ruin.

Kekewich,¹⁶⁴ noted that development of a high moral sense had become essential to man's welfare and was particularly important among the ranks of the medical profession in whose hands the community was placed.

160. Report of the First Royal Commission 1875, q.1287.

161. See Cobbe, The Scientific Spirit of the Age, (London, 1888). Essays 1 and 2.

162. See for example the literature of the antivivisection societies and F.R.A.M.E. (Fund for Replacement of Animals in Medical Experiments, see chapter VI).

163. Miss A.L. Woodford, Honorary Assistant Secretary to the Church Antivivisection League and The World League of Opponents of Vivisection.

164. George Kekewich, prominent educationalist and education reformer. Examiner in the Education Department for many years, appointed Secretary in 1890. For some years Chairman of The Antivivisection Hospital (see page 85) and later President of the World League Against Vivisection. Also opposed to vaccination, G. Kekewich The Education Department and After, (London, 1920).

He felt that vivisectional experiments were much more likely to render these future doctors and surgeons callous than was witnessing surgical operations for the benefit of the patient.¹⁶⁵ The very sight of an animal strapped down and cut to pieces, even under anaesthetic, was, he said, in itself degrading.¹⁶⁶ The majority of scientific witnesses denied this demoralising effect. Lauder Brunton said that there was no grounds whatever for such statements and added that it was impossible for experiments shown with a view to improving methods of relieving pain in patients to cause moral injury; they were likely, rather, to foster tender-hearted feelings. He added that he knew of no one in either the Royal College of Physicians or Surgeons who would disagree with this view; and indeed, it was supported by a number of eminent scientific witnesses.

Louise Lind-af-Hageby, authoress of The Shambles of Science¹⁶⁷ made extensive allegations of cruelty in demonstration experiments. This work was written with a particularly lurid turn of phrase and its accuracy was the centre of controversy before, during, and after the Royal Commission.¹⁶⁸

165. Note that Frances Power Cobbe's definition of cruelty was the infliction of pain upon a creature for reasons other than its own good.

166. This statement was also in support of Cobbe's view.

167. Lizzy Lind-af-Hageby and Leisa K. Schartau, The Shambles of Science - Extracts from the Diary of Two Students of Physiology, (First edit. London, 1903). hereafter cited as Shambles of Science. For one author's analysis of this important book see Vyvyan, Dark Face, 35-37.

168. A Home Office investigation had been made into the allegations contained in the book. It was temporarily withdrawn by the publisher following accusations of inaccuracy made by Bayliss, concerning the 'Brown Dog'. It was later republished with the chapter entitled "Fun", which had led to the "Brown Dog" libel case (see footnote 63 and Vyvyan, Dark Face, 59-65) amended. Hageby was quick to point out that no other portion of the book was attacked as libellous or withdrawn.

M.S. Pembrey, a lecturer at University College, had a good deal to say about it.¹⁶⁹ Hageby declined to accept the word of Pembrey, or of Thane, who complained that the book was full of totally inaccurate statements and corrected many of them in detail. One example which concerned a rabbit "frozen solid like a block of wood" was also commented upon by A. Waller,¹⁷⁰ also a lecturer at the College.

In her evidence Hageby contended that many of the experiments she had witnessed were hardly within the framework of the Act since they could not be considered "absolutely necessary for the due instruction" of persons to whom such lectures were given.¹⁷¹ Such an assessment could, in any case, only be a matter of opinion.¹⁷² One example she cited (described on page seven of her book) concerned a test for cholin demonstrated by Professor Halliburton upon a dog.¹⁷³ In his own handbook this lecturer had described a non-physiological test which could have been used instead. The evidence presented by Hageby concerning The Shambles of Science, and the evidence presented by a number of physiologists and by the Inspector to contradict it, was so copious and so conflicting that it is impossible for a historian to discern the truth. Chief Inspector Thane had concluded that the book totally misrepresented the spirit of demonstration experiments, and in his enquiry he had found no evidence in support of her inferences concerning general

169. See M.S. Pembrey's evidence, Fourth Report, q.13968-14183.

170. In a written commentary on A. Waller's evidence, G.D. Thane pointed out that "freezing like a block of wood" was impossible, had the temperature fallen below the freezing point of haemoglobin the animal would not have recovered. Appended was a copy of a report by a Major Williams, M.D. and Sir James Russell, dated 16 December 1909, which outlined the working mechanism of the cold chamber at University College. This showed that rabbits tolerated temperatures far lower than those which this one had been subjected to with no noticeable effects. See papers in P.R.O., H.O. 45, 138, 422/71.

171. Section B of the 1876 Act, proviso (1).

172. Interpretation of the term "necessary" is central to the reform movement, see chapters IV and VIII.

173. Shambles of Science, 78-79.

merriment of students during experiments, the infliction of agonies, and incomplete anaesthesia. In retaliation, Hageby pointed out that Thane had seen none of the experiments but had merely made enquiries of the vivisectors themselves.

A.D. Waller stated his belief that the book had been written in good faith, but was so coloured by interpretation that it did not represent the facts. Notwithstanding this, it would seem unlikely that the two ladies, who kept detailed notebooks, were mistaken in every single one of their inferences. Hageby concluded that, if, as scientists claimed, all efforts were made to prevent suffering, she would have expected some indication of this fact to be found in physiological textbooks. She stressed that no instruction regarding moral obligations nor details concerning the proper care of animals were ever given. There was rather a "lack of all signs of any dominating wish to attempt the humane teaching and practice of experimental physiology".¹⁷⁴

In addition, far from warning against the infliction of pain, many student handbooks warned against dangers of anaesthesia being too deep and advocated the use of incomplete anaesthesia.¹⁷⁵ She cites some works which even stated that better results would be obtained with no anaesthetic at all, though she could not say whether, in the case of British books, this was in fact an incitement to break the law, or simply a general statement.¹⁷⁶ Some of the books quoted by Hageby were foreign, but she

174. Third Report, q.7223

175. She cited T.G. Brodie, The Essentials of Experimental Physiology for the Use of Students (London, 1898). Hageby was again referring to the use of the terms "incomplete" and "light anaesthesia", see Use of incomplete anaesthesia in demonstrations would, of course, be illegal under the Act. Hageby also complained that in the case of research experiments, some works even advocated the deliberate infliction of pain, she cited E.H. Starling, Elements of Human Physiology (Eighth edit. London 1908) - Starling later claimed before the Commission (q.3451) that he had never seen pain inflicted in a British laboratory upon a dog, cat or rabbit.

176. She cited G.N. Stewart, A Manual of Physiology, (Fifth edit. London 1906) and A. Flint, A Textbook of Human Physiology designed for Practitioners and Students of Medicine, (Fourth edit. New York, 1888).

maintained that this was not irrelevant since they were often supplied to British students and quoted in British works.¹⁷⁷ Hageby concluded that the general tone of physiological teaching was one of demoralisation and resulted in a general callousness of physiologists towards their experimental animals in later life.

The vast majority of scientific witnesses was of the opinion that demonstrations were essential to the thorough instruction of students. They argued that such experiments explained mechanisms which could not be shown by any other means, and served also to impress facts upon the mind far more vividly and permanently than did any other teaching aids. Thane pointed out that there were only three schools¹⁷⁸ in Britain where the governing authorities prohibited such demonstrations and he felt that physiology could not be taught in them with thorough efficiency. He added that he knew a teacher at one of them would use demonstrations were he allowed to do so. Scientific witnesses properly stressed that physiology was a science of function and could therefore only be adequately studied by observing living, functioning bodies. Certain functions could be described with the aid of models and diagrams, but the correct impression of many of the workings of the body could only be understood by seeing them in action. (Examples drawn from the evidence given by experts in various fields of physiology and surgery is presented in Table II).

177. She noted that on p.156 of M.S. Pembrey, ed. Practical Physiology, (London, 1910), an experiment typical of Pavlov's work was described with the warning that it could not legally be performed in Britain. Hageby complained that Pavlov was highly praised by British physiologists.

178. These were not named.

TABLE II

FIELD OF INSTRUCTION IN WHICH DEMONSTRATION EXPERIMENTS ARE NECESSARY

<u>Field of Instruction</u>	<u>Witnesses</u>
1. Pure Physiology	
To show bodily functions, e.g. blood pressure, heart action, influence of nervous and chemical stimuli upon secretions	E.H. Starling. T. Lauder Brunton
To demonstrate control of natural phenomena, e.g. reflex control of nervous system over circulation and respiration; action of substances upon blood pressure, localisation of reflex motor centres in special parts of central nervous system.	E.A. Schäfer Francis Gotch, Professor of Physiology, University of Oxford.
To give accurate impression of interaction of working parts.	C.J. Martin *
2. Physiology in Relation to Medicine	
Practical teaching such as dressing of wounds, applications of splints, study of internal changes, e.g. death by coal gas (post mortem investigation), showing efficacy of oxygen treatment & uselessness of blood transfusion.	R. Cushney T. Lauder Brunton M.R. Swanzy + M.S. Pembrey, Lecturer in Physiology, Guy's Hospital
3. Pharmacology	
Illustration of specific action of drugs upon target organs. Improper instruction led to erroneous conceptions within medical profession. Detailed knowledge vital for correct chemical interpretation, e.g., action of drugs on isolated frog's heart.	A.R. Cushney Sir Victor Horsley

* Martin stated that incomplete practical instruction in England had created erroneous impressions in his mind, which he corrected when he later studied at Leipzig.

+ This witness stated that the true nature of inflammation had only been impressed upon him by witnessing experiments.

Continued...

TABLE II Continued.

<u>Field of Instruction</u>	<u>Witnesses</u>
4. Instruction in Surgery	
Prohibition of practical instruction for attainment of manual skill an impediment, e.g. operation upon the eye which has a different texture in life. Post operative treatment and anaesthesia can only be properly taught practically. Much discussion of such advantages of teaching at Johns Hopkins Hospital, Baltimore. Students learn from treating veterinary patients. Operative skills can only be fully learned on living tissue.	Starling Swanzy Osler Schäfer Horsley

On the other hand, the Inspector for Ireland, Thornley-Stoker, believed that models and diagrams would serve equally well. He felt that all such experiments, except for advanced students, should be prohibited.¹⁷⁹ He stated that he frequently recommended against issue of certificate C (except in the case of advanced students) since animals suffered during the process of anaesthetisation and in this case it was unnecessary suffering. He was usually overruled by the Irish Office.

The Commission upheld that the restrictions imposed by the Act upon demonstration experiments were wise and sufficient, but regarding manual dexterity (notwithstanding the entreaties of some scientific witnesses) they were not prepared to recommend any alternation in the law to facilitate such experiments.¹⁸⁰

4. The Question of Sensitivity in Animals and Infliction of Pain In Experiments.

Although this issue was considered in some depth before the First Royal Commission, it was only touched upon by a small number of witnesses before the Second. Home Office representatives stated that the administration of the Act was carried out on the assumption that certain classes of animal were more susceptible to pain - thus it was compulsory to specify the type to be used for each experiment on applications for licences and certificates. Anticipation was considered to be as important as sensitivity itself; despite this, primates have never been especially protected. On these grounds the Home Office had sought to limit as far

179. Note also the conflicting evidence given before the First Royal Commission (1875) on this point. Antivivisectionists are currently urging the more extensive use of cinematographic films in the instruction of students.

180. See Final Report, recommendations 115, 116.

as possible experiments upon dogs, cats, monkeys and farm animals.¹⁸¹ Experimenters and inspectors have always considered that animals recover more quickly from pain than man and are less affected by illness. S.F. Smith¹⁸² strongly criticised the extent to which such views were taken. He said that they led to the infliction of unjustifiable degree of pain. He had himself witnessed the opening up of the abdomens of rabbits at the Pasteur Institute, where the experimenters had been ready with assurances that the animals "didn't mind" the procedure. There were considerable differences of opinion concerning the sensitivity of cold-blooded animals and some scientific witnesses pleaded for their exclusion from the Act, notwithstanding the large numbers of frogs that were employed.¹⁸³

There was much controversy over the question of how much pain was actually inflicted under the Act. Antivivisectionists levelled accusations at specific licencees on the basis of their own publications, which were later answered in detail by the licencees themselves. The whole question rested upon the interpretation of the scientific reports and these interpretations were so conflicting that no Commission would have been capable of extracting concrete "facts" from this evidence. The considerable concern expressed by the antivivisectionists was not likely to be allayed by the attitudes expressed by the Home Office. Thane stated that though he had seen animals sick and dying he did not believe that the vast majority of experiments under the Act involved what

181. The Littlewood Committee was later to conclude that all mammals perceive pain in a similar way. The restriction regarding the use of certain species seems to have been retained partly because of the assumed greater capacity for anticipation in these, and partly as a result of public sentiment.

182. S.F. Smith, M.R.C.S. Surgeon to the Antivivisectionist Hospital (see page 85), member of the International Medical Antivivisectionist Association and author of two pamphlets on vivisection, Scientific Research and Fruitless Experiments.

183. Note that the reverse is now the case; suggestions have been made for the inclusion of some vertebrates not included in the Act, see chapter IV, 232-234.

could accurately be described as pain. Some of the Commissioners questioned this and Thane himself had to admit, when pressed, that some inoculations did result in considerable suffering. On hearing a description of a cat which had had an operation upon the nerves under Certificate B and was subsequently able to walk only on its toes, Thane expressed the opinion that the discomfort occasioned could not be described as suffering.

Antivivisectionists felt that such statements misled the public. An example was the opinion of the inspector, frequently stated in the Annual Return :

In the case of prolonged action of an injected substance, even when ending fatally, the animal is generally apparently well.

Numerous scientific witnesses appeared to reinforce the view that most experiments involved no pain or real suffering, while nothing at all under the Act constituted cruelty.¹⁸⁴ However, the many graphic illustrations given by the antivivisectionists seem to have had some basis in fact.¹⁸⁵

Many of the examples were taken from scientific journals. Severe criticisms of such examples were made by scientific witnesses who played on confusion and misinterpretation on the part of the witnesses citing them. There were undoubtedly some justifications for these criticisms, though Selby tended to sympathise with the difficulties of the lay reader. Notwithstanding the inaccuracies, the glowing pictures of

184. See the analysis given in chapter IV, ~~Section 3~~, of contemporary criticisms.

185. Most of this evidence came from Coleridge in his critique of the Home Office, and from Hageby quoting examples from her book. Examples were also given by witnesses for the Parliamentary Association for the Abolition of Vivisection, Mabel Cook, John Graham and George Kekewich, all of whom quoted from scientific journals.

totally painless research painted by some scientific witnesses, for example E.H. Starling, seemed hardly more representative of the truth. In Starling's opinion the advent of analgesics had turned surgical wards into "merry places" and similarly his dogs were "happy" to be fistulated.¹⁸⁶ In addition he sought to compare the mental and physical states of voluntary human fasters with compulsorily starved laboratory animals. However, two examples cited by Cook served to demonstrate that some experimental animals did indeed suffer :

1. "The Results of Innoculations of Milch Cows with Cultures of the bacillus diptheriae", reported by C. Abbot in J. Pathol & Bacteriol, 2(1894), 35-51. This paper described the inoculation of two cows with diptheria by E. Klein. Subsequent histology reveal tumours as large as a child's head, sores and eruptions. The animals coughed incessantly, refused food and were unable to stand. Post mortem revealed infection of almost all the internal organs.
2. "The Experimental Production of Uncompensated Heart Disease", J. Pathol & Bacteriol, 9 (1904), 67-68. Charles Bolton, Medical Research Officer, University College Hospital, opened the chest and rib cage of several animals and the skin of the outer layer of the heart was folded and stitched. After dressing and closing the wound the animals were allowed to live for several days. (Cook, once a nurse herself, pointed out that after such severe operations upon human patients morphia is administered to deaden the intense pain.)

These cases hardly supported the contentions of the physiologists or the Home Office.

186. E.H. Starling, First Report, q.4024.

Another example cited by John Graham involved the introduction of jequirity seeds into one eye of several rabbits with purposely dirty instruments.¹⁸⁷ The rabbits were kept alive for six months to see whether sympathetic irritation would appear in the other eye. In Graham's opinion such experiments constituted torture.

Kekewich urged the Commission not to accept the unreliable and untrustworthy testimonies of those with vested interests in experimental research. He felt that the evidence of the minority of more candid witnesses before the Commission was nearer to the truth than the majority. For example, Pembrey had stated that the infliction of pain in experiments was necessary and was indeed done under the Act.¹⁸⁸ The constant assurances made by most physiologists were not, said Kekewich, borne out by his own experiences. Between the years 1896 and 1900 he had studied every experiment in the Journal of Physiology. Of these, 71% were cutting operations and in 31% of the cases the animals were kept alive afterwards. He added that in his experience of human hospital patients, some degree of post-operative suffering was always apparent; difficulties of applying aseptic procedure was increased in the case of animals by their tendency to lick wounds and rub dressings. Most antivivisectionist witnesses were agreed that as long as vivisection was permitted, suffering would be inflicted. Notwithstanding their accusations of cruelty, indifference, callousness and breaches of the law, infliction of suffering was clearly permitted under the Act. For this reason most had pledged themselves to work towards total abolition.

187. See footnote 50.

188. M.S. Pembrey (q.14084) described pain as part of the natural scheme of things and stated that he had no qualms about inflicting it. He also complained that the Act as it stood was entirely opposed to the advance of physiology.

The Commission dealt with some of the specific charges in detail and found a number to be inaccurate. With regard to Crile's experiments on surgical shock¹⁸⁹ cited by Coleridge, the Commission concluded that such experiments could not be justified unless the animals throughout had been totally insensible to pain. The controversy over this issue could not be totally resolved. As already discussed, the descriptions given by Lind-af-Hageby, for example that of the frozen rabbit, were assumed, given all the evidence, to be erroneous. The Commission did not comment in detail upon the examples brought by Cook from scientific journals. However, it did see fit to make some comment upon the view of Pembrey expressed before the Commission to the effect that pain was beneficent and it was absurd to attempt to abolish it. He had depreciated the use of anaesthetics in animal experiments and suggested that most experiments were free from pain in any case since animals strapped down and being experimented upon tended to pass into a hypnotic state. The Commission, to its credit, entirely refuted these obscure views and described Pembrey's suggestions as "absolutely reprehensible".¹⁹⁰

The Commission noted the vast increase in the number of inoculation experiments and it was felt that the term "vivisection" was not obsolete. It was clear, however, that some experiments performed under certificate A were indeed painful. Thane had stated that a small proportion of inoculations, e.g. the infection with plague and tetanus and administration of some drugs, could produce great pain and suffering.¹⁹¹ The Commission also noted experiments performed by Klein in 1899 which involved the inoculation of diphtheritic membrane into the eyes of cats.

189. See footnote 59.

190. Final Report, para.28. See also footnote 188.

191. First Report, q.457.

This resulted in ulceration and swelling of the cornea in some cases. The fact that animals could quite legally be kept alive though suffering considerable pain if the main object of the experiment had not been attained was acknowledged and the Commission made recommendations for alterations of the law on this point. There were of course other groups of experiments where pain could ensue, such as those where the animal was allowed to recover after an initial operation during which a fistula had been established or some organ removed. The Commission noted that :

Dr. Thane hesitated to give a general statement as to the degree of pain consequent on such procedures; the animal may be very ill, suffer from severe shock and a fatal result may sooner or later ensue, yet he thinks there may be no acute pain. 192

Similarly, the Commission accepted the assurances of the Home Office (based, as Coleridge pointed out, upon the testimony of licencees) that in the majority of experiments under Certificate A no appreciable pain resulted. However, some of these experiments "must in some cases, at any rate, be productive of great pain and much suffering".¹⁹³ Accordingly recommendations for further safeguards were made.¹⁹⁴

5. Anaesthesia

During the nineteenth and early part of the twentieth century, the antivivisectionist argument was largely centred upon the efficacy (or otherwise) of anaesthesia in experiments.¹⁹⁵ Since anaesthetic procedures were not often reported in great detail in scientific publications, this led to misunderstandings on the part of the lay-reader. Furthermore, antivivisectionists complained that details regarding the anaesthetic procedure could only be verified by the experimenters them-

192. Final Report, para.86.

193. Final Report, para.88.

194. See p.123-124.

195. This provides a marked contrast with contemporary arguments. See chapter IV, esp. Section 3.

selves. Dispensation of anaesthesia for surgical experiments has never been allowed,¹⁹⁶ and it was stressed to the Commission that in other cases anaesthetics were always employed in compliance with the Act, including experiments in which curare was used. These statements were strongly supported by every scientific witness.¹⁹⁷ The accusations regarding incomplete anaesthesia cited by Lind-af-Hageby deplored Pembrey's views on anaesthesia and the necessity of inflicting pain, which were condemned also by the Commissioners, and she asserted that such views were rife among physiologists. However, no physiologist before the Commission openly supported Pembrey's view that hypnotism was an adequate substitute for anaesthesia. Hageby's evidence for her assertion that anaesthesia was frequently incomplete came from experiments she had witnessed during which animals had struggled and cried.¹⁹⁸ However, as already noted, the Commission found little support for the inferences she had drawn from these experiences.

The subject of curare had been a matter of considerable dispute before the First Royal Commission and as a result special provision had been laid down in the Act¹⁹⁹ that the substance was not to be used without the addition of an anaesthetic employed in sufficient quantity to prevent the animal feeling pain. Evidence before the Second Commission revealed that controversy still persisted over the use of curare. The reason for this was largely that no one had been able to disprove Claude Bernard's conclusion that the substance not only had no anaesthetic properties, acting only upon the motor system, but that it actually heightened perception to pain. A number of antivivisectionists

196. Certificate B, Condition 4.

197. For example see the evidence of E.H. Starling, D. Powell, E.A. Schäfer, D.W. Buxton, and J.N. Langley.

198. For example see in the Shambles of Science, the cases of "The Troublesome Dog", 91-98 and "The Struggling Cat", 109-113.

199. Section 4.

wished to see its use prohibited because they maintained that it was impossible to tell if the animal remained under complete anaesthesia when the entire motor system (and all responses to pain) was paralysed.²⁰⁰ Some suggested that complete anaesthesia was often not maintained when this substance was used,²⁰¹ resulting in most horrible torture to the animal.²⁰²

The general conclusion of the physiologists, on the other hand, was that the use of curare was indispensable in some fields where absolute stillness (precluding reflex movements) was required, and they maintained that there was insufficient evidence to decide what its effects upon the sensory system were. They felt, therefore, that it was quite right to prohibit its use without complete anaesthesia, but strongly maintained that once an animal had been fully anaesthetised it was easily possible to maintain total insensibility to pain under curare, the anaesthetic being dispensed automatically in controlled amounts with the air provided for artificial respiration (necessarily maintained under curare, due to paralysis of the nerves supplying the intercostal muscles). A remarkable piece of contradictory evidence on this point

200. The modern view of the action of curare is that it paralyses the muscles by interfering with the normal action of acetyl-choline at the neuro-muscular junction. Curare, and some synthetic muscular relaxants are still used in human surgery. This enables abdominal operations to be performed under light anaesthesia (with artificial respiration), which is of benefit to the patient. See R.D. Dripps, J.E. Ekenoff, and L.D. Vandam, Introduction to Anaesthesia; the Principles of Safe Practice (London, 1972) 167. Medical textbooks warn that the relaxants can be dangerous because the usual indications of depth of anaesthesia no longer persist and the anaesthetist can rely only upon his own experience. In the case of the untrained laboratory anaesthetist such experience might be limited, see chapter IV, Section 4.

201. See evidence of Lind-af-Hageby, Third Report, q.7308-7310.

202. Warning against this eventuality in modern surgery G. Ostlere and R.B. Smith conclude on p.38 of Anaesthetics for Medical Students (London, 1972), "the anaesthetic may indeed become so light that the patient wakes up, yet is incapable of warning anyone of his predicament. Such nightmare incidents have occurred too often, causing the patient great mental if not physical anguish".

was given by A.D. Waller. He supported the view that maintenance of total anaesthesia under curare was achieved automatically via the respiratory apparatus, but when pressed by Ram (q.18130) he stated that he had had no experience of curare used in combination with anaesthetic. Notwithstanding this he stated, almost in the same breath, that he had had experience with curare, and had never known it to be administered without an anaesthetic.

One controversy before the Commission concerning anaesthetics is of special interest since it concerned one of the Commissioners. E. Lawrie, a retired Colonel of the Indian Medical Service and a member of the Royal College of Surgeons, gave evidence concerning experiments on cross circulation between two dogs, designed to demonstrate the action of chloroform. These were performed by Gaskill and an assistant at the University of Cambridge. Lawrie had been invited to witness the experiments and he maintained that a severe tracheotomy had been performed upon the dogs with insufficient anaesthesia. He alleged that not only had Gaskill broken the law, but that he had stated at the time he had administered a small dose of narcotic purely so as to "hoodwink" the inspector. Gaskill's assistants, Hall and Shore, consequently appeared before the Commission and refuted these claims. Clearly, if the allegations were true then a gross breach of the Act had been committed by one of the Commissioners. The Commission therefore saw fit to examine the case in some detail but, after hearing all the evidence, it concluded that Lawrie had been mistaken regarding the amount of morphine which had been administered. However, the case is not so neatly concluded as the Blue Books would suggest. In a private letter to the Commission, Coleridge²⁰³ noted that Gaskell possessed no

203. Dated 14 Apr. 1908, in P.R.O., H.O. 114/3 3A(2). I have been unable to trace any reply.

licence at the time of these experiments, while Shore possessed no certificate D for the testing of a former discovery. Both Gaskell and Hall stated before the Commission that this was not a piece of research, but the illustration of some previous work for the benefit of Colonel Lawrie. Therefore it seems questionable whether it was legal. In addition, there seems to be some discrepancy between the evidence given before the Commission by Gaskell himself, and his private correspondence. Gaskell stated²⁰⁴ that he had made no admissions (as alleged by Lawrie) to the effect that the experiments were vitiated by a technical problem; however, such a statement does in fact appear in a private letter from Gaskell to Laurie.²⁰⁵ This would seem to cast some aspersion on the honesty and integrity of Gaskell.

The Commission accepted the testimony of expert witnesses regarding anaesthesia while pointing out that the process :

requires caution and watchfulness as well as
the natural solicitude of a humane and skilful
operator. 206

However, it made no recommendations regarding the training of those charged with administering the anaesthetic. The Commission's report did draw attention to a serious ambiguity in a poorly drafted Act. Firstly, it neither defines what is meant by "anaesthetic" nor prescribes any types to be used. Secondly, section 2 forbids the performance of any experiment calculated to cause pain, while section 3 (apart from exemptions conferred by certificate) imposes the restriction that throughout the experiment the animal must be under the influence of some anaesthetic of sufficient power to prevent the animal feeling pain.

204. Fourth Report, q.16973.

205. Forwarded by Lawrie to Commission on 11 Jan. 1908, in P.R.O., H.O. 114/3 3A(2).

206. Final Report, para. 81.

It may therefore be contended that an animal under anaesthetic cannot be the subject of "any experiment calculated to give pain", and therefore would not come within the jurisdiction of the Act. Indeed, many experimenters seemed to be of the opinion that pithed frogs did not come within the Act's jurisdiction, and the Commission was informed that large numbers of these were subjected to experiment performed by unlicensed persons.²⁰⁷ In view of the conflicting evidence presented as to the definition of this term, the Commission made a special recommendation concerning it.²⁰⁸

The process of pithing had firstly drawn attention to an ambiguity of the Act. Most experiments upon pithed frogs had in the past been performed under licence alone, pithing being considered equivalent to the administration of full anaesthesia; but it could be argued that if pithed frogs were totally devoid of sensation they could not be held to come within the jurisdiction of the Act at all. Furthermore the Commission was informed that the operation of pithing was occasionally performed upon higher animals. The second difficulty was the definition of the term itself, which seemed to have been used in at least three difference senses, viz :

1. Destruction of the brain and spinal cord;
2. Destruction of the whole brain above the spinal cord;
3. Severance of the brain from the spinal cord.

Another operation sometimes performed was the destruction of the cerebral hemispheres only, leaving the rest of the nervous system intact. Knowledge resulting from accidents to human beings indicated that severance of the

207. Pithing is dealt with in the Final Report, para.90.

208. The Secretary of State had asked for an opinion to be expressed on this subject, see Final Report para. 90(1) and Gaskell's memorandum on pithing in P.R.O., H.O. 114/1(1). See also the memorandum prepared by Russell with a minute by Thane, Pithing, Decerebration and Decapitation in P.R.O., H.O. 114/2, 102909/16.

spinal cord abolished sensation below the section and there was no reason to believe that complete destruction of the brain (which the Commission recommended should be still fully performed under licence with complete anaesthesia) would not be a satisfactory method of abolishing pain in experiments. After carefully reviewing all the evidence the Commission made the following recommendation with regard to pithing :

We think that no lesser operation than a complete destruction of the brain or decapitation should be accepted as equivalent to the production of complete anaesthesia. 209

The Commission also noted the diversity of opinion concerning efficacy and administration of anaesthetics, and in particular of substances such as morphia and opium. It did not, however, make any special recommendations with regard to these substances but merely stated that some drugs offered greater reliability of continuous insensibility than others and that methods of anaesthetisation were a question upon which the licencing authority required skilled advice. Vigilant supervision should be exercised by those whose duty it was to inspect laboratories. This would seem to be rather a strange statement to make given the tiny proportion of experiments actually witnessed by the Inspector. Failure to make specific recommendations regarding substances related to anaesthetics such as morphia in the light of increased knowledge now regarding these would seem to be rather an abrogation of the Commissioners' duties. The Commission acknowledged the conflict of opinion regarding curare and recognised that great vigilance relating to the anaesthesia must be exercised when this substance was employed. Some Commissioners were in favour of total prohibition of curare. All agreed that if it were permitted, the inspector or some person nominated by the Secretary of State should be

present throughout to secure this. This recommendation was never acted upon, though the Home Office did seriously discuss the question.²¹⁰ Its own enquiry, however, did not extend beyond the opinions of leading physiologists and pharmacologists who were of the opinion that the use of curare was essential for certain classes of experiment and that its total prohibition would be a serious hindrance to research. After consultation with the new Advisory Committee, set up in 1913 as a result of the Commission's recommendations, it was decided that the Inspector need not necessarily attend all experiments involving the routine use of curare, but that he should be afforded this opportunity in any case he thought fit. A condition²¹¹ was therefore introduced forbidding the use of curare and associated drugs without the special permission of the Secretary of State, and requiring 48 hours notice of any such experiments to be given to the inspector. Currently, therefore, an inspector is consulted in all cases before permission to use curare is granted. However, the Littlewood Committee was informed that in practice, inspectors had rarely found it necessary²¹² to attend such experiments. No general recommendations were made by the Commission with regard to the complex question of anaesthetics. It simply acknowledged its satisfaction that complete insensibility to pain could be secured with most of the well-known anaesthetics. It expressed no opinion as to whether it thought such insensibility always was secured.

6. Supply and Classification regarding Species.

In the Final Report the Commission concluded :

While it would be impossible with any strict logic to define with precision the class or classes of the animal kingdom for which special legislation, in excess of the common law or of general enactments against cruelty to animals, can be justified, we

210. Littlewood, para. 139.

211. Condition 7. See Littlewood, para. 90 and chapter I, 30-32.

212. My italics. No explanation is given regarding the basis of this assessment.

think there is ground for regarding with a different degree of repugnance or acceptance the employment of certain classes of animals for purposes of vivisectional experiments. 213

This reinforces the view taken by the framers of the Act which led to the enactment of special provision for some species in non-acute experiments,²¹⁴ though their usage, even in painful experiments, was not prohibited, largely due to scientific evidence before the First Commission regarding their indispensibility. The provision was based upon sentiments resulting from close domestic association between man and certain animals, rather than upon any scientific grounds. A more rational viewpoint, now commonly held, is that all mammals at least should be afforded exactly the same protection under the Act. The Littlewood Committee did not feel that the time was ripe for this change in the sixties, though it questioned the basis of the special provision.²¹⁵ Certainly in the nineteenth century the use of certain species was regarded with particular abhorrence on account of the mutual trust and understanding developed between them and man in everyday life. Frances Power Cobbe produced quite an extensive literature on the "human qualities" of domestic animals, especially dogs.²¹⁶ Her firm belief that it was evil and cowardly to betray the trust of such devoted and intelligent animals by vivisectioning them was one of her strongest motives for abolition. Such sentiments with regard to particular species can be seen as part of the general Victorian attitude towards animals and, in fact, persist in the twentieth century.²¹⁷ In the case of the domestic dog and cat, another cause for deep concern amongst antivivisectionists was

213. Final Report, para.91.

214. Final Report, para.91 (2). Note also the Reservation memorandum pleading for the exclusion of dogs appended by Hutton to the Report of the First Royal Commission, see chapter I, 20.

215. See chapter IV, 232-234.

216. For example see F.P. Cobbe "The Consciousness of Dogs", Quarterly Review, 33 (1872), 419-451 and "Dogs Whom I Have Met", Cornhill Magazine, 26 (1872), 662-668.

217. For a general discussion of Victorian attitudes towards animals see French, 373-391.

the possibility of trafficking in lost or stolen pets.²¹⁸ Such concern was reinforced by the statements of some scientists. For example, C.J. Martin stated that even in cases where other species were as suitable as the dog they might be more expensive, more difficult to handle and less attainable (he probably had the pig in mind), whilst in Great Britain there existed a large supply of homeless dogs which could be cheaply and easily obtained. A number of antivivisectionists made allegations that stolen dogs were purchased by laboratories. The physiologists, though anxious to prevent this, felt that they ought to be able to purchase homeless dogs which were in any case to be destroyed. This suggestion was supported by Thane, who thought it might allay public fears about theft.²¹⁹ The idea alarmed antivivisectionists who maintained that it would cause a great deal of public disquiet since people would fear for the safety of lost pets. It would also result in the withdrawal of support to dogs' homes. Russell told the Commission that licencees had expressed to him their concern and caution regarding supply. He was of the opinion that if many stolen pets had been used there would already have been a large public scandal. However, he did admit that the use of stolen dogs, if it occurred, was unlikely to come to the notice of the Inspector. He suggested that dogs might be bred in laboratories, as were guinea pigs, but he felt it unreasonable to expect licencees to financially support breeding institutions. He made the point that laboratory animals were purchased by the assistants, and any acceptance of stolen goods was a matter for the police, he felt therefore that laboratories should not have to account to the inspector regarding their sources of supply. How such a matter was to be brought to the

218 Such concern still persists, see chapter IV, 241-245.

219. The Dogs Act (1906) prohibited the sale of homeless dogs by the police for purposes of vivisection. The Dogs Acts (1906-1928) are now given collectively in Acts 18 and 19 Geo.V c.21.

attention of the police when the only persons with access to the facts were the experimenters themselves and their assistants, Thane did not say.

Most antivivisectionist witnesses favoured the continued special treatment of dogs on moral and sentimental grounds, some felt that their use should be prohibited altogether. The Canine Defence League, represented by John Hughes, C. Swan and R. Cowen, was utterly opposed to their usage, and the Society had attempted to get a bill through Parliament prohibiting it. Although the support of a large percentage of the public, many M.P.s and even Queen Alexandra had been attained, the bill had made no progress.²²⁰

Most physiologists argued a case for the necessity of maintaining a wide choice of animals for research. Starling stated that the majority of experiments were performed upon frogs, mice, rats, guinea pigs, and rabbits but dogs, cats and monkeys were also used. He explained that all had different physiological traits making them more or less suitable for various lines of research. Cushney also presented strong evidence for the use of a wide range of species in pharmacology. Thane was of the opinion that the choice of species must be left open to the researcher but added that it had always been Home Office practice not to issue certificates E and F except in cases where no other species would serve. He felt that primates should be added to the list.²²¹ Several witnesses argued the indispensibility of the dog and cited areas of work where only this species would serve.²²²

220. A petition to M.P.'s contained descriptions of "demonstrations of a prolonged and agonising nature before classes of students". Since the evidence supporting these was controversial and contained some unsupported allegations, the Commission was unable to publish it. See Canine Defence League submissions, 14 May 1908 in P.R.O., H.O. 114/3 3b.(1).

221. See also chapter IV, 246-248.

222. For example see the evidence of E.H. Starling, D. Powell, T. Lauder-Brunton, F. Gotch and J.N. Langley.

The Commission recognised that the question of discrimination between different classes of animal involved a delicate balance of relative ethics, but felt that public sentiment founded upon the degree of man's affinity with certain species must be taken into consideration. Accordingly, the restrictions of the Act regarding certain species were retained and in addition it was recommended that the anthropoid ape be added.²²³ No action has ever been taken upon this recommendation and the Littlewood Committee did not uphold it.²²⁴ The Commission made no recommendation regarding supply of animals to laboratories. Anti-vivisectionists have remained vigilant on this point and the matter was finally dealt with in detail by the Littlewood Report,²²⁵ though, again, the recommendations have not been implemented.

7. The Moral Question

Many of the ethical arguments put forward by antivivisectionists on this subject were so unorthodox as to be unlikely to influence the Commission. They were often not only rather eccentric but poorly argued and supported by accusations which would seem to have little basis in fact. Several were strongly tied to religious beliefs.²²⁶ Cook expressed the view that the public only tolerated vivisection because of the fear of death. She claimed that materialists who did not believe in the afterlife played on this fear and sought to prolong mortal life through the sufferings of animals. Such a viewpoint typifies the nineteenth century antivivisectionist revolt against the "new science" and it is still currently expressed to a greater or lesser extent by some

223. The Commission had been informed that the Home Office did afford special consideration to these species even though there was no statutory guideline.

224. See chapter IV, 232-234.

225. See chapter IV, Section 8.

226. An example was the evidence of the Reverend John Page Hopps, Minister of Little Portland Street Chapel and representing the Social Purity Alliance. Third Report, q.8312-8628, and the Reverend Lionel Smithett Lewis, curate in London's East End, representing the Church Antivivisection League.

antivivisectionists who, mistrustful of modern scientific medicine, regard animal experimentation as a cowardly approach.

Neither did most of the arguments put forward by scientific witnesses have any sound basis in ethical philosophy. They were grounded upon the ethically unsound principle that desirable ends are capable of justifying less justifiable means.²²⁷ As Stephen Coleridge pointed out to the Commission, in pure ethics means must be independent of their ends. The most vociferous would-be ethical philosopher on the scientific side was Fletcher Moulton,²²⁸ who stressed the utilitarian aspect at length. He rightly pointed to the need for interpreters between science and the public, to provide explanations and justification of scientific work,²²⁹ and he felt himself to be a highly qualified observer of both sides of the subject. However his statement that he could not comprehend the concerted effort which had been directed against this very small amount of fruitful pain would certainly indicate that he did not properly understand one side of the argument at all. The more soundly based nineteenth century antivivisectionist arguments certainly could not be so easily dismissed.

John Graham perhaps presented the most logical argument from the antivivisectionist side. He felt that the tragedy of the antivivisection controversy was that two good motives, namely kindness and truth, came into direct conflict, adding that while the kindness may degenerate into mere foolish sentiment, the pursuit of truth also has its limits on the moral side.²³⁰

227. For examples of the scientists' arguments see evidence of E.H. Starling, Sir Victor Horsely and Frederick Taylor.

228. The Rt. Hon. Sir John Fletcher-Moulton, F.R.S., Lord Chief Justice of Appeal, member of the Privy Council.

229. See the discussions below in chapter IV, Section 10 and chapter VI.

230. Second Report, q.5885.

The dangerous results of not observing such limits are only too apparent in many facets of contemporary science and society. This point was frequently made before both Royal Commissions, antivivisectionist witnesses stressing that the scientific community ought not be held up as the sole judge of morality and that many eminent philosophers, poets, writers and churchmen (equally important in the structure of society) had been opposed to vivisection. Examples are Browning, Cardinal Manning, Ruskin, George Bernard Shaw, and Tennyson.

Graham's pregnant warning that "it is unsafe to trust a body of specialists with what concerns the harmony of the whole of life",²³¹ would seem to have been amply justified in retrospect. Stressing the dangers of unchecked intellectual enquiry, Graham strongly refuted the argument posed by Starling that all new knowledge would aid the evolutionary development of man's moral feelings, with the retort that Starling had obviously not read Faust. He also attacked the tenet often proposed by antivivisectionists, and indeed proposed to the Commission by many of their opponents, namely that it was better to sacrifice the lives of a few rabbits than to lose the life of even one child. Graham said that such reasoning was futile, since this situation simply never arose.

In a similar vein, J.H. Levy, Honorary Secretary of the Personal Rights Association, attacked the unsound and somewhat hedonistic principle which sought to balance pain inflicted, by that ultimately avoided. It was surely man's moral duty to seek to eliminate as much existing pain as possible. He maintained that scientists were forced to subdue their real consciences in order to perform their work, quoting Smidovitch, who had stated :

There is but one way out of this dilemma - that of stifling the reproaches of conscience, of choking down pity and closing one's eyes to the living agony of the animals sacrificed.

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231. q.5883.

232. Quoted in the Third Report, q.18497, from V.V. Smidovitch The Confessions of a Physician (London, 1904) Translated from the Russian by S. Linden.

Smidovitch's sentiments echo the viewpoint of Claude Bernard, father of the vivisectional method : physiology was necessarily demoralising. Levy's interpretation was but an alternative to that of Starling and other scientists, who stated that only men of the strongest moral fibre would be able to bring themselves to do this vital work.

Few scientists, especially in Britain, have questioned the necessity of drawing some sort of ethical line. At the present time, the chief bone of contention between the scientific community and the restrictionist reform movement is simply the point at which that line should be drawn.²³³ Indeed it is almost invariably drawn at man himself. Lind-af-Hageby noted the sheer hypocrisy of this, and its illogicality in a scheme of ethics where the ends supposedly justified the means, when the most useful experimental results would surely be obtained from man. Starling justified the distinction on the grounds of man's greater powers of anticipation and sensibility to pain over animals. This argument has only questionable basis in fact and in any case cannot be drawn to a logical conclusion. It would provide no guideline for ethical conduct in a straightforward comparison between an intelligent adult primate and a severely retarded human child (Starling himself stated that species evolutionarily close to man should be avoided where possible).

Contemporary anti-speciesist philosophies question whether the widely held view of the sanctity of human life is not disproportionate to consideration afforded to other life forms.²³⁴ Moulton attempted to illustrate the overriding importance of human life with the statement that it would be a doctor's duty to save the life even of a condemned prisoner who would later be executed; an example which George Greenwood, M.P., later described as "pathetically comic".²³⁵

233. See chapter IV, Sections 3 and 9.

234. See the discussion in the concluding chapter of this thesis.

235. See Greenwood's letter to the Commission dated 12 Mar. 1906 in P.R.O., H.O. 114/4.

The Commission took note of the wide divergence of ethical opinion among antivivisection witnesses, which it recognised could be broadly divided into two views. One of these, that vivisection (some held even painless vivisection) could not be justified on utilitarian grounds and should therefore be prohibited,²³⁶ was clearly outside the Commission's terms of reference which were to enquire into the Act. More regard was paid to the arguments of Graham and Coleridge, and to their basic tenet - that a moral line must be drawn regarding the amount of suffering which could justifiably be inflicted. The Commission accepted this view, though it obviously disagreed with the antivivisectionists as to where the line should be drawn. Graham and Coleridge were of the opinion that no suffering at all ought to be inflicted in experiments. We have already seen that it was the impossibility of securing such conditions within the workings of the 1876 Act which had led a large number of less extreme antivivisectionists finally to call for total abolition.²³⁷ However, the Commission could hardly fail to note the great weight of opinion which lay squarely behind the utilitarian argument, as opposed to the insubstantial support lent to its counterpart. It was noted that the British Medical Association - comprising about half the British medical profession - thoroughly supported the unimpeded quest for medical knowledge through experiment, and the Commission concluded from the great weight of evidence placed before it that similar views were, on the whole, endorsed by the entire medical and scientific professions. Notwithstanding this, the Commission acknowledged that the quest for knowledge could be in conflict with moral principle, and that the growth of moral sense in

236. This view was ascribed to by M. Cook, A. Kenealy, J.P. Hopps and L. Lind-af-Hageby.

237. See chapter I, 32 et seq.

mankind had led to the abolition, for example, of torturing prisoners for information, not because the practice had not led to useful results, but because, however useful, the means could not be justified. No comment was made regarding the antivivisectionist contention that if immoral means of obtaining knowledge were prevented by law, new means would have to be devised for obtaining it, an argument which clearly goes beyond all foreseeable practical consideration, and beyond the Commission's terms of reference. The question of human vivisection was raised, and the Commission noted, on the one hand the antivivisectionist fear that vivisection of animals would lead to this practice,²³⁸ and on the other, the scientists stressed that if new methods of treatment were not first tested upon animals, all the most dangerous tests would have to be made directly on man.

The Commissioners concluded that since society endorsed the killing of animals for food, clothing and (within limits) for sport, then it would be totally inconsistent and preposterous to recommend the total prohibition of all scientific experiments, as had been suggested by the more extreme antivivisectionist witnesses.²³⁹

238. See the evidence of J. Graham and L. Smithet-Lewis.

239. This argument was somewhat overplayed, particularly in the cross examinations of Gaskell and MacFadyean, who were of the opinion that it was illogical to press for a prohibition of the infliction of pain for utilitarian purposes while it was still inflicted for other purposes. This view is also expressed in a letter from Chalmers to Selby dated 31. Mar. 1908 :

I rather hope we shall deal briefly with the ethical witnesses. I doubt if ultimate ethics are within our reference, though we have given great latitude to the ethical witnesses. As long as animals are killed for food, killed and maimed for sport, and maimed for commercial purposes, I do not see how vivisection can be prohibited if we are satisfied that mankind and animals are substantially benefitted by scientific researches and those researches are hedged round by all reasonable means to prevent anything like wanton cruelty.

Letter in P.R.O., H.O. 114/4(1). Consistent antivivisectionists would of course condemn these other practices also. The arguments are more fully discussed in the concluding chapter in this thesis.

At the same time it recognised that there was a limit to the amount of justifiable pain. However, it acknowledged the great difficulty of laying down a standard since the acceptability by society as a whole, would vary in different climes and epochs. Thus no suggestion for a statutorily prescribed limit to pain was made. We have already seen that the Act itself does not define any limit to the degree of suffering which may be inflicted under certificate; this limit can only be imposed administratively. In view of the fact that no recommendation was made which would radically alter the situation, the conclusion that :

We strongly hold that limits should be placed
to animal suffering in search for physiological
or pathological knowledge.

falls rather flat.²⁴⁰

8. The Final Report of the Second Royal Commission - Its Recommendations.

At the end of six years' consideration of written material and oral evidence, the Commission produced its Final Report, dated 1 March 1912. At a total cost of £5,674 to the taxpayer,²⁴¹ it had examined witnesses representative of all viewpoints, and received evidence in relation to over 21,000 questions within its terms of reference. In view of its somewhat biased constitution, and of the overwhelming mass of evidence presented by the various medical and scientific societies, contrasted to the disparate and often unsubstantiated arguments of the antivivisectionists, it is hardly surprising that the Commission largely endorsed the findings of the First Royal Commission, commending the successful working of the 1876 Act and making recommendations for very few (and mostly very minor) amendments. Commenting upon the evidence in a letter to Ram, Church noted :

240. Final Report, para. 96. Note also the discussion in chapter IV, Section 3.

241. See Commissioners' private correspondence and accounts in the P.R.O. archives, H.O. 114 and 45. The report was signed by all the Commissioners except Tomkinson, who died in 1910, and Selby, who died in 1909. Wilson, Lockwood and Collins appended dissenting memoranda. The report was 65 pages long.

The Report is very long and we hope that some members of the public may read it, if not deterred by its length. I cannot help thinking also that some reference should be made to the very different ^[to the anti-vivisectionists] position occupied by the medical witnesses examined. Not a single person conversant with physiology and pathology was found to be brought forward by the antivivisectionists who all disclaimed being experts, although Miss Kenealy was ready enough to express definite opinions on all questions. The same may be said of the ethical witnesses, (sic), where were the Bishops, Archdeacons, etc.? 242

The principal conclusion of the Commission was that the Act, though open to some criticism and capable of improvement, had in general worked well to protect experimental animals while not impeding research. Fresh legislation needed only be advocated in order to implement the Commissioners' recommendations. Specific recommendations related to changes in administration of the existing law. By far the most important of these concerned the advisory body. Curiously, notwithstanding the devastating charges brought by Coleridge concerning the Home Office practice (of some thirty years standing) of allowing the Secretary of State to take his advice from the A.A.M.R., the Commission did not see fit to make a condemnation of the practice, or of the Association. However, the view of many antivivisectionists and other critics of the Act, ²⁴³ that the condemnation was nevertheless tacit in the Commission's recommendation that this body be replaced, is probably correct. The Commission supported the recommendation of the 1875 Commissioners concerning the advisers to the Secretary of State, that they be nominated by him and that their names should be made known to the profession and to ^{244.} the public. It recommended accordingly that the Home Secretary should select his advisers from a list of names submitted to him by the Royal Society and the Royal Colleges of Physicians and Surgeons in London. Furthermore, the names of selected persons (in addition to the names of the scientific 242 Letter dated 6 Oct. 1910 in P.R.O., H.O.114/1(1).
243. For example, see Vyvyan's assessment in Dark Face, 76-77.
244. Report of the Royal Commission 1875, p.xxi.

authorities under the Act) should be published and no person so selected should hold a licence.²⁴⁵ A similar practice was to be adopted by the Chief Secretary in Ireland, where hitherto there had been no advisory body. This recommendation was implemented by the Home Office in 1913.²⁴⁶ It is almost impossible to assess the degree of change in administration brought about by this, but it may be said that the alternation did at least bring the administration of the Act in line with the recommendations of the First Royal Commission. The prime intention was to afford a greater degree of public confidence in the Act, in which objective it certainly failed in the long term.²⁴⁷

The Commission also recommended an increase in the inspectorate, having concluded that the number of inspectors ought to be related to the number of registered premises. Following the Commission's report, the inspectorate was increased from a force of two (one chief, one assistant - both part-time) to three full-time and two part-time inspectors, though one post was not immediately filled. The Commission maintained that it was essential that inspectors be medically qualified, in order to secure the confidence of their own profession and the public, and this recommendation was endorsed for many years until pressure was brought to bear by the Royal College of Surgeons, the British Veterinary Association, the R.S.P.C.A. and U.F.A.W.²⁴⁸ to appoint some inspectors with veterinary qualifications in view of the expansion of veterinary science, and also of the need to improve laboratory animal husbandry and general care. Changes to this effect were made by the Advisory Committee in 1962 when the Home Office appointed the first inspector with veterinary qualifications.²⁴⁹ There are at present seven inspectors with veterinary qualifications.

245. Final Report, para. 122.

246. See Littlewood, para. 131.

247. See discussion in chapters III and IV, Section 10.

248. The Universities Federation for Animal Welfare (see chapter IV, Section 4)

249. He took up duty in Feb. 1963. (See also chapter IV, Section 5)

It was further suggested that, in order to facilitate and to concentrate inspection, it would be desirable to restrict registration as far as possible to universities and other public authorities and institutions. Since 1900 it has been the practice to register commercial institutions also, but the registration of private premises has always been exceptional.²⁵⁰ The Commission stated that it had given very careful consideration to various suggestions regarding alternation in the form or method of granting licences and certificates, but it concluded that there should be no material alternation. It suggested that the practice of withholding the validity of certificates until special notification was received by the licensee from the Secretary of State be made a condition attached to each licence in addition to its being endorsed on the certificate. This was to become implemented as Condition 2 imposed under Section 11 of the Act. The Commission also upheld other conditions which the Home Office had already seen fit to attach to licences and certificates and advised that these practices be made generally known. Recommendation was made for considerable amendment to the pain condition (condition 3), applicable to some experiments performed under Certificates A and B, which stated :

That if an animal, after and by reason of any of the said experiments under the said certificates ... is found to be in pain, which is either considerable in amount or likely to endure, and if the main result of the experiment has been attained, the animal shall be immediately killed under anaesthetics. 251

The Commission was of the opinion that there was room here for additional safeguards which might be applied without causing interference to legitimate research, and it was accordingly recommended that the inspector be given the power to order the painless destruction of any animal seen to be suffering, even though the object of the experiment had not been attained, and that the experimenter himself should be compelled to destroy

250. A list of registered premises is available from the Home Office.

251. Final Report, para. 121 (referring to Appendix **I** of the Fifth Report). There appears to be a misprint here, the pain condition is not condition 6, (*My italics*).

the animal, whether or not the object was attained, if he considered it to be suffering pain which was both severe and likely to endure.

No statutory enactment of these provisions was recommended as the two conditions were subsequently endorsed as parts (b) and (c) of the pain condition. Although the amendment would seem to have been made with the intention of reducing pain to a minimum, it is clear that in practice it affords little additional protection to the animal.²⁵² There is also some doubt as to whether all the commissioners took it seriously. In a letter to the Secretary, Church wrote that he "had no objection" to the extra restriction, since he felt that in any case the scientific authorities would never endorse it.²⁵³

In framing the endorsement as it did, the Commission was obviously seeking to avoid impeding research by imposing a condition which would necessitate immediate destruction of an animal exhibiting pain which might only be momentary. It was no doubt thinking primarily of some research into disease and toxicity testing of medicinal substances - the wide range of statutory tests currently employed could not have been envisaged in 1910.²⁵⁴

A number of other minor recommendations to the administration were never implemented. The Commission did not see fit to alter the provision of the Act with regard to experiments for the attainment of manual dexterity, or to bring under its jurisdiction the commercial preparation of sera and vaccines. The provisions of the Act with regard to experiments for teaching demonstrations were generally approved, except that with regard both to research and to demonstration, some Commissioners felt that the special protection given to horses, asses and mules should be extended to dogs, cats and anthropoid apes. However, no definite recommendation was made on this point.

252. See chapter IV, Section 3.

253. Church to Bingham, 29 Jan. 1910 in P.R.O., H.O. 114/1(1).

254. See chapter IV, 177-179 and chapter VII.

No specific recommendations were made with regard to anaesthesia
except in the cases of curare and of pithing. 255

CHAPTER III

MOVES TOWARDS THE REFORM OF BRITISH LEGISLATION CONTROLLING

THE PRACTICE OF ANIMAL EXPERIMENTATION

For most of the pressing problems of our time ...
science and technology offer potential solutions.
If they are ignored, don't blame the scientists,
blame the politicians.

Raymond Baxter
(Broadcaster)

As distinct from the antivivisectionist movement there exists a restrictionist reform movement which is seeking not total abolition of animal experimentation, but reforms to the legislation controlling it. This movement is in fact supported by those abolitionists who regard greater control as a step towards their ultimate goal, but since not all its supporters can properly be called antivivisectionists I shall refer to it in this thesis as the "reformist" movement.

The pattern of events during the last fifteen years, which is the period covered in this chapter, would present an interesting historical record yet to be written. No attempt has been made here to present a complete record of events; instead precedence has been given to consideration of changing trends in the reformist movement, with particular emphasis upon the positive results which have been achieved very recently. These changes should be viewed in conjunction with the changing attitudes and tactics within the antivivisectionist movement itself, and with the corresponding response of the scientific community to these, as will be discussed in chapter VI.

We have already seen that the antivivisectionists, disillusioned by the efforts of 1875 and by the Act which resulted from them, directed their efforts into the campaign for total abolition, and in so doing lost both credibility and public support. Further, their questionable tactics alienated both the scientific community and the politicians, and as will be shown in chapter VI, the net result was an almost totally sterile campaign. Not only did the abolitionists have little credibility, as already seen from the discussion of their arguments (and the response to them) before the Second Royal Commission, but, as a pressure group they had no strength. In the last decade, the hardened attitudes of the antivivisectionists have begun to change, and a number of individuals working outside the antivivisection movement have succeeded in attaining considerable public support for stricter control of animal experimentation. Certain events have had a very demonstrable effect upon public opinion, which has increased the strength of the movement. What has also played an important part is the relatively recent involvement of the R.S.P.C.A. R.D. French has noted¹ that this large and influential organisation kept itself largely aloof from the antivivisection controversy throughout the nineteenth century. In the last few years it has instigated a concerted campaign towards legislative reform and a recently constituted R.S.P.C.A. Committee² has played a major role in the degree of success currently being achieved by the reformists. In order to put these current events in perspective it is pertinent to consider activities in Parliament throughout the last fifteen years, noting the marked lack of Government interest in these efforts.

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1. See R.D. French, Oxford D. Phil. entitled Medical Science and the Victorian Society - The Antivivisection Movement, 1972.
 2. The Committee for Reform of Animal Experimentation. See p. 165. of this chapter.

After the Second Royal Commission there was little activity in the field of legislative reform for many years. A number of private member's bills were put forward on behalf of the antivivisection societies, but all failed to make progress, and after 1930 no subsequent attempts were made to secure new legislation relating to animal experimentation in general until the late 1960s. New developments in medical and surgical techniques, particularly the rise of chemotherapy,³ were to have profound effects upon the numbers of animals used in experiments and upon the ways in which they were employed. The Therapeutic Substances Act (1925)⁴ and the Diseases of Animals Act (1935)⁵ both prescribed the use of animals in the testing of purity and potency of pharmaceuticals, which contributed greatly to the increase in laboratory animal usage. Concern over this escalation resulted in a deputation, representing the B.U.A.V., N.A.V.S. and other A V societies, to the Home Secretary in 1948, calling for a full investigation by a Royal Commission. On reviewing the evidence presented by this deputation, the Home Secretary decided that there was insufficient case for a fresh enquiry.

As animal experimentation increased, concern deepened over the inadequacy of the 1876 Act to control the practice. In 1939 the total number of experiments had been just short of 1 million, by 1950 it had risen to approaching 2 million. In a Lords debate "to draw attention to the unnecessary suffering caused by surgical and medical experiments on animals",⁶ Lord Dowding expressed the view that the Act was gravely

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3. Beginning in 1910 with Erlich's announcement of the successful treatment of syphilis with organic arsenical drugs.
 4. This Act was replaced by the Therapeutic Substances Act (1956), 4 and 5 Eliz. II.c.25, to which new provisions were periodically added. It passed off the statute books in 1976 and is replaced by the Medicines Act (1968 and 1971) given by c.67 which will be fully operational in 1978.
 5. Now contained in the Diseases of Animals Act(1950), 14 Geo.IV.c.36. and the Diseases of Animals (Therapeutic Substances) Order(1952) made under that Act.
 6. H.L. Deb. 1952 [178], c.631-658.

defective; that inspection was inadequate and not properly enforced, that experiments were excessive in number and unduly repetitive, and that the majority were of no practical value to human welfare. He called for a tightening up in the administration of the Act, and for a government enquiry into the use of animals for manufacture and testing of drugs. The request was rejected and Dowding's motion was withdrawn. A similar motion by Dowding was debated in 1957, when he again pressed for a public enquiry.⁷ A government spokesman promised that this request would be kept under review and the motion was by leave withdrawn.

Throughout the 1960s the R.S.P.C.A. conducted a campaign to force the Home Secretary to set up a government inquiry. Numerous questions were tabled in the Commons by members of the All Party Parliamentary Animal Welfare Group,⁸ often with complaints concerning the inadequacy of the replies. In 1959, and again in 1960, the R.S.P.C.A. informed the Home Secretary of widespread public unease concerning control of animal experimentation. A deputation in 1961 urged a number of measures for tightening up the Act's administration. The Society was particularly concerned about the degree of suffering allowed in experiments, and the inadequacy of the inspectorate to cope with the escalation. It pointed out that in 1876 some 300 experiments were supervised by two inspectors, while in 1962 there were almost four million experiments and only six inspectors none of whom had veterinary knowledge.

In 1962 the Society produced a leaflet entitled Cruelty Within the Law which urged the public to find out the facts and to make its feelings known in the local press and by writing to M.P.s. In an adjournment debate called by F.A. Burden, M.P., a member of the R.S.P.C.A. Council

7. H.L. Deb. 1957 [204], c. 1337-1368.

8. A group of Parliamentarians working for the betterment of animal welfare, as individuals and as representatives of various Animal Welfare Societies.

and Chairman of the Parliamentary Animal Welfare Group, concern was expressed over the degree of suffering caused in some experiments and Burden called for alterations in the composition of the Advisory Committee⁹ and a widening of its powers. The call was dismissed by the government spokesman, C. Fletcher-Cooke, who expressed the satisfaction of the Home Office regarding the Act and its administration.¹⁰ In another adjournment debate on 6 July 1962, Sir William Teeling stressed the growing apprehension among serious people and concern over the secrecy on the part of the Home Office in Parliamentary replies.¹¹ He also drew attention to the recent U.F.A.W. document Experiments on Animals in Great Britain, which called for a strengthening of the inspectorate and modernisation of the licencing and certification system. Burden complained of the "stonewalling" attitude of the Home Office and warned that pressure would be kept up both inside and outside the House until something was done. He repeated the call for a full government inquiry made by W.F. Deedes in the Supply Committee of 10 May.¹² On this occasion the Home Secretary undertook to call upon his Advisory Committee to review the whole administration of the Act and it was upon the advice of this committee that a Departmental Committee of enquiry, chaired by Sir Sidney Littlewood,¹³ was finally set up.

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9. i.e. the advisory body to the Home Office, constituted by the Home Secretary, which replaced the A.A.M.R., as a result of the recommendations of the Second Royal Commission. This Committee is discussed in some detail in Chapter IV, Section 10.
 10. 16 Feb. 1962 H.C. Deb. [653], c.1771-1782.
 11. H.C. Deb. [662], c. 901-940.
 12. 10 May 1962, Supply Committee on Home Office Affairs. H.C. Deb. [659], c. 653-769.
 13. Statement by the Home Secretary 30 Nov. 1962, H.C. Deb. [668], c. 105-110. See also details of proposed enquiry given on 26 Feb. 1963 H.C. Deb. [672], c.152.

The Littlewood Committee¹⁴ was appointed on 23 May 1963 with the following terms of reference :

To consider the present control over experiments on living animals, and to consider whether, and if so what, changes are desirable in the law or its administration.

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During the course of the next two years the Committee held 27 meetings, examined 83 witnesses representing 26 organisations (five appeared in a personal capacity) and studied 112 memoranda and numerous letters from research workers and private individuals. The Committee visited 29 establishments registered under the 1876 Act, and in some cases witnessed experiments which were being conducted. However, the scope of this enquiry did not facilitate the consideration of "alternatives" or any assessment of the possibilities for limiting the numbers of animals employed in research. Nor was the Committee called upon to consider the moral question, though it was decided at the outset that moral criteria and availability of research methods not involving the use of animals had to be considered as relevant to the enquiry. The Committee further stated that

Anyone who makes use of an animal in research incurs a moral responsibility to justify his action and a duty to avoid or at least to limit pain and give proper care. This recognition has governed our approach throughout and underlies the whole of our Report.

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14. Chairman, Sir Sidney Littlewood; Members :
 Mrs. Joyce Shore Butler, M.P. Lady Barbara Winifred Swinnerton Dyer
 Admiral Sir Guy Grantham, Mr. T.C. Green
 G.C.B., C.B.E., D.S.O. Sir Charles Robert Harington, K.B.E., F.R.S
 Mrs. Katharine H. Horsfall, B.A. Sir Hugh Nicholas Linstead, O.B.E., M.P.
 Mr. Lionel Roy McColvin, C.B.E. Colonel Sir James Miller, M.C., T.D., D.L.
 Rev. Edward Rogers, M.A., B.D. Prof. Francis Alan Roland Stammers,
 Mr Alasdair Steel-Bodger, C.B.E., T.D., B.Sc., Chairman, F.R.C.S.
 B.Sc., M.R.C.V.S., M.A. Secretary, Mr. P. Beedle of Home
 Lord Watson, Office.
15. Report of the Departmental Committee of Experiments on Animals, Apr. 1965, Cmd. 2641, (Hereafter referred to as Littlewood), para.1.
16. Littlewood, para.9.

Since the publication of the Littlewood Report attempts to secure any major reforms either by amending the Act itself or by effecting changes in administration have been largely abortive. Numerous private member's bills have failed to make progress and several important issues have been continually raised both in Parliament and elsewhere.

Referring to the dramatic rise in animal experimentation since the Second Royal Commission, the Littlewood Committee pointed out :

It is a matter of common knowledge that in the years since 1912 medical science had advanced more rapidly and on a broader front than in any other period of history. 17

It concluded that the increasing use of animals was likely to continue, especially in the fields of pharmacology and toxicology. Notwithstanding this major change, not only in the scale of animal experimentation but in the nature of purposes for which animals were being used (never envisaged when the 1876 Act was drawn up), the Committee did not recommend any fundamental changes in the fabric and application of the law, but rather a tidying up of its structure.

In respect of animal welfare, it saw the aims of legislation as being threefold, namely :

1. to prevent objectionable activities;
2. to encourage humane practices, and
3. to provide for the accountability to the public of all concerned.¹⁸

The Report concluded :

17. Ibid., para.52

18. Ibid., para. 238.

By this standard we think the 1876 Act has been generally effective; no licencees appeared to regard it as a piece of useless bureaucracy, many left us in no doubt of their high respect for it. The Act has been effective partly because it has commanded the ready support of those subject to it, partly because the Home Office has adopted a wide interpretation, insisted on humane standards, and administered the law conscientiously. 19

The following statement might be taken as a typical antivivisectionist rejoinder :

This appears to be one of the fatuous statements out of a rather fatuous report ! (sic) No doubt the licencees respect it - it gives them a free hand. Were it rescinded tomorrow they would all be liable for prosecution under the Protection of Animals Act of 1911 20 and all the Acts which preceded it. 21

This may seem rather a sweeping and scathing comment upon what is, on the whole, a detailed and conscientious report; however, it will be seen from the discussions in chapter IV that the above statement is not entirely without foundation.

The reformist movement was less than satisfied with the general findings and tone of the Littlewood Report. Neither did it believe that the implementation of its findings would go very far towards diminishing the sufferings of laboratory animals. For the abolitionists, the failure of the Report to answer the moral question rendered it almost worthless. They noted also that no representative of an A V society had been included on the Committee. The N.A.V.S. took the view that the first

19. Ibid., para. 239.

20. Protection of Animals Act (1911), see chapter I , footnote 12.

21. This quotation is taken from an unpublished commentary on the Littlewood Report written by Guy Heriot, past President of the B.U.A.V., prepared in 1965 for the now defunct British Council of Antivivisection Societies (p.69). The document cannot be considered an objective analysis and it contains a number of inaccuracies, however, some of the comments are worthy of note.

question to be answered had to be the moral one. Since this question should certainly not be answered by the experimenters themselves, it asserted that instead of setting up a Departmental Committee the government should have assembled a team of moral experts to determine whether or not vivisection should be allowed at all (a question which the N.A.V.S. had already answered for itself most categorically). In view of the difficulties of assessing the question of pain (discussed by the Littlewood Report) the N.A.V.S. concluded that a "pain clause", such as the one already in force, or that suggested to Littlewood by the Universities Federation for Animal Welfare (U.F.A.W.)²² was worse than useless. It has, in fact, only one effect, namely that of lulling the public into thinking that all is well in the vivisection laboratory, and that the animals are protected from pain and suffering.²³ In a similar vein, Guy Heriot of the B.U.A.V., wrote :

All this red tape and wiggglomeration (sic) is typical government routine, and, at best, all it can do is to provide for the welfare of experimental animals prior to actual operations. This of course is the general trend of the whole report and what renders it practically useless as a thesis against vivisection. (sic) Which places it in the category of all such reports. That is to say, lead the public up the garden path but on no account upset those who are behind the system which is the target for exposure.²⁴

The extent to which the Report took pains to stress, ad nauseum, the good faith and conscientiousness of the Home Office, the inspectors and the licencees may to some extent justify the cynicism of the last sentence. The abolitionist viewpoint is ~~not~~ relevant to the present discussion of reform; however, the contention that severe suffering is not prevented by the Act as presently applied is central to the issue, and will be taken up in chapter IV.

22. For a discussion of the aims and constitution of U.F.A.W. see chapter IV, 211-212, and for discussion of the "pain condition", Section 3

23. Neville Bassous, Viewpoint on the Littlewood Report, N.A.V.S., 1965.

24. Heriot, op. cit. 187.

The practice of animal experimentation would not be radically altered by the implementation of all the Littlewood recommendations. Indeed, many of its recommendations merely gave statutory force to what was already the administrative practice of the Home Office. They were not intended to modify the established practice in a fundamental way, but rather to greatly simplify the provisions of the Act and to make it more comprehensive. The Committee did not deal in detail with the promotion of alternatives, which was considered to be rather outside its terms of reference. It was of the opinion that they were already developed wherever feasible but that they were of a limited scope which was not likely to increase much in the future.²⁵ It left unanswered three major questions which it regarded as relevant, but outside its terms of reference, namely :

1. who can say whether, if certain biological tests were forbidden, satisfactory chemical or other methods of testing would not be developed ?
2. who is responsible for establishing whether modern medical techniques with their emphasis on immunology and drug therapy, both of which are inseparable from animal experimentation, are developing medical practice in the right direction ?
3. who is to take responsibility for moral or ethical judgement in the use of animals for experimental purposes as such ? ²⁶

In a reservation memorandum, Mrs. Joyce Butler made the following comment :

I have signed this Report, accepting - with my colleagues - that any attempt to answer the three major questions of which mention is made in paragraph 237 lies outside our terms of reference. I am convinced, however, that unless or until answers are found to these questions there will remain room for doubt about the need and justification for the use of animals for laboratory purposes. ²⁷

25. This view may be contrasted to those discussed elsewhere in this thesis, particularly chapter VII.
26. Littlewood, para. 237
27. Joyce Butler, 19 Feb. 1965, Littlewood, p.210.

In view of these major omissions the contemporary reform movement now looks upon the Littlewood Report as somewhat inadequate and, to an extent, out of date. Neither did the Research Defence Society find it entirely satisfactory. It took the view that many of the recommendations, if implemented, would be unacceptably restrictive to research and unnecessarily burdensome to the administrative machinery. It concluded :

These recommendations, if accepted in their entirety, would give rise to a welter of unnecessary paperwork which would inevitably create frustration among research workers and friction between them and the inspectors responsible for ensuring that the regulations were carried out. Their enactment would raise in the mind of the general public the suspicion that all had not been well, and would bolster up the cause of the antivivisectionist. 28

Despite its limitations the Littlewood Report was not totally dismissed as valueless. It was generally accepted that the Committee had worked hard and diligently, reviewed a great deal of evidence²⁹ and made its recommendations conscientiously within its limited terms of reference.

Both the Home Office and the R.D.S. welcomed the Committee's main findings that the Act had been generally effective and that unnecessary suffering, wastage of animals and duplication of projects had not been unduly high, and they seemed to interpret this, in contradiction to what might be generally inferred by the tone of the Report itself, as indicating that the need for reform was not pressing. By contrast, the more moderate of the reformists, having analysed the many detailed recommendations of Littlewood, saw the Report as a foundation on which they could at least begin to build a more tightly and efficiently controlled system involving new legislation.

28. Conquest, The Journal of the Research Defence Society, No. 160 (1969), 6-23.

29. Evidence was taken from scientific and professional sources, animal welfare organisations, public opinion and the churches, Littlewood, paras. 190-271.

The Report itself was certainly not entirely complacent. Despite its main finding that the Act had on the whole worked well, it saw fit to make 83 recommendations, 49 of which required new legislation, and it stressed that reinforcement of the inspectorate and reconstitution of the Advisory Committee should take place without delay.³⁰ The Committee saw these two changes as essential prerequisites to the introduction of a new system of control with an emphasis on increased technical guidance and supervision. Furthermore, it reasoned that a strong inspectorate and an expert Committee would play a major part in smoothing the way for its proposed reforms.

There is some justification for the antivivisectionists' contention that the main function of the Littlewood Committee was to placate public opinion. Indeed, the setting up of a governmental enquiry in the face of a wave of public agitation is not an uncommon tactic. The Report itself can often be quietly shelved after the furore has died down. Certainly in the case of the Littlewood Committee, there were fewer searching questions in Parliament while the Committee was sitting, and those which were asked were evaded on the grounds that the government was awaiting Littlewood's Report.

Once the Report was published in 1965 M.P.s began to ask what action the government intended to take to implement the findings of the Committee and a number of members were continually pressing for a full debate on the Report. Prominent among them were F.A. Burden and Ronald Russell,³¹ who tabled questions on behalf of the R.S.P.C.A. throughout the late 1960s. In reply the government announced that it had invited the views of a number of interested bodies on the Littlewood recommendations and

30. Littlewood, Summary of Recommendations (83), para.533.

31. Russell piloted through the Pet Animals Bill which became the Pet Animals Act (1951), 14 and 15 Geo. VI c. 35.

that it was, in the meantime, considering an enlargement of the responsibilities of the Advisory Committee and a strengthening of the inspectorate, two measures for which no new legislation would be required.³² As we have already seen, the Littlewood Committee envisaged the implementation of these two measures as essential prerequisites to legislation and urged that they be attended to without delay. Yet almost one year later it became apparent that schemes for implementing these two proposals were also being discussed by the interested bodies whose views had been invited.³³ The failure of the government to afford the matter its immediate consideration would seem to support the antivivisectionist contention that the entire Committee had been called merely as a public relations exercise.

In 1967 Roy Jenkins, then Home Secretary, gave a firm undertaking that the government intended to introduce new legislation,³⁴ but this has never been forthcoming. It was probably disillusionment brought about by this bureaucratic inertia which led to a spate of private members bills which began in 1968 and still continues.³⁵ In the total absence of government initiative there seemed to be no other course of action open to reformers. As T.L. Ireminger explained when he brought forward his bill to implement the findings of Littlewood :

It is a bill which is based on the responsible recommendations of a committee established by Government and it is universally wanted by the public. 36

This bill did not receive a second reading. However, the long delay in dealing with the Littlewood Report was not entirely due to government

32. 8 Jul. 1965, see H.C. Deb. [715] , c.291.

33. 28 Apr. 1966, H.C. Deb. [727] ,c. 920

34. H.C. Deb. [779] , c.144-145.

35. These bills are not discussed here in any detail. All were abortive and the arguments put forward in the debates tended to be repetitive. A summary of the bills is given in table III.

36. H.C. Deb. [779] , c.1174.

disinterest. The interested bodies which had been consulted were extremely tardy in presenting their views, these were requested in 1965 but not all were received until 1967. One of the major hindrances to the presentation of a government bill was certainly lack of parliamentary time. The government was faced with the complex problem of producing measures which would be both comprehensive and enduring. This could not have been effected speedily. Meanwhile the Home Office was giving its consideration to increases in the force of the inspectorate and to changes in the Advisory Committee, neither of which would require new legislation. By 1970 the Inspectorate had been increased to twelve. The Home Office did not issue a code of practice as suggested by Littlewood,³⁷ but Ministers in Parliament made it clear that guidance notes for applicants and licencees, available from the R.D.S. and the Home Office, largely fulfilled this function.³⁸ Throughout this period pressure had been kept up in Parliament for a full debate on the Littlewood Report and in June 1971, shortly after the return of a new Conservative government, a government motion was put down that the House should take notice of the Report. This short debate³⁹ was far from satisfactory to the reformers and it seems to have been instigated only with the intention of tempering the constant agitation. It was made immediately clear that the government had not yet finalised its attitude regarding new legislation. Neither had it taken any steps towards a reconstitution of the Advisory Committee regarded as so urgent by

37. Littlewood, paras. 349-352.

38. H.O. Guidance Notes on the law and its administration were available from 1963 but were not extensive. More extensive notes were drawn up several years later. The inspectorate gave permission to the R.D.S. to make complete sets of its notes on common points of practice available to licencees in 1972. It should perhaps be pointed out that the Code of Practice recommended by Littlewood was to have related to a new system of legislation, not to the 1876 Act. (I am indebted to the Home Office Inspectorate for this information).

39. 11 Jun. 1971, H.C. Deb. [818], c. 1395-1476.

Littlewood six years previously. Since the government minister had nothing new to say and no firm commitments to offer it seemed to be of little consequence that it had chosen, as Douglas Houghton put it, the slackest day of a very slack week (which should have originally been part of the Whitsun Recess) to hold the long-awaited debate. The sentiments expressed by the minister on this occasion, that the Act was working well and that the implementation of the Littlewood recommendations was not regarded as urgent, did not change materially during the next two years, and so it was with some justification that Lord Willis, in the introduction to his Cruel Experiments Bill 1973, asked :

Do the minister and the government really believe, in the face of all the evidence, that no cruel experiments ever take place ? If that is the case, why has this issue been raised a dozen times in the last 10 years in the other place and here and elsewhere; and why is the stonewalling going on ? Does he support painful experiments of animals which have no other purpose than to devise a new beauty treatment ? Does he really believe that an Act drafted a 100 years ago - and even then claimed to be inadequate - can cope with experiments on millions of animals in hundreds of laboratories ? Does he think that 14 people can ensure that the rules about anaesthetics are complied with ? Does he believe that there is no scope for improvement and that everybody who has spoken in this House and in the other place on this issue over the last ten years is blind, or wrong, or simply out of his mind ? Why do successive governments continually stonewall on this issue and refuse to admit that anything is wrong, and contest in face of formidable evidence, that the present Act is working well ?

40

These questions have yet to be satisfactorily answered and the platitudes continually uttered by the Home Office and the R.D.S. in defence of the present system will do nothing to allay the concern. Lord Willis complained that he could not even be assured of their good will so long as the government maintained its stonewalling attitude and the scientists themselves failed to bring forward practical proposals for reduction of animal suffering; surely they had some obligation to suggest means of amending the outdated law? He concluded by appealing that the government should sometimes listen to the voice of the amateur, citing the case

decimalisation which, he said, many people would agree had been a disastrous event, as many amateurs had prophesied.

In 1975 concern deepened against the background of the public outcry over the "smoking beagles" at the Imperial Chemical Industry's research laboratories in Cheshire.⁴² Public pressure and questions in the House finally led the Home Secretary to consult the much under-used Advisory Committee concerning this matter, and to make a statement of its general findings. This incident served to draw attention to the fact that animals were being made to suffer in experiments which could not be classed as strictly medical, a point which had been continually emphasised by Richard Ryder since the publication of his book, Victims of Science in 1975. Against a background of protests to the effect that the 1876 Act exerted no control over experiments of a non-medical nature, the British Union for the Abolition of Vivisection launched its own campaign to "Scrap the Act" in 1976. In the same year the National Petition for the

41. No doubt this criticism was directed at Lord Halsbury whose speech in opposition to the Willis Bill had been somewhat vituperative. Halsbury had sat on the first Decimal Currency Board and later chaired the Decimalisation Committee.

42. See also chapter VI, 384-386.

43. Richard D. Ryder is a clinical psychologist who has devoted most of his energies to the reformist movement for many years and is one of its key figures. He has kept himself aloof from the A V societies, feeling that he would be more effective outside of these, but is a Council Member of the R.S.P.C.A. and was its chairman in 1977. His work is discussed in some detail later in this chapter and in chapter VI. See also the leaflets produced for the S.S.P.V., Scientific Cruelty for Commercial Profit (1976) and A Scientist Speaks on the Extensive Use of Animals in Non-Medical Research (1975) and his articles, Animal Experiments : Realism Must Replace Red Tape, The Times, 14 Aug. 1975, and Animal Experimentation, Time to Unlock the Laboratories, Spectator, 235 (1975), 565-566. See also Victims of Science (London, 1975).

44. For details of this campaign see Animal Welfare, the bi-monthly magazine of the B.U.A.V., Mar. 1976 and the response of the R.D.S. in its Press Release, 12 Apr. 1976.

Protection of Animals was presented by Berkshire Councillor Bill Brown , calling for:

1. A minimisation of suffering in all experiments
2. Encouragement for the development of alternatives
3. Prohibition of the use of animals in experiments for non-medical purposes
4. Establishment of greater control over tests whose chief motivation is commercial gain
5. Removal of secrecy surrounding most research establishments
6. Prohibition of the use of animals not specifically bred for experimental purposes
7. A widening of the scope of legislation to bring under control all scientific procedures involving the use of animals
8. Prohibition of export of experimental animals to countries with systems of control less strict than in Great Britain

This petition is rather lengthy and complex and not all of its proposals are practicable. However, pilot surveys have indicated that 80% of the population is willing to sign it. This means that if every door in the country were to be reached, 40 million signatures could be obtained. By September 1977, 280,000 persons had signed, and the target is now set for 5 million by the end of 1978. To obtain so many signatures will require a great deal of work by many volunteers and even if it is achieved it is difficult to predict what effect the petition might have. No doubt considerable weight will be added by the support of the R.S.P.C.A. which has recently been pledged to the petition.⁴⁶ Its chief value would probably be that it would represent a very strong statement of public support for reform, thus adding weight to the pressure currently being brought to bear in Parliament and upon the Home Office. It is clear that if insufficient action is taken to allay this growing concern the reform movement will become stronger and possibly more extreme.

45. Founder Bill Brown of Berkshire County Council and Bracknell District Council. Technical Consultant, Richard D. Ryder; Patron, Lord Houghton of Sowerby, C.H.; Patroness, Lady Hyacinth Gough.

46. This was brought about by the efforts of Richard D. Ryder. (Personal communication). It is supported by the reformist movement as a whole, though the abolition societies have been unable to support it officially

TABLE III BILLS PRESENTED TO PARLIAMENT TO AMEND THE LAW RELATING TO CRUELTY TO ANIMALS

SESSION	SHORT TITLE OF BILL	OBJECTIVE	PROGRESS (1967-1977)
1967/68 Bill No. 70	<u>Cruelty to Animals Act 1876 (Amendment) Bill.</u> (Richard Body) a Vice- President of the N.A.V.S.S.	To end the power of the Secretary of State to authorise dispensation of anaesthesia in painful experi- ments	First Reading 20 Jan. 1968 H.C. Deb. [757]c.1093-1094 dropped
1968/69 (not printed)	<u>Cruelty to Animals Act 1876 (Amendment) Bill.</u> (T.L. Iremonger)	To implement those recommendations of the <u>Littlewood Report</u> which required legislation.	First reading 11 Mar. 1969 H.C. Deb. [779]c.1172-1175 dropped
1970/71 Bill No. 59	<u>Cruelty to Animals Act 1876 (Amendment) Bill</u> (Richard Body)	To prohibit authority to use animals in research where the object could be attained by non-sentient "alternatives".	First reading 30 Nov. 1970 H.C. Deb. [807]c.913. Second reading 23 April 1971 H.C. Deb. [815]c.1596 Standing Committee 16 June 1971, Official Report Standing Committee C 1970/71. Opposed by Government and Scientific Lobby, talked out.
1972/73 Bill No. 31	<u>Cruelty to Animals Act.</u> <u>1876 (Amendment) Bill</u> Douglas Houghton	Alternatives. Identical to Body's Bill of 1970	First reading 29 Nov. 1972 H.C. Deb. [847]c.429 Second reading 11 May 1973 H.C. Deb. [856]c.884-942 Standing Committee, 23 May 1973, Official Report Standing Committee C 1972/73 Opposed by Government and Scientific Lobby, talked out.
1973/74 Bill No.6	<u>Cruel Experiments Bill</u> <u>Lord Willis (on behalf</u> <u>of The Movement Against</u> <u>Cruel Experiments,</u> M.A.C.E., founded 1971)	To provide an entirely new Act designed to set down ethical guidelines.	First Reading 1 Nov..973 H.L. Deb. [346], c.147 Second reading 10 Dec.1973 H.L. Deb. [347]c.965-1028 This utterly unworkable Bill was vigorously opposed by Lord Halsbury at its second reading and finally withdrawn.

TABLE III (contd.)

SESSION	SHORT TITLE OF BILL	OBJECTIVE	PROGRESS
1975/76 Bill No. 78	A Bill to Restrict Certain Experiments on Animals (Baroness Phillips, N.A.V.S.)	To prohibit the use of animals in cosmetics testing.	First Reading 12 Feb. 1975 H.L. Deb [356] c. 1336 Second Reading 27 June 1975 H.L. Deb. [361] c. 1714-1765 Opposed by Government and Scientific Lobby Submitted to a Committee of the whole House but made no further progress
1975/76 Bill No. 108	<u>Cruelty to Animals Act-1876 (Amendment) Bill</u> Ivor Stanbrook	Alternatives, the same Bill as previously introduced by Body in 1970 and Houghton in 1972	First reading 6 Feb. 1976 H.C. Deb. [904], c. 1680. Continually objected to by Government whips and died.
1976/77 Bill No. 12	A Bill to Restrict Certain Experiments on Animals (Baroness Phillips)	As her previous bill	First reading 2 Dec. 1976 H.L. Deb [378], c. 422 Second reading 22 Feb. 1977 H.L. Deb [380], c. 13-83. Opposed by Government and scientific lobby. No longer supported by Lord Houghton who now hoped for administrative reforms which would be more comprehensive. Motion by Lord Halsbury to postpone the Bill for 6 months carried.

Already against the background of frustrated reform attempts previously discussed, a new and unsavoury element has appeared. In 1974 an organisation calling itself the Band of Mercy began to engage in acts of vandalism.⁴⁷ Its activities included attempts to set fire to research establishments and the burning, immobilisation and defacing of vans belonging to laboratory animal breeders. Slogans such as "Down with Speciesism"⁴⁸ and "End Animal Slavery" were daubed onto vehicles and buildings. The organisation subsequently became known as the Animal Liberation Front. In March 1975, the chief instigators, Ronald Lee and Clifford Goodman were sentenced to three years imprisonment for acts of arson and other damage to property. They were released in March 1976.⁴⁹ The damage done to property owned by Oxford Laboratory Animal Colonies, Britain's largest commercial breeding establishment, was estimated at £57,000. The A.L.F. also claimed responsibility for the burglary of the R.D.S. offices in November 1976, when various membership records and files (some of which may have provided information for future targets) were stolen.⁵⁰

These deplorable activities can only be detrimental to the credibility of the reformist movement in the long term, though it must be acknowledged that they have played a significant part in drawing the attention of the public to the whole question of animal experimentation, which has in turn exerted pressure upon the Home Office. Nonetheless, this sort of publicity must be damaging to the profitable relations between the scientific

47. This organisation grew out of the radical activist group "Hunt Saboteurs", See Peace News, 20 Sep. 1974.

48. The terms "speciesism" was first coined by Ryder circa 1970. For a definition of its meaning and discussion see the concluding chapter of this thesis.

49. Ronald Lee has subsequently been sentenced to three terms of six months imprisonment, two to run consecutively and one concurrently, for "liberating" mice from a small breeding establishment owned by F.H. Evans. In court Lee claimed that the mice were in a filthy condition. See Animal Welfare, Dec. 1977.

50. For details of these various crimes see Guardian, 25 Mar. 1975, Sun, 25 and 29 Mar. 1975, Sunday Times, 5 Dec. 1976 and Southend Evening Echo, 9 Aug. 1977.

community and the antivivisectionists which, as will be seen in chapter VI, are now being tentatively secured.

The R.D.S. has strongly condemned the A.L.F., which it sees simply as an extremist wing of the antivivisection movement, and it has called for a forceful condemnation of it by the A V societies.⁵¹ Such condemnation has in fact been forthcoming. An editorial in Animals' Defender the bi-monthly magazine of the N.A.V.S., referred to the activities as the "irresponsible and unlawful actions of a small number of misguided people",⁵² and aptly pointed out that the methods of the A.L.F., which involve the employment of unjustifiable means to attain the desired ends, is precisely the type of faulty ethics which the entire antivivisection movement is supposed to stand against.

Despite the fact that the case for a system of new legislation is exceedingly strong, the numerous difficulties facing the Home Office are very real. The Littlewood Committee specifically recommended against piecemeal changes in the law and the introduction of new statutory provisions which would only complicate the system further and lead to confusion among licencees and the public. Many critics have complained that the proposals made by Littlewood are too complicated. As Richard Ryder has put it :

The Report aims at converting a complex and vaguely defined law into an even more complex one. What is needed is a swinging reform introducing meticulously defined legislation that produces real protection for the animals used by scientists while at the same time, simplifying the situation from the point of view of the

51. Conquest, No. 168 (1977), 19.

52. Animals' Defender, Jan./Feb. 1977.

experimenter.⁵³

However, the government has already indicated that the extensive Parliamentary time needed to bring in comprehensive legislation is not likely to be available in the foreseeable future.

Any new legislation to be generally satisfactory would have to take account of an extremely diverse range of often conflicting interests. In order to satisfy the reform movement it would have to be capable of reducing the numbers of animal experiments, and exerting greater control over commercial non-medical experiments and experiments productive of animal suffering. It would have to take some account of the three unanswered questions raised in paragraph 237 of the Littlewood Report.⁵⁴ Speaking in the debate on this Report in the Commons, Mark Carlisle for the government said that the prospect of answering such problems by new legislation was bleak.⁵⁵ A Senior Home Office official has described the problems facing the present administration as "fighting a battle in the wrong direction on our knees!"⁵⁶

On the other hand, the Home Office is pressed by the R.D.S., which fears more repressive legislation, and which feels, like the government, that previous private members' bills have been ill-founded and unworkable. The Royal College of Surgeons has stated "It is significant that at least five abortive attempts to introduce new legislation have been unsuccessful. Only by full consultation with all interested parties, medical, veterinary, animal welfare and research organisations, and informed criticism can there

53. Richard D. Ryder, Animals, Men and Morals (London, 1971), 72-73.

54. See p.135 of this chapter.

55. H.C. Deb. [818], c.1408.

56. Personal communication with a Senior Home Office official.

be any hope of an acceptable new bill, preferably based on the report of the Littlewood Committee".⁵⁷ To add further weight to the problem, any new British legislation will have to be in line with the many current and proposed European Economic Community directives which will complicate British legislation considerably.

The difficulties were illustrated by Council of Europe Recommendation 621, which sought in 1971 to convene a committee of experts charged with setting up a commission, which would eventually draft international legislation to control animal experimentation. The recommendation, which stemmed from a resolution tabled in 1969, proposed the setting up of an international research institute to look into "alternatives" and an associated documentation centre. The recommendation was strongly supported by F.R.A.M.E. Much of the opposition to the original resolution came from U.K. government representatives. Notwithstanding this the resolution was passed, but little action has been taken regarding the final recommendation, largely due to opposition from various scientific bodies. At the 1976 U.F.A.W. symposium John Bleby, of the M.R.C. Laboratory Animals Centre, described 621 as an example of well-intentioned reform which would be unworkable. He stated that it was largely the result of

57. Policy Statement of the R.C.S. given at the U.F.A.W. Symposium, The Welfare of Laboratory Animals, Legal, Scientific and Humane Requirements. Sep.- Oct. 1976. See Symposium Report, (U.F.A.W., 1977), 103-104. This symposium will be referred to extensively in chapter IV and is hereafter cited as the 1976 U.F.A.W. Symposium (U.F.A.W. Symposium Report 1977). For example, the Union of Swiss Societies for Experimental Biology opposed further action upon 621. The World Medical Association passed a counter-resolution (proposed by the U.S.A. in Sep. 1971).

the hard work of bodies such as I.C.L.A.⁵⁸ that the possible detrimental effects of the recommendation were demonstrated to Council ministers.

The R.D.S. deplored the antivivisectionist flavour of 621 and was of the opinion that the legislation envisaged by it would be severely restrictive both to research and teaching. It also saw any removal of ultimate responsibility for experimental animals from the experimenter himself as a vote of no confidence in the scientific communities.⁵⁹

However, the document may well have influenced the new German legislation (1972) which provides a workable basis for subsequent legislation throughout Europe. It must be pointed out that other European countries have already taken the lead over Britain by passing laws which give clear stipulations as to specified methods of anaesthesia, analgesia, and euthanasia, and which positively encourage the development of alternatives.

The West German Animal Welfare Act (24 July 1972) allows authorisation of painful experiments upon vertebrates only if the applicant can prove inter alia that the projected results could not be achieved by any other means. However, this is essentially an administrative feature which is not rigidly enforced. The Danish Law (1953) was amended in May 1977 and makes provision for enforcing the use of analgesics. It also stipulates that animal experiments may not be carried out where the purpose may be achieved by use of non-sentient material. This is ensured by employment of a scientific/ethical advisory machinery which includes both scientists and representatives of the Danish Society for

58. I.C.L.A. is the International Committee on Laboratory Animals. It was founded in the 1950s and, as one of its first tasks, commissioned a worldwide survey on the use of laboratory animals. Some countries provided more information than others, but the West German submission was particularly interesting. The big pharmaceutical companies refused to say what, or how many, animals they were using because they feared this might give their competitors insights into secret research and because it would give the animal welfare organisations sensitive information. I.C.L.A. is now based in Norway (Dr. Stian Erichsen is the General Secretary) and is well established with support from the Council of International Organisations for Medical Science and other international bodies. I am indebted to Dr. Andrew Rowan of F.R.A.M.E. for this information.

59. R.D.S. Press Release, Nov. 1971.

Prevention of Cruelty to Animals, under a chairman who is a lawyer.⁶⁰

The Netherlands Parliament has recently passed a bill, 1 June 1976, which prohibits the use of animals where "alternatives" are available to provide the same answer.⁶¹ It is clear that if other countries find such enactments to be workable then Britain might take its lead from them.

A final problem, perhaps sometimes overlooked by reformers, is that new legislation or even administrative reforms would be expensive,⁶² at a time when general cutbacks are being made in all areas. Richard Ryder has suggested that part of the cost could be met by the imposition of a fee for licences and for the registration of premises. Nevertheless, it is clear from the foregoing that the government is not yet in a position to introduce new legislation, nor is it likely to give support to any bill drafted on behalf of a private member.

The obstacles facing private members' bills are in any case formidable. Before they can be introduced they have to win a lottery at the beginning of the Parliamentary session. Only about twenty get drawn at all. Whether or not this process can be described as democratic is itself

60. I am indebted to Dr. Andrew Rowan of F.R.A.M.E. for much of this information.

61. This information was disclosed in discussion at the U.F.A.W. Symposium 1976.

62. The R.D.S. has suggested that the cost of implementing reforms recently put forward by the Houghton-Platt group (discussed in detail later in this chapter) would be approximately £100,000 per annum, working on a basis of seven additional inspectors, four new members on the Advisory Committee, a full time Secretariat for that Committee, professional advisers, and additional Home Office staff to deal with the enormously expanded Annual Returns. This estimation excludes the cost of a Central Information Bureau which has been proposed to co-ordinate research on alternatives. R.D.S. Press Release, Aug. 1976.

open to question. One very blunt comment on this process has been made by Cyril Smith, M.P. for Rochdale :

Up in the public galleries, the visitors from all corners of the world watch the ceremony with astonishment. Is this how the Mother of Parliaments governs the world's oldest democracy ?
By raffle ? 63

Even presuming that the member succeeds in the draw, the bill must then scramble for Parliamentary time, since only ten days are set aside to deal with such bills. These are almost invariably Fridays, the shortest business day when the House rises at 4.30 a.m. The order of presentation is determined by the draw. If the bill is objected to it will fail to get a second reading, a single objector can succeed in blocking the bill completely. If it attains a second reading it can be blocked during this crucial debate by a handful of members who are determined to talk it out. If this happens the bill will be relegated to the end of the queue of private members bills and is unlikely to make further progress. The R.D.S. has played a crucial role in the presentation of obstacles to private members bills. The Society receives early warning of proposed bills from its members in Parliament, both in the Commons and in the Lords. The course of action then taken may be illustrated from the example of the Cruelty to Animals (Amendment) Bill presented by Douglas Houghton in 1973. Letters were sent to research workers asking them how the proposed legislation would affect their own research. On the basis of the replies a letter, setting out a critique of the bill was sent to all R.D.S. members urging them to write to their M.P.s requesting that they oppose the bill. Letters were then sent out by the R.D.S. Council with supporting information documents to the Home Secretary, other relevant ministers and learned societies. Before the third reading, when, despite the government opposition, the bill had

63. From the autobiography, Big Cyril (London, 1977) quoted in the Observer, 25 Sep. 1977.

already passed through Committee unamended and there was little time for further discussion, a brief was sent out to all M.P.s setting out objections to the bill; (On other occasions such a brief has usually been sent just prior to the second reading). R.D.S. members are frequently responsible for talking out the bill at this stage.

In the face of such concerted opposition, it is almost inconceivable that any bill brought by a private member would ever become law. Furthermore, there seems little scope indeed within the existing Parliamentary system for changing the mind of the government once it has been made up. The vast majority of M.P.s are apathetic to the question of animal welfare and the time actually spent in the House by most M.P.s is exceedingly short. Adjournment debates are frequently attended by only two people, the backbencher who has won a ballot and the junior minister appointed to reply to him. Even large debates are frequently attended by not more than fifty people and the government view has in any case already been decided by the time of the debate.

A critique of the British parliamentary process itself is far beyond the scope of this thesis. It is sufficient to say that many of the people who have worked long and hard for law reform in many areas are becoming increasingly cynical about it. Lord Houghton for example, disillusioned by his fruitless struggles in Parliament is becoming more militant in his attitude.⁶⁴

64. See for example his speeches delivered at the R.S.P.C.A. Symposium on Animal Rights, Cambridge, Aug./Sep. 1977 (proceedings in press) and to the B.U.A.V. A.G.M. 1977, published in Animal Welfare, Dec. 1977. (These speeches might be compared to some of Houghton's early and more moderate parliamentary speeches).

It is precisely because of such difficulties that the reform movement has turned towards new tactics. After the historic events of 1975, when massive public support had been indicated by the case of the 'smoking beagles' the hard core of the reform movement had turned its attention to imposing pressure "behind the scenes" of Parliament, in other words, by direct representation to the Home Office. The ability to do this illustrates the strength which the movement had gained by this time. Leading figures in this movement were Lord Houghton,⁶⁵ Lord Platt,⁶⁶ and Richard Ryder,⁶⁷ - all members of the Animal Experiment Advisory Committee (A.E.A.C.) of the R.S.P.C.A.,⁶⁸ and Clive

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65. Douglas Houghton, C.H. of Sowerby. Created a life peer in 1974. Chairman of the Parliamentary Labour Party 1974. Houghton has played a central role in the reform movement. He is a member of the A.E.A.C. of the R.S.P.C.A. (see footnote 68), a vice-president of the N.A.V.S. and founder and Chairman of the Committee for Reform of Animal Experimentation (see footnote 97). In 1976 Houghton was Chairman of Animal Welfare Year (see chapter VI, 360-362).
66. Robert Platt, M.S.C., M.D., F.R.C.P., created a life peer in 1967. Professor of Medicine and a physician at the Royal Infirmary of Manchester from 1945-1965; President of the Royal College of Physicians (London) from 1953-1957 and a member of the Home Office Advisory Committee under the 1876 Act from 1961-1972. Lord Platt held a licence under the 1876 Act for many years and as a professor of medicine he was called upon to sign many certificates while as President of the Royal College of Surgeons he was called upon to countersign them. He has also been a member of the R.D.S. As an informed and influential figure he has been instrumental in obtaining support for the reform movement.
67. See footnote 43. Ryder devoted much of his time to writing letters to Whitehall in order to ascertain how much interest or support was likely to be obtained for administrative changes. At the U.F.A.W. Symposium, 1976 Dr. J.D. Rankin, the chief inspector, intimated somewhat humorously that the Home Office would have more time to implement changes if it spent less time dealing with letters from Ryder!
68. This committee was set up in 1972 and has compiled a dossier of experiments done under the Act in which it feels unjustifiable suffering has occurred. The file was produced by R.S.P.C.A. researchers Meredith Lancashire (working with Ryder in Oxford) and David Pennack, and has formed an important background to publicity campaigns and to questions put down in both Houses of Parliament. See Kit Pedler "Urgent Changes are Needed to Protect Animals - The Cruelty to Animals Act Should be Re-Written", Guardian Extra, 8 Oct. 1975. The composition of the Committee is as follows: Chairman, K. Pedler M.B., B.S., Ph.D., M.C.Path. Secretary, D.A. Paterson, M.A., F.R.S.H., M.I.Biol. Committee Members: Rt. Hon. Lord Houghton of Sowerby, C.H. C. Hunt, M.A., W.J. Jordan, M.V.S. Sc.B.Sc., M.R.C.V.S. R.D. Ryder, M.A., D.C.P., A.B.Ps.S., D. Sperlinger, Ph.D., B.A.D.C.P. Advisory Members: Prof. A.J. Ellison, D.Sc.(Eng.) C.Eng.F.I.Mech, E.F.I.E.E., Sir Frank Fraser Darling, D.Sc., Ph.D., L.L.D., F.R.S.E., L. Goldman, M.B., B.Ch., M.R.C.O.G., J. Harris, B.A., Conrad Latto, M.B., C.H.B., F.R.C.S., Lord Platt, M.Sc., M.D., F.R.C.P., A.W.S. Robinson, M.A. (Solr.), Eliot Slater, C.B.E., M.A., M.D., F.R.C.P., F.R.C.P. Psych.

Hollands,⁶⁹ Director of the Scottish Society for the Prevention of Vivisection (S.S.P.V.). This group, which was to become known as the Houghton-Platt Group, began regular meetings in the Lords to discuss tactics. Communications with the Home Office indicated that the department was willing to consider administrative changes which would go some way towards meeting the demands of the reform groups..

A short debate was initiated in the Lords by Lord Houghton in May, the purpose of which was to draw attention to abuses of the 1876 Act.⁷⁰ The arguments put forward on this occasion were backed with information taken from the R.S.P.C.A. files and centred largely upon the increase in the number of painful commercial experiments of a non-medical nature. Lord Houghton's speeches leave the reader in no doubt as to the degree of disillusionment he was labouring under by this time :

Both governments have left the legislative side of Littlewood severely alone. They have adopted an attitude of studied indifference. They have no proposals to make and nothing to add to what they already said. Letters appear to emanate from the most uninspired section of the Home Office. Some of us have tried in another place by private members' bills to make some impression upon the stubbornness of the Home Office. Our bills are talked out and the government willingly see them go, frustrate action by others and do nothing themselves. Research establishments go over to the defensive at the first word of critical enquiry. 71

69. Clive Hollands was also Director of Animal Welfare Year, 1976, which did a great deal to ensure greater unity of groups within the Animal Welfare Movement. (See chapter IV, 360-362). He has played a valuable role in the Houghton-Platt group, spending much of his time in London. He has greatly assisted Ryder in his campaign against 'non-medical' experiments. (Personal communications).

70. 14 May, 1975, H.L. Deb [360], c.718-735 and 746-775.

71 Ibid, c.727.

Supporting Houghton's call for government initiative, Lord Platt intimated that one reason why the government was reluctant to implement the findings of the Littlewood Committee might well be that it was frightened of any legislative reform. He stated that he knew for a fact that the R.D.S. was frightened of such moves, lest extremists should succeed in adding all sorts of restrictive measures at the committee stage. Here Lord Platt may well have hit upon the nub of the whole issue. The reply given for the government by Lord Harris of Greenwich was, on this occasion, encouraging. Though he stated that the government had no plans to reconstitute the Advisory Committee as was requested by reformers, he pointed out that prior to its consideration of the 'smoking beagles' experiments, four lay members had been appointed to the Committee, and the Home Office had decided to consult it more frequently concerning controversial experiments.⁷² He also stated that many of the Littlewood proposals regarding the inspectorate had now been implemented, the force now stood at fourteen and it was made up of equal numbers of medical men and veterinarians. The number of visits made by Inspectors was increasing each year and a review was in hand to relieve the inspectors of some of their administrative work so that they had more time for contact with licensees.⁷³ He added that the Home Secretary, Merlyn Rees, would be sympathetic toward suggestions for changes in the administration of the 1876 Act, and would be willing to discuss the question of stress and other, wider, matters. The Home Office was also intending to review the Annual Returns so that more specific information might be provided, but this would be a complex operation requiring a considerable investment of work, and would take some time.

72. For further discussion see chapter IV, Section 9.

73. For further discussion see chapter IV, Section 5.

The helpful tone of the speech was welcomed by Lord Houghton who was content to ask for no more at that time, though he was particularly concerned to see more information made available to the public at the earliest possible date. Houghton wanted to see less time wasted going over old ground as the government and the Home Office got involved in defensive exercises, and more useful information given to the public so that it might have a greater understanding of legitimate research and a proper knowledge of the system of control.⁷⁴

The indications given in this debate were perhaps the greatest encouragement reformers had yet received during the ten frustrated years since the Littlewood report. It was to become clear later that the reformist movement, now led by Lord Houghton, was to take heed of the government attitude and to direct its campaign towards administrative changes rather than attempting new legislation. During the second reading of Baroness Philips' bill to prohibit the use of animals in cosmetics tests, more hopeful intimations came from the government, as a result of which the reform movement outside Parliament stepped up its activities.

A document was drawn up which has become widely known as the Houghton-Platt memorandum.⁷⁵ It is significant that this paper was drawn up and presented in 1976, which was Animal Welfare Year, marking the centenary of the Cruelty to Animals Act. The group which participated in the memorandum largely came together under the auspices of the R.S.P.C.A. A.E.A.C. working in conjunction with the Animal Welfare

74. See chapter IV, Section 10.

75. The full title of the document is Experiments on Living Animals - Cruelty to Animals Act 1876, May 1976. Hereafter cited as the Houghton-Platt Memorandum.

Parliamentary Group from the House of Commons.⁷⁶ Those chiefly responsible for the drafting of the reforms were Lord Houghton, who developed the document as a whole, Richard Ryder and Clive Hollands, who drew up details of reform proposals, and Lord Platt, who contributed the section on licencing. The Memorandum was presented by the group at an informal meeting with the Home Secretary in May 1976, at which he undertook to give detailed consideration to the various proposed reforms, but the group felt that they had received a somewhat lukewarm reception. Lord Houghton contacted the Home Secretary, Roy Jenkins, on several subsequent occasions. On 4 August 1976, the group met Dr. Shirley Summerskill in Whitehall in order to discuss the Memorandum but were unimpressed by any real desire for change on the part of the Home Office.⁷⁷

76. Signatories to the memorandum were :

Lord Houghton
 Lord Platt
 F.A. Burden, M.P., member of the R.S.P.C.A.,
 Council, Chairman of the Parliamentary Animal Welfare Group.
 K. Lomas, M.P., member of the Parliamentary Animal Welfare
 Group, a vice-President of the N.A.V.S.
 Janet Fookes, M.P. Honorary Secretary of the
 Parliamentary Animal Welfare Group.
 K. Pedler
 Clive Hollands
 Richard D. Ryder
 W.J. Jordan, M.V.S., M.R.C.V.S., Deputy Chief Veterinary
 Officer of the R.S.P.C.A.

77. Those present were :

Lord Platt)
 Lord Houghton) All-Party Parliamentary Animal Welfare Group
 J. Burden)
 J. Fookes)

Dr. K. Pedler)
 Richard D. Ryder) R.S.P.C.A.
 W. Jordan)
 Clive Hollands - S.S.P.V.

Sidney Hicks, Vice-President of the B.U.A.V.
 Jon Evans, Vice-President and Parliamentary Information Officer
 of the N.A.V.S.
 Andrew Robinson (solicitor), Abingdon.

However there were some hopeful indications. It was extremely significant that the Chief Inspector, Dr. J.D. Rankin, and a number of high ranking civil servants responsible for the administration of the 1876 Act were present at the U.F.A.W. symposium held in September-October 1976. During the discussions held at this symposium, G.I. DeDeney, one of the chief civil servants responsible for administration of the Act in the Home Office, stated that he felt that too much lip service had been paid to the need for change at the symposium while too few specific suggestions had been made for moderate and practical reform. He agreed with many of the speakers at the symposium that it was now time to lift the veil of secrecy surrounding animal experimentation and he stated that the Home Office would welcome more specific recommendations from interested parties concerning all aspects of animal welfare, including the maintenance of stock and the breeding of laboratory animals.

The proposals put forward in the Houghton-Platt Memorandum did not, at first, receive general approval. They did, of course, have the backing of the S.S.P.C. and, being partly drawn up by Clive Hollands, echoed some proposals already put forward by that Society. The B.U.A.V. made no detailed commentary since at that time the society was vigorously conducting its "Scrap the Act" campaign. The proposals certainly did not go far enough for the N.A.V.S. In December 1975, it had drawn up an eight-point plan of stringent reform proposals which would probably have required legislation to put them into operation. They included proposals

which the government on previous occasions had already declined to support.⁷⁸ On 28 July 1976 Colin Smith, the General Secretary of the N.A.V.S., wrote to the Home Secretary (Roy Jenkins) requesting a meeting at which these proposals could be discussed. He received a reply from Dr. Summerskill on 20 August indicating that in view of its recent meeting with the Houghton Group (4 August), the Home Office saw little point in duplicating the work and invited the Society to add its further proposals to those already contained in the Houghton-Platt Memorandum by submitting them to the Home Office. In a further letter to Whitehall, Colin Smith stated :

I would respectfully point out that the group under the chairmanship of Lord Houghton did not represent our Society nor did the paper submitted by them reflect to any great extent the deep concern at the continued use of animals for experimental purposes, whatever the purpose, felt by that large section of the public represented by our organisation.

79

78. These were :

1. The appointment of a full scale government inquiry to consider both the moral and scientific justification for the continued use of animals for research purposes.
2. An immediate ban on all experiments on live animals which cannot be shown to have an obvious relevance to the treatment or prevention of disease.
3. An immediate ban on the duplication or repetition of experimental procedures.
4. An immediate ban on those (irrespective of the purpose of the procedure) where obvious or prolonged suffering is likely to ensue.
5. An immediate ban on the use of animals where alternative techniques exist.
6. A re-wording of the "Pain Clauses" currently attached to all licences under the 1876 Act, so as to afford real protection to laboratory animals.
7. The Advisory Committee set up under the terms of the 1876 Act to be given added responsibilities to include : (a) the task of having constantly under review the whole administration of the Cruelty to Animals Act and the adoption of non-animal techniques; (b) the responsibility of seeking a continuing decrease in the number of animals used.
8. The establishment of a Research Institute specifically for the study and development of techniques which can be used to replace the use of animals in medical and scientific research pending a complete reappraisal of the entire legislative control of animal experimentation.

79. This letter and Summerskill's reply of 2 Sep. 1976 are printed in *Animals' Defender*, Nov./Dec. 1976, 98-99

He added that the Houghton proposals were not nearly so fundamental and far reaching as those put forward by the N.A.V.S. and which had been forwarded to the Home Office. On 6 October 1976 Dr. Summerskill replied that the N.A.V.S. ought to know already that there was no prospect of yet another Royal Commission being set up and that the establishment of a Humane Research Institute was a matter for the D.E.S., on which subject it had already expressed its firm opinion.

Other critics of the Memorandum felt that it went much too far. A press release issued on 14 August 1976 by the R.D.S. under the name of its chairman, Professor William Paton, entitled "Consistent Denigration of Research Workers in New 'Animals' Memorandum," stated that although the R.D.S. would welcome some of the proposals in the document it "deplored its general approach with its consistent denigration of the medical and veterinary research worker". The R.D.S. felt that the insinuations that the system was out of control and shrouded in secrecy were unfounded, and that allegations that many experiments were non-medical and commercially motivated were inaccurate. Not enough had been said of the benefits of animal experimentation.

This attitude was described by Bernard Dixon in New Scientist as "bitterly disappointing". Dixon praised the moderate and constructive approach of the Houghton group and suggested that the R.D.S. should think again.⁸⁰ In a further press release of 25 October 1976, Professor Paton repeated the statement that the R.D.S. would be prepared to support many of the concluding proposals of the Memorandum (notwithstanding its dismissal of the "unfounded assertions" in the preamble which the Society did not associate with Lord Houghton personally). It was stated that in particular the R.D.S. supported the need for more information and, if thought necessary by the government, some enlargement of the Advisory Committee and the Inspectorate. A cautionary note was added :
 80. "Comment", New Scientist, 71 (1976), 370.

Professor Paton said that the R.D.S. would be willing to discuss the Houghton memorandum with the government at any time. Some of the proposals are unrealistic and it is essential that the views of all parties concerned should be considered before any changes in the law are contemplated. 81

The Home Office is unlikely to consider any changes in legislation which do not have the support of this powerful Society. However, the over-riding fear of restriction of legitimate research seems continually to preclude the Society from giving its support. During discussion at the 1976 U.F.A.W. Symposium, Andrew Robinson, a solicitor and member of C.R.A.E., asked Professor Barcroft of the R.D.S. what amendments to the law the R.D.S. would actively advocate ? The reply was non-committal :

The Research Defence Society at present has no plan for altering the 1876 Act. That is a fact, but it is not to say that the Society does not think that there are some things in the Act which could be improved. Consideration of these is a detailed and technical matter. We realise that we are an interested body in this respect. I should like to make it absolutely clear that we are not a body whose function is simply to obstruct any changes in the Act, but at present have no paper which we can put forward suggesting specific changes. 82

With regard to this attitude Lord Houghton has asked of this Society :

The R.D.S. is the name, but against whom are they defending research - the public whose interest they are supposed to be serving ? 83.

To this Lord Halsbury replied that it defended research against the likes of the A.L.F., but Houghton reminded him that the R.D.S. was originally set up because it feared adverse public opinion. He suggested that instead of being so heavily defensive this society should itself suggest the direction of reform. After all, it knew what was happening in the experimental world.

81. W. Paton, "Call to Defuse the Antivivisection Argument", R.D.S. Press Release 25 Oct. 1976.

82. See U.F.A.W. Symposium Report 1977, 112.

83. 22 Feb. 1977. H.L. Deb. [380], c.63

More derogatory, and certainly more disconcerting than the initial R.D.S. reaction to the Houghton-Platt paper, was the comment of an ex-Chief Inspector under the Act, Colonel R.S. Vine⁸⁴ who was disparaging of the composition of the Houghton-Platt group, which he considered unqualified to express an opinion, notwithstanding the qualifications and experience of Lord Platt and the fact that Richard Ryder had personal experience both of British and foreign experiments, that W.J. Jordan is a veterinary surgeon and that Dr. Kit Pedler is a distinguished ophthalmologist who has himself carried out severe experiments upon animals.⁸⁵ Yet since none of these persons is now a practising experimentalist, Vine regarded their opinions as having little import. Other statements by Vine, such as :

"Downright cruelty would be illegal under the Act"

"Animals are far too valuable and expensive to be wasted"

"No evidence has ever been adduced that the general public is the slightest bit interested in the subject."⁸⁶

betray such an overriding bias and blatant contradiction of the facts that it little wonder reformers have not been placated by constance assurances

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84. New Scientist, 71 (1976), 588. Colonel Vine, Chief Inspector from 1962-1975, was noted among reformists as somewhat of a reactionary. The article is certainly not to be commended for objectivity. It is also worthy of note that in conversation at the 1976 U.F.A.W. Symposium, an ex-chief inspector, while staunchly maintaining that no cruelty could ever be permitted under the Act, categorically denied any knowledge of the well known Draize Test for testing eye irritancy, (personal communication). Such an attitude would indeed seem to cast aspersions upon the quality of the inspectorate which Vine is at such great pains to defend. Vine is a Council member of the R.D.S.
85. See the letters replying to Vine's article by Clive Hollands in New Scientist, 71 (1976), 660. and by Lord Houghton in New Scientist, 71 (1976), 714.
86. The fatuous nature of these statements may be seen from the discussion of these points given in chapter IV below. The last of them has no substance whatever. Note the statements in the House as to the enormous volume of correspondence received by M.P.s on this issue. One government minister has stated that in 1975 (the year of the 'smoking beagles'), he received more letters on this than on the E.E.C. Richard Ryder received over 2,000 letters within a year of publication of Victims of Science; all except one were in support. Even before the outcry of the last few years, Lord Stoneham disclosed in a short debate in the Lords that each day he signed six to ten letters on the subject to M.P.s and their constant questions in the House often reflected disquiet in their constituencies.

that the 1876 Act works well because of the constant vigilance, integrity and knowledge of the Home Office inspectors.

The Houghton Group submitted more detailed proposals for a reformed Advisory Committee (the central core of the Houghton Memorandum) including some suggested names,⁸⁷ and on 15 February 1977 a meeting of the Parliamentary Group led by Lord Houghton and including representatives of the major antivivisectionist societies, took place with the Home Secretary Merlyn Rees. Rees has shown greater sympathy towards the reform movement than previous Home Secretaries and Dr. Shirley Summerskill is also sympathetic. Recently there have been changes in the civil servant personnel which have also been favourable to the reform group.⁸⁸ Just prior to the meeting the group had invited the N.A.V.S. and B.U.A.V. to join it, and notwithstanding their more stringent demands, these societies had taken the opportunity to express their views. The meeting, which was the first of its kind since the Second World War, prompted the following comment from the N.A.V.S. :

After a century of bitter and fruitless years in the struggle against vivisection have we the right to disregard what might be a hair-line crack in the impenetrable rock of bureaucracy. Unless dialogue exists between the establishment and movements working to end the misery and pain produced by animal research the outlook remains bleak.

89

The outcome of the meeting was certainly promising. While the Home Secretary made it clear that he was able to do no more than exercise his powers as constituted within the present system, and that it was not part of his duty to assess the value of "alternatives" or to promote them, he did, however, indicate that he was prepared to meet legitimate public

87. See chapter IV, Section 9.

88. Personal communication with Richard D. Ryder.

89. Editorial, Animals' Defender, Mar./Apr. 1977.

concern within the present legislative framework and shortly after the meeting he gave the following undertaking :

1. To consider the reconstitution and enlargement of the Advisory Committee and to accept the names of animal welfare representatives (to be submitted by the Houghton group) for consideration.
2. To submit specific problems to the Committee beginning with the LD₅₀⁹⁰ test as applied in all fields of research. The minister was prepared to accept advice from the Group on other areas of concern which should later be submitted.
3. A major revision of the Annual Return was already under way and the Return for 1977 (to be published in 1978) will give much more detailed information identifying specific areas of experimentation and the numbers of animals used in them.
4. The Home Office was to re-examine the form of licences and certificates issued under the 1876 Act.⁹¹

It is possible to isolate several factors which contributed to the change of official attitude between 1975 and 1976. The contemporary literature and tactics of the antivivisectionist movement is discussed more fully in chapter VI, but it is important to consider here the impact of these tactics upon the parliamentary campaign. Public opinion has played a crucial role in influencing the Home Secretary. Over the last few years the attention of the public has increasingly been drawn to the escalation in animal experimentation and particularly to that area of "non-medical"⁹² experiments, such as the testing of tobacco substitutes and cosmetics. Richard Ryder, and the S.S.P.V. through the efforts of Clive Hollands, have directed their efforts into keeping this topic well

90. See chapter IV Section 1 and VII, 414-427.

91 See chapter IV Section 10.

92. For further definition see chapter IV, Section 1.

publicised.⁹³ Publicity campaigns have also been organised by the N.A.V.S.⁹⁴ and the B.U.A.V. In these campaigns Jon Evans, Vice-Chairman and Parliamentary office of the N.A.V.S., Sidney Hicks, former General Secretary of the B.U.A.V., now partially retired, and Alan Whittaker, the current General Secretary, have all played a prominent part. A number of petitions has been raised and the Home Office received several deputations as a result of the campaigns against the 'smoking beagles', experiments upon the eyes of kittens conducted at Cambridge University by 1976 Reith Lecturer Colin Blakemore,⁹⁵ and Baroness Phillips' campaign against cosmetics testing. The publication in 1975 of Ryder's Victims of Science and the activities of the Animal Liberation Front have also drawn a considerable degree of public attention, as did the publicity of 1976 brought about as a result of Animal Welfare Year. Since 1976 the subject has been well covered by the media. It is unlikely that the response of the Home Secretary to the reform movement would have been so favourable had the movement itself been unable to gain considerable public support. On the other hand, the Home Office has also been continually pressured by the R.D.S. who felt that a more open approach to the whole subject might go some way towards meeting legitimate concern while dispelling some of the hysteria.

93. In addition to the numerous articles and letters written by Ryder from 1970 onwards, he appeared in a number of radio and television programmes in 1975 and 1976.

94. Note especially the publicity obtained through conferences held in conjunction with the International Association Against Painful Experiments on Animals, discussed in chapter VI.

95. These experiments were reported in the J.Physiol. throughout 1975 and 1976. For details of the A V campaign against them see Animals' Defender, Nov./Dec. 1976. See also Science Report in the Times, 21 Oct. 1975 and comments in the Times, 22 Oct. 1975 and Evening Standard (London), 30 Oct. 1975. For the R.D.S. viewpoint see R.D.S. Paper No. 1, Conquest, No. 167 (1976), 8, and the Times, 28 Oct. The experiments were heavily criticised by Louis Goldman (See also Chapter IV, 200-201.) at the R.S.P.C.A. Symposium on Animal Rights, Cambridge, 1977. Blakemore himself had been invited to attend but declined.

The acceptability of the Houghton-Platt proposals was due to the fact that none of the more pressing ones will require legislation to implement. The group has also sought to make moderate recommendations which reflect the attitude of the British public and which would be acceptable to the Home Secretary. Though the group itself does not feel that the proposals go far enough, it has sought to be realistic rather than idealistic. Lord Platt has commented that the antivivisectionists are not nearly so extreme as they used to be, while the R.D.S. often goes too far on the other side. He felt that extremism on both sides might be useful in shaking up the moderates. This is undoubtedly true, but it is now clear that it is the persistent but moderate approach which will achieve results in the long run. Lord Houghton, notwithstanding the vigour with which he delivers his speeches, has made every attempt to ensure this moderation. Summing up on one of his speeches in the Lords he concluded :

I never mentioned the word 'vivisection' from the beginning to the end of my speech. I am particularly anxious to keep emotion and sentiment and even morality out of it.

96

However, as already noted, Houghton is becoming more militant, and indeed the whole movement is likely to do so if it fails to achieve moderate but substantial reforms at this juncture. Yet current trends are encouraging for the movement. The willingness of the Home Secretary (and even the R.D.S.) to go some way towards supporting the demands of the Houghton-Platt group is surely the most significant event in the antivivisection movement of the last one hundred years. Indeed, the Home Secretary has indicated that he would have been prepared to go even further towards meeting the group's demands were he not suffering so severely from public expenditure cuts. He has said that when more information is available from licencees and from the public, and when financial restraints are removed, the Home Office will be able to do more.

This degree of success is no doubt due to the fact that the pressure group has been persistent enough and strong enough to attain a direct dialogue with government ministers. Ryder, Houghton and Hollands have played the leading roles in this, while the support of Lord Platt must have been an invaluable asset to the group in helping it to attain respect and credibility. In order to continue fostering its profitable liaison with the Home Office and other interested bodies, the Houghton-Platt Group has formally constituted itself into the Committee for Reform of Animal Experimentation (9 March 1977).⁹⁷ C.R.A.E. would regard the full implementation of the proposals in the Houghton-Platt Memorandum as a major step in the right direction, but it foresees the necessity for new legislation in the future.

One possibility, given the present obstacles facing attempts at law reform, would be for the Secretary of State to impose "statutory instruments". These would carry the authority of law, but would incorporate the necessary flexibility to meet changing demands. Such instruments are subject to Parliamentary scrutiny but may, at the end of a limited period, be brought into force without the necessity of

97. The Committee is constituted as follows:
 Chairman, Lord Houghton of Sowerby (R.S.P.C.A.)
 Secretary, David Paterson (R.S.P.C.A.)
 Members, F.A. Burden M.P. (R.S.P.C.A.)
 R. Corbett, M.P. Chairman of the Farm Animal Welfare Co-ordinating Executive, Vice-President of the Parliamentary Animal Welfare Group.
 Professor, A.J. Elison (R.S.P.C.A.)
 Jon Evans, F.R.G.S. (N.A.V.S.)
 Janet Fookes, M.P.
 Louis Goldman (R.S.P.C.A.)
 Sidney Hicks (B.U.A.V.)
 Clive Hollands (S.S.P.V.)
 W.J. Jordan (R.S.P.C.A.)
 Kit Pedler (R.S.P.C.A.)
 Lord Platt (R.S.P.C.A.)
 Andrew Robinson (R.S.P.C.A.)
 Richard Ryder (R.S.P.C.A.)
 Eliot Slater (R.S.P.C.A.)
 David Sperlinger (R.S.P.C.A.)

prolonged debate and the extended procedure necessary for the normal passage of a bill.⁹⁸

More generally, calls have been made for the setting up of a Department of Animal Welfare under a government minister. Though this suggestion has been rejected⁹⁹ such a ministry could perform a useful function in co-ordinating responsibilities now held under different departments and would undoubtedly have an important role to play in any new legislation affecting animal welfare. Such a ministry, and indeed new legislation to replace the 1876 Act, may be a long way in the future, but an important foundation has been laid, and, with continued co-operation between all interested parties, it can be built upon. A more efficient and more modern system of control would be beneficial not only to the experimental animals but to the scientists who must work under the 1876 Act and to the Home Office who must administer it. It seems that, in the short term at least, the reform movement must be content with administrative changes relating to the 1876 Act.

In summary, obstacles to new legislation include pressure upon Parliamentary time, pressure upon the Home Office from bodies with conflicting interests, limited financial resources, and the complications presented by the need to draw up a comprehensive law—not only more workable than that already in force, but adaptable to a constantly changing situation. The need clearly exists for a unifying law which will relate to all aspects of the use of experimental animals. This need is accepted by scientific bodies. At the 1976 U.F.A.W. Symposium, a

98. Suggested at the 1976 U.F.A.W. Symposium by Dr. Peter Eaton, a veterinary surgeon and head Animal House Curator at the Charing Cross Medical School.

99. Reply to Kenneth Lomas, 7 Nov. 1974, H.C. [880], c.206-207.

policy statement presented on behalf of the Laboratory Animals Science Association expressed the need for statutory animal testing and regulation of animal experimentation to be brought under control of a single government department. The need for this department to consider the scope and application of legislation and the promotion of alternatives is also clear. Like L.A.S.A, the British Laboratory Animals Veterinary Association (B.L.A.V.A.) is also of the opinion that there should be continuous monitoring of statutory tests and the purposes for which animals are being employed. Any new legislation should, ideally, be comprehensive enough to regulate breeding, usages of animals not presently covered by the Act (such as vaccine production, passaging, transplantation of ova), laboratory animal husbandry, technical and curator training and qualifications and statutory requirements under other British Acts and E.E.C. directives. Some of these aspects will be discussed in detail in chapter IV.

CHAPTER IV

ADMINISTRATION OF THE CRUELTY TO ANIMALS ACT 1876

- CHIEF AREAS FOR LEGISLATIVE REFORM

1. The Fabric and Application of the 1876 Act

The 1876 Act constituted a lesser measure than originally envisaged by those who had campaigned for legislation, but it was reluctantly accepted as a foundation upon which to build. However, the amendments foreseen by Shaftsbury never have been built into its fabric.¹ Legislation which was drawn up at a time when less than 400 experiments were conducted annually in Britain, and which must now control more than five million, still stands unamended.

The Home Office maintains that the Act still works well because it has adopted the widest interpretations and has insisted upon humane standards.² The R.D.S. concurs in this view, maintaining that :

The Act as it stands is excellent. It lays down very good general principles. And that's about all it does lay down. And then behind that is the operation of the Act which is run by the Home Office. People don't appreciate how that has been steadily modernised and in that steady modernisation lies the reason why the system still works. 3

and again :

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1. See chapter 1, p.25.
 2. e.g. see Home Office reply to Hugh Jenkins, 22 Nov. 1976, H.C. Deb[919] c. 923.
 3. Professor William Paton, interviewed on the P.M. Programme, Radio 4, 25 Oct. 1976. (I am indebted to the B.B.C. for a transcript).

... the Act still works, not because it is well drafted (much of the wording is incomprehensible) but because it set out broad principles and gave the fullest discretion to the Secretary of State in carrying them out.

4

In the same vein, the Littlewood Committee felt that the Act had been generally effective in achieving its three major objectives, namely :

1. To prevent objectionable activities;
2. To encourage humane practices;
3. To provide for the accountability to the public of all concerned.

It had concluded that licencees had a high respect for the Act and did not consider it to be a useless piece of bureaucracy.⁵ It would not be true to say that the Act has not worked at all. It has certainly afforded considerably more protection to experimental animals than is the case in some other countries without such legislation (such as in the U.S.A. and in Japan), and it cannot be alleged that the vast majority of licencees do not make every attempt to carry out their work conscientiously within its provisions. However, this is not to say that in the twentieth century this Victorian Act is not capable of very considerable improvement. Commenting on the general findings of the Littlewood Report, the R.D.S. stated :

Against the background of these conclusions certain recommendations made in subsequent paragraphs constitute a surprising volte-face, and suggest that the Committee was unable to accept its own findings and had gone out of its way to placate the vociferous minorities whose evidence it had found untrue.

6

There is a large body of informed opinion which would not agree that the R.D.S. view was fair comment.

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4. Dr. W. Lane-Petter, past President of U.F.A.W. and a member of the R.D.S., "Laboratory Animal Legislation in the U.K.", in Animals and the Law, (U.F.A.W. 1975), 18.
 5. Littlewood, para. 238.
 6. Conquest, No. 160 (1969), 20.

The Littlewood Report did clearly state that notwithstanding its general findings it felt that the Act, as constructed in 1876, was not capable of application to the changing trends in animal usage, nor to the dramatic growth of the laboratory animal industry, and that its administration had fallen short of current needs. If this were the case in 1965 it must surely be true twelve years later. The opinion of the reform movement has been succinctly expressed by Lord Willis:

The Home Office has declared, time without number that the Act is perfectly well suited to deal with the massive change in conditions that has taken place since its enactment. My Lords, that statement is about as convincing ... as if the Minister of Transport were to argue that a Road Traffic Act, passed a century ago and intended to control hansom cabs and penny farthing bicycles, was suitable to the needs of the present day. 7

Critics of the Act believe that it only continues to work at all because the "wide interpretation" put onto it by the Home Office (so frequently commended by the R.D.S.) is stretching the letter and spirit of the law well beyond its capabilities. When the Act was drafted it was intended to deal largely with surgical experiments. The question of the prevention of pain therefore turned upon efficacy of anaesthetic procedures (as illustrated by the heated debates on the subject during the First and Second Royal Commissions). Stress and other types of suffering and misery were not envisaged on any large scale.

Section 3(3) of the Act lays down the basic restriction that :

The animal must during the whole of the experiment be under the influence of some anaesthetic of sufficient power to prevent the animal feeling pain.

7. Lord Willis, speaking in the Debate of his Cruel Experiments Bill, 10 Dec. 1973. H.L. Deb. [347], c. 968.

An exception is made under certificate A dispensing with the use of anaesthesia. In 1876 the changing nature of animal experimentation could hardly have been foreseen. In 1976, 4,664,851 of the 5,474,739 million experiments performed under the Act were carried out under certificate A. That is to say 85.2% were exceptions to one of its basic provisos. In fact, in 1976 only 2.93% of the total were conducted under plain licence, all the rest were exceptions to the general provisos laid down in Section 3.

Present interpretation of the 1876 Act is a matter of controversy and one which has given rise to grave concern among reformists. The fundamental and central proviso is set out in Section 3 (1) :

The Experiment must be performed with a view to the advancement by new discovery of physiological knowledge which will be useful for saving or prolonging life or alleviating suffering.

When the Act was drawn up this central provision was almost certainly intended by its framers to exercise some restriction over the purposes for which experimental animals could be used. However, the interpretation adopted by consecutive Home Office administrations has been so wide as to impose almost no restriction whatever in this sense.⁸ The Home Office administers the Act as it finds it, and has no jurisdiction over the purposes for which experiments are carried out,⁹ nor does it attempt to make any assessment of their usefulness.¹⁰

The Littlewood Committee concluded that if responsibility existed anywhere in the system for assessing the potential merits of a piece of research, it must lie with the statutory signatories of licence and

8. See chapter I, 26-32.

9. e.g. see H.O. reply, H.C. Deb. [667], c.555-556.

10. e.g. see H.O. replies: H.C. Deb. [859], c.1764-1765; H.C. Deb [671], c. 658.

and certificate applications, for there were no other provisions in the Act which had bearing on the matter.¹¹ In fact, the Committee doubted whether the restriction served any useful purpose at all, but it was urged by U.F.A.W., the R.D.S. and other bodies, that the wording should be retained in order to emphasise the seriousness of research which justified the use of animals.¹² Many critics of the Act have regarded this as merely adding emphasis to what was, in fact, simply a sham.

The ambiguity in interpretation arises simply from the word 'or' in section 3(1) of the Act. Because of this the Littlewood Committee felt that the Home Office was quite correct in allowing any experiment which might lead to the production of new knowledge. This is tantamount to saying that the Home Office should not prohibit any experiment which is not in contravention of the other basic provisions of the Act. The Home Secretary is, in fact, precluded from imposing any condition upon the licence which is inconsistent with provision 3(1).¹³ This may be interpreted as precluding him from applying any restriction of purpose.

Because the range of purposes for which animal experiments are carried out has extended vastly since 1876, reformers would like to see a new and more modern interpretation put onto the Act, so as to exercise some real control. They feel that a vast number of experiments, while not strictly in breach of the letter of the law, are in contravention of

11. Littlewood, para. 230.

12. Littlewood, para. 299.

13. Section 8 of the Act. See Appendix I of this thesis.

its original spirit. However, the only way to settle that point would be to have the Act interpreted by the Courts.¹⁴ The reformist movement does not agree with the R.D.S. opinion, expressed by Lord Halsbury :

I commend to your Lordships the structure of the 1876 Act. It is a good Act; it is well drafted. The fact that after ninety-two years it has never been necessary to take it to court to find out what it means is a point in its favour. 15

Upon which Lord Sandys has commented :

I choose to differ from the noble Earl, Lord Halsbury. I feel that this Act is a piece of solid Victorian mahogany - dead wood - which should have been removed from the Statute Book and replaced by modern legislation long ago. It provides in my view - and I speak subject to correction here - a foolproof cover for the experimenter and a very limited protection for an animal. 16

In the opinion of the newly constituted Committee for Reform of Animal Experimentation,

C.R.A.E. believes that it is gravely unsatisfactory for any Act of Parliament to be interpreted in the widest possible sense without a single judgement from any Court to support it, and with no ready means of obtaining one. 17

C.R.A.E. has consulted legal advisors about the question of interpretation of the Act and intends to report their findings to the Home Office Advisory Committee.

It is hardly likely that an interpretation of the Act will be obtained through the Courts, since there is little possibility of a prosecution now taking place under the 1876 Act. It is often stated, incorrectly, that no prosecution has ever taken place, however it is true to say that there has

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14. This view is not subscribed to by the Home Office (personal communication with Home Office official and inspector).
 15. Lord Halsbury, speaking in the debate on the Export of Live Animals for Research Bill, 30 Jan. 1969, H.L. [298], c.1346.
 16. Lord Sandys, speaking in the Lords debate on the Littlewood Report, 27 Jan. 1970. H.L. Deb. [307], c.358.
 17. The LD₅₀ Test - Evidence submitted to the House Home Office Advisory Committee prepared by C.R.A.E., Aug. 1977. R.S.P.C.A. archives.

never been a conviction for cruelty under the Act,¹⁸ no prosecution having taken place at all since 1913. This is hardly surprising since severe experiments may be conducted quite legally under the Act. Critics have not been placated by constant assurances from the R.D.S. and the Home Office that licensees willingly comply with the Act, since, given its present wide interpretation, it is not felt that this fact in itself is any guarantee that suffering does not ensue. As we have seen, prosecutions under the 1876 Act cannot be brought without the written consent of the Secretary of State. This is a responsibility which the Home Office itself feels it should no longer have.¹⁹ The provision is, in fact, almost unique, and there exists only a small number of similar cases, for example the requirement of the signature of the Director of Public Prosecutions before a prosecution for High Treason can be brought.

18. There have in fact been three prosecutions : (a) 1876, prosecution of Dr. Arbrath for advertising a lecture on poisons in which (unspecified) experiments would be shown. The advertisement went to press before, and appeared three days after, the passage of the Act. Although no experiment was actually performed, Dr. Arbrath was convicted with a nominal fine. He belonged to the local S.P.C.A. who refused to prosecute him, *B.M.J.* II (1876), 545. (b) 1881, Prosecution by the Victoria Street Society of Dr. David Ferrier for performing experiments on the brains of monkeys while unlicensed. The prosecution failed because defence claimed the experiments were in fact performed by Dr. G.F. Yeo who held the required licence and certificates. See also chapter I, 35-36. Ferrier is famous for his work on cortical localisation, fundamental to modern neurosurgery. *B.M.J.*, II (1881), 836-842. (c) 1913, Prosecution by the R.S.P.C.A. of Dr. Warrington Yorke for cruelty to a donkey. It involved an experiment in which a drug possibly useful against sleeping sickness produced a species of paralysis. The prosecution failed because Dr. Yorke was properly licensed and the suffering involved was not deemed unnecessary. It is questionable whether this prosecution should have been launched under the Act. The case set a precedent; what constitutes "necessary" suffering is now considered a question of fact. It is doubtful whether a conviction could be obtained under this section of the Act. All the above examples were cited in *Conquest*, No. 168 (1977),¹⁷ (some irrelevant information has been omitted. Other details have been added).

19. Personal communication with a senior Home Office official.

Interpretation of the Act is central to the reform movement because of current disquiet over the proportion of experiments now being conducted for commercial purposes, a considerable percentage of which are not performed with the aim of advancing medical science. Many critics feel that this is the least justifiable area of animal experimentation and one in which a great reduction could, and should, be effected. The Home Office Return for 1976 shows that 3,535,033 of the 5,474,739 experiments performed in that year were for commercial undertakings. This excludes the mandatory testing of medicinal products of which there were 1,263,400 in 1976. Richard Ryder has noted²⁰ that the percentage of purely medical experiments is continuing to drop. It is probable that the great bulk of medicinal experiments are accounted for in the fields of cancer research, diagnostic procedures and in the testing of drugs, vaccines and sera. In Ryder's opinion the really high grade medical research carried out in universities and non-commercial laboratories may account for only a few thousand animals per year. Figures are not available to confirm this, though Ryder has suggested that perhaps one good indication would be a list of qualifications of licensees. The Home Office has stated that this information is not available,²¹ but Ryder contends that the qualification of licensees are known to the Home Office and that to suggest otherwise is an evasive answer. He has pointed out that the Department had no difficulty in supplying such information to the Littlewood Committee in 1964.²² Even at this time the trends were not encouraging, in 1965 36.6% of licensees were students or technicians without any degree at all. In 1920 these categories accounted for 62% of the total number of experiments; by 1973 the percentage had dropped to 31.7% of the total. In 1976 the

20. Richard D. Ryder, Scientific Cruelty for Commercial Profit (S.S.P.V. 1976).

21. See Section 10.

22. See Littlewood, para. 163.

proportion was roughly 32.8% of the total. This dramatic fall is not due to any decline in the number of such experiments, but to a disproportionate increase in other fields.

Despite constant protestations made by the R.D.S. to the effect that experiments such as the testing of cosmetics, food additives, household products and tobacco substitutes have medical implications, a growing number of scientists and parliamentarians have recognised that the categorisation of such experiments as medical or non-medical is a moot point. As a recent article in the Lancet²³, calling for a review of the Act, pointed out, they are not experiments carried out for purposes originally envisaged by the framers of the Act. The point has perhaps been most forcibly put by Dr. Kit Pedler²⁴ in whose opinion :

No conceivable interpretation of the wording of the Act would allow the testing of food additives and colouring of no nutritive value. No scientist could possibly justify the issue of a licence to test the effects of smoke on the lungs of an animal in the hope that the basic principles of pathology could be broken or ignored : In no way can the testing of cosmetics on animals be justified in terms of prolonging life or alleviating suffering.

He concludes :

The spirit and letter of the 1876 Cruelty to Animals Act are now widely broken or ignored and there is no doubt whatever that an increasing number of animals are subjected to horrifying degrees of suffering for reasons which are either scientifically trivial or purely commercial. The law must be changed without delay to ensure that licences for animal experimentation are granted solely for the performance of genuine medical experiments which are likely to lead directly to alleviation of human suffering.

23. The Lancet, 2 (1976), 667-668.

24. Guardian, 8 Oct. 1975.

The R.S.P.C.A. believes that the experiments recently revealed in the press which have caused public concern represent only the "tip of the iceberg" of this huge "grey area" of questionable experiments involving toxicity, carcinogenicity and teratogenicity testing of a wide variety of non-medicinal substances. Examples of such experiments, cited by Lord Houghton in his debate on abuses to the 1876 Act, May 1975, included the following :

Example : Squirrel monkeys were implanted with brain electrodes : cannulae were implanted in the jugular vein; connected to a ball valve cemented to the skull; the monkeys were restrained in chairs and injected intravenously with nicotine to give a blood concentration similar to that obtained by smoking.

Example : An insecticide 'Gusathion' was fed to thirty-two pure ~~bred~~ cocker spaniels. At high poison concentration they developed tremors and muscular weakness. One dog lost one-third in weight, had discharges from both eyes, laboured breathing, occasional bouts of vomiting and jaundice and died after one week. ²⁵

Commercial toxicity testing is a complex problem. Tests may be carried out by firms producing the goods, by their parent companies abroad (which makes it extremely difficult to exert any control in the U.K.), or by Britain's commercial contract research organisations. ²⁶ It may be done by voluntary agreement between industry and the various bodies responsible for consumer safety (as in the case of cosmetics), or it may be required by law (as in the case of some therapeutic products). The following is a brief outline of regulations under which animal toxicity tests are carried out. ²⁷ All new medicinal products are monitored by the Committee on Safety of Medicines, set up in the wake of the thalidomide disaster

25. See the Lords debate on abuses to the Cruelty to Animals Act, H.L. Deb. [360], c. 718-775 and also questions put by Houghton : H.L. Deb. [359], c. 766-767, H.L. Deb. [360], c. 518-519, H.L. Deb. [359], c. 1149-1150, H.L. Deb. [389], c. 1392-1394

26. The largest are: The Huntingdon Research Centre; Inveresk Research International (Edinburgh); Hazleton Laboratories (Europe); Consultox (London); Life Science Research, Stock, Essex; and Toxicol (Malvern).

27. This outline is not intended to be comprehensive but is simply an illustration of the complexity of the problem. To my knowledge the only body to have compiled such a dossier of information is the R.D.S. The information was lost when the R.D.S. offices were burgled by the A.L.F. in 1976.

under the chairmanship of Sir Derek Dunlop. This body, which operates under the Medicines Act 1968,²⁸ has stated :

The 1968 Medicines Act does not lay down how the testing of drugs should be carried out, but it does require the Committee to examine all new drugs with regard to their safety, quality and efficacy. The Committee considers, under present scientific knowledge, that testing on live animals is most frequently the only way that safety can be checked. While they would always be willing to consider information relating to the safety of a medicine or other product that did not derive from the use of animal experiments, at present scope for such data is limited. 29

Testing of veterinary products is mandatory under the Diseases of Animals Act (1950), and as required by the British Veterinary Codex (to become the British Pharmacopoeia Veterinary). Other relevant regulations include the Pharmacy and Poisons Act 1933,³⁰ the Food and Drugs Act 1955,³¹ the Consumer Protection Act 1961,³² the Health and Safety at Work Act 1974,³³ and the Congenital Disabilities Act 1976.³⁴ The safety of agricultural chemicals is monitored by the Pesticides Safety Precaution Scheme operated under the auspices of the Ministry of Agriculture, Fisheries and Food and the Department of Health and Social Security. As already noted in chapter III, there are in addition a host of relevant E.E.C. directives intended to homogenise systems of control throughout Europe.

In the 1975 Lords debate on abuses to the Cruelty of Animals Act Lord Houghton stated that 125 million of experiments in this category were mandatory tests carried out in compliance with the various regulations

28. See chapter III, footnote 4.

29. Quoted in Conquest, No. 168, (1977), 17.

30. 23 and 24 Geo.5 c.25.

31. 4 Eliz. 2 c.16.

32. 9 and 10 Eliz. 2 c.40.

33. 1974 c. 37.

34. 1976 c. 28.

(the larger proportion of them would, in fact, be batch testing of vaccines and other biological products), while the remaining 3.25 million were not mandatory (these would include, however, a large number of tests performed in the search for new drugs). Because of the complexity of the situation it is doubtful whether it would be feasible to prohibit the performance of certain types of experiments under the 1876 Act; this course would run counter to statutory and voluntary agreements relating to the marketing of many types of substance. This is not to say that greater control could not be exercised, or that a considerable reduction in such tests could not be effected without risk to human and animal health and life.

The R.D.S. is quite correct in asserting that any product allowed onto the market should be thoroughly tested by the best available methods, in order that the public may be as fully protected as possible. In opposing measures which the Society feels would lead to a diminution of that protection the R.D.S. has acted responsibly. The potential dangers of such products are quite evident. For example, the National Poisons Information Service was set up in 1963 by the National Health Service to advise doctors in emergency cases of deliberate or accidental poisoning by a wide range of environmental products. It operates a 24 hour service. So that advice relating to possible courses of treatment can be given it is necessary to know what chemicals are contained in the products and how these act upon the system singly or in the various combinations used. Valuable information enabling some assessment of these effects in man is obtained from extensive animal testing. During the first year of its operation this bureau received some 2,000 calls. By 1974 it had received 20,000. About two-thirds of these related to children and of these, 800 related to accidental poisoning by cosmetic

products.³⁵

In addition to these possible acute effects, the results of long term usage must be known. Cosmetic preparations, for example, may be applied repeatedly for many years. They can enter the human system by swallowing (as may be the case from repeated absorption of lipsticks) or by absorption through the skin and by inhalation. They may damage not only the user but also the unborn child. However, the information put out by the R.D.S. on this question does not enable an objective assessment of the extent of child poisoning by environmental products. In January 1977 the Committee for Information on Animal Research (C.I.A.R.) was founded as a counterblast to the R.D.S. It now operates under the joint editorship of Stewart Britten (a psychologist), Jenny Remfry (of U.F.A.W.), Mary Rose Barrington (a lawyer, founder of M.A.C.E.) and Mary Forsling (aphysiologist). An Information Sheet prepared by this group draws attention to the fact that of the 10,000 children estimated to be admitted to hospital each year in the U.K. following suspected poisoning with non-medical substances, 45 per cent were shown not to have taken poison in any serious quantity, if at all. Such poisoning in fact accounts for less than one per cent of child deaths in Britain and the C.I.A.R. has concluded that most household products cause no harm at all while only a minority pose a real risk.³⁶ It is suggested that most manufacturers continue to test even relatively safe products upon animals primarily in order to avoid adverse publicity and litigation.³⁷ However, in cases where the products are to be exported, animal tests may be required by foreign legislation. Many British cosmetic firms have

35. Conquest, No. 167 (1976), 8-9.

36. See R. Goulding, "Chemical Hazards in the Home", Brit. Med. Bull., 31 (1975), 3, (cited by the C.I.A.R.).

37. I am indebted to Richard Ryder, Andrew Rowan of F.R.A.M.E. (who was involved in the early C.I.A.R. discussions), and to Stewart Britten, founder of the C.I.A.R., for much of this information.

intimated that they would not test their products upon animals at all were it not for such regulations. The example of child poisoning is not a straightforward vindication of the extensive testing currently done in this area. As we have seen, it is not simply a question of scientific necessity. Rather the illustration is an emotive example designed to placate the public, the sort of tactic so often criticised by the R.D.S. when it is adopted by the antivivisectionists with the opposite motivation.

The restrictionist animal welfare movement argues that the expenditure of animals, and the infliction of suffering upon them, cannot be justified for the purely commercial reason of developing new products which cannot be considered essential to the welfare of the community. This view would seem to command public support. A National Opinion Poll Survey conducted on behalf of the R.S.P.C.A. in 1974 indicated that 73 per cent of the public disapproved of the use of animals in cosmetics testing; in response to her Parliamentary campaign, Baroness Philips collected a petition in favour of her bill which was so weighty that she could not take it into the House. The disapprobation surrounding smoking experiments has already been mentioned in chapter III and is also considered in chapter VI ..

A more rational approach would be greater control over the introduction of new and non-essential chemicals (the hazards of which are unknown) into the environment. It is estimated that some 300-400 new substances come onto the U.K. market every year. Those which are essential must be tested, but the numbers of animals used could be reduced, as discussed in chapter VII of this thesis. One method of effecting reduction, which could be carried out on an international scale, would involve the drawing up of 'white lists' of substances of which the toxic effects are already known. During the second reading of Baroness Philip's Bill to prohibit testing of cosmetics on animals in 1975, Lord Halsbury indicated that the R.D.S. was not at all complacent about this issue and he did not

wish to indicate that the practice was not amenable to some control. He suggested that one such method could be to make it compulsory for cosmetic manufacturers to declare their ingredients. The Cosmetic, Toiletry and Fragrance Association has recently (1977) established a committee to review toxicity data on a wide variety of cosmetic ingredients in order to establish a safe list.³⁸ Such a system could be extended to a large range of products, eliminating a great deal of repetitive testing. The reform movement has never accepted the argument, frequently put forward, that animal tests have always been kept down to a minimum because of economic and other factors. In competitive industry, tests must obviously be duplicated because research results are kept secret for commercial reasons. Contract testing organisations have indicated that, rather than breach a confidence, they feel compelled to re-run a whole series of tests on behalf of one firm even though the results of similar tests may already have been obtained on behalf of another.³⁹

The effects of industrial competition were illustrated in the case of the development of new smoking material, on which both Gallagher's and Imperial Tobacco were working with no mutual co-operation whatever. Lord Houghton has savagely commented :

On such a grave matter as an addiction, which is killing so many thousands of people every year in this country, one would have thought that central discipline, Government control, over research should be undertaken so that the whole community knows what is happening and work may be undertaken on behalf of the whole community and not get mixed up with competitive enterprise.

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38. Information from F.R.A.M.E. See also J.E. Hampson, "Beauty and the Beast", Vole 6, Feb. 1978, copy in thesis sleeve.
39. See Stuart Harris, "The Guinea Pig and the Law", The Listener, 97 (1977) 226-228. Much of the information for this article and for the BBC2 Horizon programme researched by Harris was provided by F.R.A.M.E. and by Richard Ryder but was not credited to them.
40. H.L. Deb. [36], c. 1739.

While it is clear that the public must be protected, there is a limit to the protection which can be effected. There would seem to be no limit to the range of products which could be tested upon animals or to the extent of tests which could be carried out. Children are quite capable of swallowing practically anything - psychotic patients have been known to swallow razor blades and to chew up light bulbs - but no one suggests that this eventuality could be safeguarded against by animal tests.⁴¹ The line must be drawn somewhere, and those who oppose the extensive use of animals in such testing feel that it is not currently drawn in the logical place. One rational course of action to prevent accidental poisoning of children would surely be to make it compulsory that manufacturers package all potentially dangerous household and cosmetic products in childproof containers. This would necessitate some expense on behalf of industry, but all arguments in favour of animal experimentation have indicated that consumer safety should be afforded the first priority. Is the prevention of animal suffering less important than economic considerations? Childproof packaging has been effected for therapeutic products; it ought to be done for every product which can conceivably be harmful if abused (such measures are already required to a large extent in New Zealand). In April 1976⁴² Greville Janner, M.P., asked the Secretary of State for Prices and Consumer Protection what steps were being taken in this direction. The Minister replied that preliminary results of a study by the department had shown that such a precaution could indeed reduce the number of children treated for accidental poisoning and the Department had asked the British Standards

41. See Richard D. Ryder, Victims of Science, (London, 1975), esp. chapters 3 and 4.

42. 2 Apr. H.C. Deb. [908] , c. 601.

Institution to consider the preparation of a test specification for childproof packages. The Department also intended to discuss with industry the voluntary changeover to use of such packages. It was stressed that such a precaution should only be seen as a secondary line of defence. The primary aim must be to educate the public to keep all hazardous substances well out of the reach of children. Some reformists wish to see a total prohibition of animal toxicity testing for certain types of non-essential products while others, such as Lord Houghton, would like to see stricter control exercised using the machinery set up under the 1876 Act.

The Littlewood Committee was of the opinion that it was :

Undesirable as a general principle arbitrarily to determine that particular kinds of purposes should never be served by animal experiments whether or not they involve stress or pain. 43

The Committee felt that it could not support the R.S.P.C.A. campaign for the restriction of certain kinds of experiments under the Act, since any restriction of the freedom of the British research worker might frustrate potentially valuable work in the long term. It concluded that since new knowledge knows no classification of purpose, a discovery made in commercial research may well turn out to be of value to the medical world. However, greater control could be exercised administratively using a reconstituted Home Office Advisory Committee. This suggestion, first put forward by Lord Platt, forms the core of the Houghton-Platt Memorandum and will be discussed in detail in section 9 of this chapter.⁴⁴

43. Littlewood, para. 266

44. It should be noted that Lord Houghton, who originally supported Baroness Phillips' bill in 1975, declined to do so in 1977 after the Home Secretary had undertaken to look into the matter of a wider system of control along the lines of the Houghton-Platt Memorandum.

It is clear that while free enquiry is an integral part of any scientific discipline, some constraints must be applied when ethical issues arise. Dr. W. Lane-Petter has stated that not all experiments should be justified simply because they produce useful results; society ought not to be expected always to support experiments simply motivated by curiosity and it should be acknowledged that some problems are simply not worth solving at the present time.⁴⁵ At the 1976 U.F.A.W. Symposium, during which eleven scientific societies were invited to give their policy statements, almost every one expressed some degree of dissatisfaction regarding the 1876 Act and its present administration.⁴⁶

A recent article in the Lancet began :

The Cruelty to Animals Act of 1876 is a hundred years old and ripe for a review. 47

Even the title of the Act itself is now outdated.⁴⁸ At some point it should be given a less ambiguous title such as the "Experimental Animals Act", as suggested by the R.D.S.

In the meantime, while the reform movement awaits more modern legislation, there should be a complete reappraisal of the Act and its current application. Steps should be taken administratively so that while important and valuable research is not hampered, effective control can be exerted so as to ensure that all experimentation licensed under the

45. See W. Lane-Petter "The Place and Importance of the Experimental Animal in Medicine Today", Proc. Roy. Soc. Med, 65 (1972), 343-353 being the proceedings of a meeting held with the R.D.S. on 1 May, 1971).

46. See U.F.A.W. Symposium Report 1977.

47. The Lancet, 2 (1976), 667.

48. The title has been criticised as misleading the public into thinking that all animal experiments cause pain (especially the use of the words "calculated to cause pain"). As the Littlewood Committee pointed out, this is due to the age of the Act. Another example is the Trade Marks Act (1905) which contained the words "calculated to deceive." In 1938 these words were altered to "likely to deceive or cause confusion."

Act is absolutely necessary, and conforms not only to the letter of the law, but is in accordance with its spirit.

2. The Licensing System

A licence issued under the 1876 Act is, in itself, authority to perform acute experiments;⁴⁹ in other cases it must be read in conjunction with the licensee's certificates and the conditions appended by the Secretary of State.⁵⁰

The Littlewood Committee viewed this system as unnecessarily cumbersome. Furthermore, the narrow specification of statutory signatories authorised under the Act⁵¹ placed a tremendous burden of work on the presidents of learned societies, with the result that in many cases those signing the application did not know the applicant or his work. U.F.A.W. described the system as "archaic", inconvenient and wholly unrealistic",⁵² and stressed that it would be more appropriate if the signatories were acquainted with the licensee, and if irrelevant formalities could be eliminated.

Lord Platt, who is well qualified to speak on the subject of licensing,⁵³ and has strong views about it, has said :

I speak as a member of the Advisory Committee of the Home Office on the subject of the Cruelty to Animals Act 1876. I have been a licence holder and have myself carried out experiments always, I may say, with distaste, but because I am convinced that they are necessary to medical research ... as a former President of the Royal College of

49. That is, an experiment upon a fully anaesthetised animal which is not allowed to regain consciousness.

50. See chapter I, 29-32.

51. See Appendix I.

52. Littlewood, para. 333.

53. See chapter III footnote 66.

Physicians, I have had to countersign hundreds, if not thousands of applications for animal licences, and I have been a member of the M.R.C. So I have seen this problem from the practical side. 54

When, as a Professor of medicine, Lord Platt was called upon to sign many applications, he found that those which he declined to sign were promptly signed by someone else. When he became President of the Royal College of Physicians and was called upon to countersign them, he recalls that the President of another Royal College remarked to him "I suppose you will do them blind as we all do".⁵⁵ Similarly he found that all those certificates he refused to pass did eventually get through. He believes that this loophole needs to be closed so as to exercise some real control over the granting of licences and certificates. Under the present system, given the constantly increasing number of experiments, it has become almost impossible for every application to be conscientiously scrutinised.

With regard to certificates, there is provision within the system for stringent control. Section 2 of the Act affords complete discretion to the Secretary of State to disallow or suspend a certificate. No grounds need be given to the holder of signatories. Each certificate received by the Home Office is filed with the licensee's papers and referred to the inspector who is called upon to consider :

- i) Is the experimental purpose described likely to produce a "new discovery" of physiological knowledge or knowledge helpful to medicine ?
- ii) Is the experimenter sufficiently qualified or skilled ?
- iii) Is the place at which the experiment or work is to be performed provided with suitable facilities ?
- iv) Does the particular operative procedure proposed make any special safeguards for the animal desirable ?
- v) Is the procedure likely to cause severe and enduring pain and therefore not acceptable at all ? 56

The treatment of the first question does not, in fact, result in the imposition of any real restriction of purpose, since as was explained in the Littlewood Report :

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54. Lord Platt was speaking in the Lords debate on the Littlewood Report, 27 Jan, 1970, H.L. Deb. [307], c. 353-354.
 55. Quoted by Lord Platt in the Houghton debate, 14 May 1975, H.L. Deb. [360], c.750.
 56. Littlewood, para. 106.

According to the Home Office the Inspector's function in relation to the first of these questions is merely to establish that the application is for a class of purpose permitted by the Act; he is not required to evaluate the potential benefit likely to accrue from the proposal. 57

The inspector does, however, scrutinise the design and methods chosen by the licensee and may take technical advice from the Head of the Department. If the inspector so advises, the certificate will be disallowed. The proposal can also be referred to the Advisory Committee but this provision is seldom used. 58

The Littlewood Committee was informed that, in practice, disallowance in full is rare, since licensees are usually familiar with the necessary criteria, and if in doubt will consult the inspector before making the application; but on occasions disallowance has occurred if the procedure is considered objectionable or more appropriate to another certificate.

Reformists believe that these safeguards are not sufficiently stringent. In any case, the burden of work now placed upon the Inspectorate is so great that it must be asked whether fourteen inspectors can "cope" adequately with the administrative work relating to more than five million experiments per year, in addition to carrying out their other duties. The Home Office has insisted that the licensing system is watertight, but these assurances are not satisfactory to the reform movement, one reason being that information is not generally available regarding the numbers of applications for licences and certificates which are refused each year. 59 In an adjournment debate in 1962 F.A. Burden drew attention to the case of a foreign visitor who was

57. Littlewood, Loc. cit. The consequences of this wide interpretation have already been discussed in Section (1).

58. See Section (9) of this chapter.

59. Negative answers to such questions are frequently given in the House, e.g. 6 Feb. 1970 H.C. Deb. [795], c.215 and 17 Jul. 1974, H.C. Deb. [877], c.165-169. Richard Ryder alleges that such information is available and that the answer is evasive.

reprimanded by his British colleagues for performing cruel tests on analgesics when a more humane method was available. He asked how this person had managed to get authorisation for such experiments if every application was thoroughly scrutinised.⁶⁰

As already considered, the purpose for which experiments may be carried out is almost unlimited.⁶¹ The purpose may be changed without the applicant re-applying for a new licence, though more stringent conditions may be applied to certificates. When the licensee renews his licence after a period of five years, he is not required to specify the nature of his work though it might have changed over this period. Within the five year term of the licence's duration, no restriction whatever is placed on the number of animals which might be used, except in rare cases where such a condition is appended to the certificate. It has been suggested that though a licensee may need to perform a pilot study before he can give an estimate of the number of animals required, only in rare cases would he not be able to provide such an estimate within limits.⁶²

The licensing system is intended to ensure that all licensees are competent to carry out the procedures authorised by their licences, certificates and conditions. Again, the burden of judgement falls upon the signatories and the inspector; it has already been pointed out that

60. See H.C. Deb [662], c. 901-940.

61. In answer to a recent question concerning cosmetics Dr. Summerskil disclosed that licences are granted on the basis of the licensee's qualification to perform the experiment, not on the basis of the proposed purpose of the work. H.C. Deb. [927], c. 589-590.

62. The suggestion was made by animal house curator Dr. Peter Eaton (see chapter III footnote 98), U.F.A.W. Symposium Report 1977, 74.

none of these persons need be acquainted with the work of a new applicant, though the inspector will become well acquainted with him subsequently. There is no statutory provision for any required level of training before a licence may be granted. Richard Ryder has consistently complained that many experimental psychologists, who do not even hold a degree in biology, are licenced to perform experiments whereby they can inflict severe stress upon animals, if not physical pain. One animal technician, Anglea Walder,⁶³ has been quoted as saying :

A lot of people think that in order to do experiments you have to get one of these terribly difficult licences. In fact they're issued to almost anybody. 64

This statement may be a journalistic oversimplification, but concern has been expressed within the scientific community itself over the question of the training of licencees. Peter Eaton has asked :

Today there are eighteen and a half thousand licence holders. Are they all sufficiently well informed about animals to conduct experiments with today's technology while still complying with the intentions of the Act ? 65

Eaton points out that many scientists working in the medical field have only a limited knowledge of animal physiology either in optimal or stressful conditions. He continues :

Rather than ask to whom should such licences be granted, I would rather pose the question as to whom other than qualified veterinarians and trained and qualified animal technicians should licences be granted ? This is not to suggest that only these two categories should be considered, but to ask who else has a sufficiently all round knowledge of domesticated species that could guide them in surgical or medical interference with animals. 66

63. Angela Walder is well known for her criticisms of present standards of animal care, see pp. 219-221 of this chapter.

64. Quoted by Ena Kendall in "Should These Animals Die", Observer, 13 Jun. 1976.

65. U.F.A.W. Symposium Report 1977, 74.

66. Ibid, 73.

The M.R.C. has stated that it would like to see a proper system of training for licensees and animal technicians.⁶⁷ Agreeing with this, Eaton has complained that an even more appalling deficiency exists with regard to the training of animal curators. In the U.K. there is not a single postgraduate school offering such a training, while in the U.S.A. there are eleven. The Institute of Biology has suggested that :

There is a case for demanding evidence of training and competence in such aspects as the principles of animal care and humane experimentation before anyone is licensed to perform animal experiments. 68

The Institute would be willing to consider establishing a certificate or diploma scheme in this area and would welcome discussion of such a proposal.

The Littlewood Committee made a number of valuable proposals for tightening up and modernising the licensing system :

- i) application for a licence should be supported by two signatories since it might be difficult for one signatory to refuse sponsorship or a colleague.
- ii) one signatory should be qualified in the same discipline as that in which the applicant proposed to experiment.
- iii) The first signatory should have personal knowledge of the applicant and his capabilities and work, and be in a position to take personal responsibility for ensuring that he was properly trained for the work proposed and to see that it was properly carried out.
- iv) the second signatory should be a professor either in a department with knowledge of the laboratory in which the work was to be performed or with personal knowledge of the first signatory. 69

The system was to allow for some flexibility so as to meet the requirements of small laboratories. The Committee further recommended that each sponsor should take personal responsibility for certifying that, in his opinion, the applicant was suitably qualified by training, knowledge and skill, to perform the procedures proposed and any other procedures covered by

67. Ibid, 98

68. Ibid, 106. The Institute of Biology has a membership of 10,000 qualified biologists, some 2,000 of which are qualified licencees. It has its own professional code of conduct.

69. Rec. 35, paras. 335 and 339.

the licence.⁷⁰ They were also to satisfy themselves that the work would be of value (as specified by section 3(I) of the Act), and that it was not unnecessarily repetitive or wasteful of animals. With regard to the competence and humanity of the licensee the Committee recommended that :

In the form of application for a licence, more detail should be sought of personal particulars, e.g. previous employment, experience in laboratory work and training, experience with animals, evidence of interest in animals. 71

Provision was to have been made in the new system of control for unqualified and untrained persons to be provisionally licensed under graduate supervision and they were to have been restricted regarding the procedures they were authorised to carry out and the species they were allowed to use. Probationary licences were to be issued for twelve months only, and a full report of all the work done was then to be sent in to the Home Office.⁷² The Committee recommended that while the inspector need not see every applicant before granting a severely restricted probationary licence, he should meet each one before a full licence was granted and this ruling should be prescribed by the Secretary of State.⁷³ This provision would enable the inspector to establish a real personal relationship from the start, to explain fully the objects and requirements of the Act and to avail himself of all relevant information relating to the applicant.

The Committee noted widespread disquiet concerning delay in the issue of licences and recommended that they be issued within a month of receipt of the application by the Home Office.⁷⁴ Under the system suggested by Littlewood, the plain licence would be authority for acute experiments only. For surgical work likely to be productive of pain, lasting discomfort, or incapacity, all licensees would be required to submit an application

70. The Littlewood Committee did in fact describe a new system of control (in chapter 19) under which the licence would be standing authority for a number of procedures. See Littlewood, paras. 370.379.

71. Littlewood, para. 341

72. Ibid, rec. 37, para. 343.

73. Ibid, rec. 38 and 39, para. 344.

74. Ibid, rec. 40, para. 345.

setting out details of the purpose of the experiments the proposed procedures, species and numbers. Approval would be limited to the project defined in the application. Applications for such licences would be supported by sponsors along the same lines as application for a plain licence.⁷⁵ A report on any pain observed would be required to be submitted after the experiments. A similar system of application would be required for non-surgical experiments likely to cause pain or stress.⁷⁶ The Committee thus envisaged a somewhat complex system of licensing according to purpose, which was intended to exert more efficient control while at the same time obviating the complexities of conditions and certificates.

The Committee pointed out that the main purpose of the licence should be to describe the procedures authorised for each individual, yet it had received evidence to the effect that many licensees had little exact knowledge of what they were allowed to do. This was largely due to the complexities of the certification system and the Committee therefore recommended "that the authority given for usage of animals under the Act should be recorded in a single document."⁷⁷ It was further recommended that the duration of the licence should be only three years and that a renewal should be applied for with the support of knowledgeable sponsors as if it were a new licence.⁷⁸

As already mentioned, the Littlewood Committee recommended that the Home Office issue a Code of Practice enlightening licensees with regard to the requirements of the Act.⁷⁹ This was not brought about but detailed

75. Ibid, paras. 371-373.

76. Ibid, paras. 375-377.

77. Ibid, rec. 41 para. 347.

78. Ibid, rec. 42 and 43, para. 348.

79. Ibid, para. 349-350.

information is now available to licensees in the fairly extensive series of guidance notes drawn up both by the Home Office itself and by the R.D.S.⁸⁰ However, the R.D.S. was critical of many of the proposals made by the Committee with regard to licensing. Some, such as the stipulations regarding duration and renewal of licences, the Society thought would be productive of unnecessary paper work for which there was no apparent justification. More seriously, the Society has stated :

Several of the recommendations are objectionable in that unnecessary information is to be demanded on the application forms about the design of experiments, a subject which is not within the competence of the Inspectorate or Home Office to criticise. This indeed is conceded in Para. 259, p. 87. "The aptness of statistical design is very much a matter of relativities, and Home Office inspectors cannot be expected to judge questions of this kind as a routine part of their appraisals of proposed research. The proper source for guidance and supervision from the statistical point of view is the laboratory itself where other pressures for economy are likely to be strong." 81

Some of these criticisms are certainly valid, nonetheless the reformist movement believes that the whole licensing system should be extensively reviewed. The Houghton-Platt Memorandum recommends a system of sponsorship along the lines suggested by Littlewood but with more stringent controls added. It suggests that the counter-signing professor should be compelled to answer a clearly set out list of questions, viz :

1. that he is satisfied that the proposed experiments will add to knowledge of disease and its treatment, or (a) to physiological knowledge of an important kind, or (b) to the protection of the public and animals from the use of necessary substances which may be dangerous to health if introduced into the environment;

80. See chapter III, footnote 38.

81 Conquest, No. 160 (1969), 21.

2. that he knows of no other experiments on the same lines which have already been done, or if they have he should state reasons why they should be repeated and
3. that the experiments proposed and the number and kinds of animals to be used are necessary and appropriate to the questions to be answered of the hypothesis to be tested; and
4. that alternatives to animal experiment have been considered;
5. that the conditions under which the animals will be housed are satisfactory;
6. that in consideration of the application he has taken into account not merely the question of causing pain, but of causing misery and suffering (as in many of the 'LD₅₀' tests of toxicity currently in use).

In addition, the signatory would be required to refer in any case involving psychological stress to the Home Office Advisory Committee.⁸²

Finally, in line with many similar cases involving written statements, the signatory would be reminded in small print that any false statement would render him liable to penalties. The penalties are not stipulated, though revocation of licence is obviously the most effective deterrent for deliberate misconduct, provided that it is properly applied.⁸³

3. Suffering Under the Act

Central to the campaign for stricter control of animal experimentation is the fact that, under the present provisions and administration of the 1876 Act, a very considerable degree of suffering can quite legally be inflicted.

82. See discussion in Section 9 of this chapter.

83. See discussion in Section 10 of this chapter.

Obviously the Victorian Act which was primarily designed to deal with physical pain chiefly resulting from surgical procedures, laid down no specific provisions to cover stress, or the severe discomfort and misery which may be the result of some procedures currently conducted under certificate A.

As recommended by the Second Royal Commission⁸⁴ limitation to the extent of permissible suffering has been imposed by condition 3, usually referred to as the "pain condition" which is attached to every licence.⁸⁵ This restriction does not preclude the infliction of severe pain provided that the licensee believes that it is not likely to endure;⁸⁶ conversely, pain which endures may be inflicted, provided that it is not considered to be severe. These definitions are extremely subjective and many critics believe that far too much is left to the discretion of the licensee. The third part of the condition, by which the inspector is authorised to direct that any animal found to be suffering considerable pain should be immediately destroyed, is relevant only in the very tiny proportion of cases where he actually witnesses the experiment. Such instructions are in any case infrequently given.

The term "pain" cannot be objectively defined.⁸⁷ Its intensity can be judged only by the sufferer. The Littlewood Committee took great trouble to provide a working definition, accepting that all mammals, including man, must suffer pain in a similar way, though some species tended to recover from injury more quickly than others and most of the lower animals seldom exhibited post-operative shock. The difficulty of placing a value judgement upon the sufferings of an animal, however, is

84. See chapter II, 123-124.

85. See chapter I, 30-31.

86. The term of endurance is not defined.

87. It should be noted that in 1905 the Home Office ceased to categorise experiments in the Return as painful or painless because it felt unable to make the distinction.

exacerbated by the animal's limited powers of communication. This is perhaps more true of rodents and rabbits than of dogs, cats and primates.

Neither the Act nor the pain condition makes any attempt to define the term "pain". The Littlewood Committee asked "does it or does it not include malaise, discomfort, frustration and fear ?" :

We have been left in no doubt by the evidence we have received that these uncertainties are in fact a cause of anxiety to many licensees. 88

It concluded :

Our general impression is that the condition has been applied contentiously ... We think, however, it would be unrealistic to assume that the condition is uniformly applied, or that in an individual case expert opinions might not differ about the time when an animal ought to be painlessly killed. 89

Antivivisectionists have always alleged that extreme cruelty is permitted by the Act which purports to prevent it, while the Research Defence Society and the Home Office have categorically dismissed the allegation as utterly unfounded. The debate runs the serious risk of degenerating into an argument of pure semantics.

Cruelty is usually defined as the wanton infliction of suffering, for no useful purpose, and often with indifference or even positive pleasure on the part of the person inflicting the suffering. Clearly the Act does not sanction cruelty in this sense, but the motives behind the infliction of suffering imposed under its jurisdiction in no way diminishes that suffering, as experienced by the animal.

88. Littlewood, paras. 176 and 177.

89. Ibid, para. 183. In his unpublished critique of the Littlewood Report, Guy Heriot of the B.U.A.V. noted that there was no record in the Annual Returns of the condition having been enforced by an inspector between the years 1948-1963.

Furthermore, practices are protected under the Act which would be liable to prosecution under the Protection of Animals Act (1911).⁹⁰ There are, in fact, legal precedents for the definition of cruelty. Martin's Act, when amended for the second time in 1849,⁹¹ was subject to the omission of the word "wantonly", i.e., it was not necessary to prove any intention of cruelty in order to secure a conviction. In the case of *Budge vs. Parsons* (1863) under this Act, a definition of cruelty was given by Judge J. Wightman, which stands as the locus classicus, namely "the cruelty intended by the statute is the unnecessary abuse of the animal". Because of the word "unnecessary", it is doubtful if any conviction for cruelty under the 1876 Act could ever be obtained, even though it is questionable whether some modern experimental practices strictly ought to be sanctioned under its protection. In the case of *Ford vs. Wiley* (1889) under Martin's Act, Lord Chief Justice Coleridge argued that what was simply convenient or profitable could not be regarded as necessary. Reviewing these cases at the 1976 U.F.A.W. Symposium, T.G. Field Fisher, Q.C. asked :

Have we progressed or regressed in our moral attitudes since then ? Is it a 'necessity' that mankind should test products on animals which contribute to man's commercial and cosmetic interests only, and do not directly contribute to the search for cures for disease - and in the former class I include man's self-inflicted addictions. Even if [the Act could be considered to be working within the boundaries of definition by which it was drawn up] ought we not to expect more of ourselves in an allegedly civilised and Christian society in 1976 than in 1876 ?

92

The argument that the conditions laid down by the Act and enforced by its administration are sufficiently stringent to prevent unnecessary suffering in laboratories, is the weakest line of defence ever resorted

90. Protection of Animals Act (1911) 1 and 2 Geo. 5 c.27.

91 See chapter I footnote 12.

92. U.F.A.W. Symposium Report 1977, 6-7

to by those opposed to reform in the law, and is blatantly contradicted by the facts.

In May 1972 the R.S.P.C.A.'s Advisory Committee on Animal Experimentation, which had been convened to advise the R.S.P.C.A. Council,⁹³ made its first report. This concluded :

To date, our findings give us considerable cause for alarm. We have found abundant evidence that suffering in animals does occur in British laboratories and that the strict necessity for much of the research being done can be questioned. 94

The question of "strict necessity" is an important one in the context of animal suffering. The antivivisectionists, in blind adherence to the principle that the ends can never justify the means, remain opposed to all experiments where suffering to the animal is likely to occur. While this may remain a laudable ethical standpoint, it is unlikely to gain much ground within the scientific community, and indeed it has not done so in the last one hundred years. It has, however, already been seen that some scientists are themselves beginning to question the justification of inflicting suffering in those experiments which have no clearly demonstrable medical or scientific value.⁹⁵ The R.S.P.C.A. feels that as many as two-thirds of experiments may fall into this category; a contention not entirely unsupported within the scientific community. Speaking at the annual meeting of the British Association for the Advancement of Science, Dr. Michael Festing of the M.R.C. stated that the number of animals used in experiments and the degree of suffering could and should be reduced. It is clear that a great deal of suffering would be eliminated if this large "grey area" of experiments were to be more

93. See chapter III, footnote 68.

94. Quoted by Richard D. Ryder in "1975 - Year of Breakthrough", unpublished report presented to the A.E.A.C. of the R.S.P.C.A. in 1976 (I am indebted to Ryder for a copy)

95. Section 1 of this chapter.

rigidly controlled as discussed in the previous section. Even in the case of experiments which could not be described as trivial or at all questionable with respect to their motive, there must be a limitation to the suffering which should be inflicted. Few scientists would dispute this. In the words of Dr. W. Lane-Petter :

All experiments (or for that matter any other form of exploitation of animals) must have sufficient justification for the infliction of pain or distress, and the infliction of suffering beyond a certain limit cannot be justified at all. 96

The only point of dispute between the restrictionist and the scientific camps would seem to be, in the absence of any clearly defined ethical guide-lines laid down in the Act or by its administrators, where to draw this line.

It is not disputed here that the vast majority of licensees carry out their work conscientiously and operate within the letter of the law but, as already shown, the degree of control is simply not strict enough to prevent very considerable and widespread suffering. On the basis of information provided by the R.S.P.C.A.'s A.E.A.C. files, the Houghton-Platt Memorandum concluded :

Present control under the Act is inadequate. The catalogue of mutilation, misery, downright cruelty to animals in experiments is both lengthy and horrifying.

Examples which testify to the truth of the latter statement are to be found in such abundance that only a few need be given here by way of illustration.

A number of them came from within the scientific community itself.

Louis Goldman, medical director of an international pharmaceutical company, and a member of the R.S.P.C.A.'s A.E.A.C., has drawn attention

96. W. Lane-Petter, "The Ethics of Animal Experimentation", J. Med. Ethics. 2 (1976), 118-126.

to several cases in the pages of World Medicine.⁹⁷ One such example, supported by the M.R.C., referred to the effects of lowering the temperature of injured rats. Rats in which bilateral hind-limb ischaemia had been produced by application of rubber tourniquets (under anaesthesia) were placed in holders and the effects of reducing the ambient temperature to 0°C were compared to those seen in uninjured control rats. The authors concluded that the shivering threshold was lowered in injured animals. Considering this and three other experiments, Goldman cautiously concludes :

It would be presumptuous to say that these experiments were unjustified, but it seems reasonable to question whether any of them contribute significantly to medical knowledge. The question at least is wholly justified as regards the three experiments which were supported by the M.R.C. 98

Donald Gould has complain that many experiments are valueless because they are ill-conceived, and that a great deal of unnecessary suffering results. Gould has challenged what he refers to as a common delusion that any experiments performed in a medical context are ipso facto a good thing.⁹⁹ He went on to state that if commercial enterprise could not develop new luxury products without causing suffering to laboratory animals, then society ought to manage without such products. Some of the procedures involved in these tests have been described by Kit Pedler,¹⁰⁰ drawing upon information contained in the files of the R.S.P.C.A.'s A.E.A.C., of which he is Chairman. They include the following : In 1973, I.C.I. published a report on the action of a new fire extinguisher fluid (B.C.F.). Experiments were carried out upon rats, mice, guinea pigs,

97. See "Animal Guinea Pigs - the Permissive Society", World Medicine 6, (1970), 17-22 (twelve examples cited). "Experiments on Animals, Another Look", Ibid, 7, (1971), 52-61. (Four examples cited).

98. World Medicine, 7 (1971), 61. Goldman has now abandoned some of his original caution and is prepared to take his argument further as he showed in his talk at the R.S.P.C.A. Symposium on Animal Rights, Cambridge 1977 (proceedings in press).

99. Donald Gould, Medical correspondent of the New Statesman, "Animal Experiments - the Search for Understanding", World Medicine, 11 (1976), 17-24.

100. Guardian, 8 Oct. 1975.

rabbits, dogs and one monkey. In-dwelling tubes were inserted into the blood vessels to facilitate sampling and the animals were forced to inhale B.C.F. through face masks. Reaction varied from mild adverse effects to fatal convulsions. Pedler pointed out that the effects of B.C.F. were already known.

Lewisite is a poison gas which was used in World War I. In 1948, under the 1876 Act, two scientists quite legally instilled the compound into the eyes of several rabbits. By the twenty-eighth day the eyeballs had almost completely dissolved, leaving the remains in a mass of puss. The corrosive effects of Lewisite were well known in 1948. Pedler asks what justification can there be for such experiments under an Act designed to advance medicine and physiology by the discovery of new knowledge ? This criticism comes from a qualified expert, an ophthalmologist who has performed quite severe medical experiments under the Act; he cannot be subjected to the criticisms often levelled at the antivivisectionists that he is not qualified to speak on the subject.

Another example from the R.S.P.C.A. record, which has been cited by Richard Ryder, involves the infamous LD50 test¹⁰¹ and it illustrates the lengths resorted to when testing compounds of low toxicity by this method. At the Huntingdon Research Laboratories, pedigree beagle dogs were poisoned by the weed killer sodium chlorate over a period of five days. Large doses were administered by stomach tube. Results included :

Marked loss of appetite and body weight with
lassitude, vomiting and blood streaked faeces
... death occurred on day four.

A post-mortem on one bitch "showed the mucous membranes to be blue, the blood was dark chocolate brown, the liver was dark brown and all serous

101. See chapter VII, 414-427.

surfaces were blue-tinged." The experimenters concluded that "the results would confirm generally the accepted toxicity of sodium chlorate".¹⁰²

Hugh Jenkins, M.P. is not particularly involved in the animal welfare movement, but he is concerned that the Act should operate in such a way as to prevent cruelty. In a letter to the Daily Telegraph¹⁰³ he expressed his revulsion of an experiment carried out by the Fire Research Station, Boreham Wood, under the aegis of the Department of the Environment.¹⁰⁴ This involved the exposure of twenty guinea-pigs and twenty rats to a mixture of hydrogen chloride and carbon monoxide. Severe damage and distress to the animals resulted, and some of the guinea-pigs were allowed to live for up to a week after the exposure. In a reply to his question in the House, Dr. Shirley Sumerskill informed Jenkins that all the conditions of the Act had been fulfilled in this experiment. He found the answer unsatisfactory since in his opinion the experiment had been productive of pain both severe and likely to endure.¹⁰⁵

The Research Defence Society has always sought to mitigate such experiments by drawing attention to their purpose. For example, commenting upon the examples given by Pedler; William Paton, Chairman of the R.D.S., wrote :

In each case (raised by Dr. Pedler in the Guardian) if one goes into the scientific and medical background, the imputation of unwarranted suffering evaporates. 106

102. Taken from Veterinary Record, Apr. 1972, 416. Quoted by Ryder in the Spectator, 235 (1975), 565-566.

103. Reprinted in Animals' Defender, Mar./Apr. 1977.

104. Fire Research Note 1048 Feb. 1976 (I have not seen this document, however it has been referred to several times in Parliament (footnote 105)).

105. H.C. Deb [921] , c.74-75 and H.C. Deb [923] , c.1798-1808.

106. R.D.S. Paper No. 1 "Some Notes on Experiments Recently Criticised", in Conquest, No. 167 (1976), 7-9.

Paton dismissed the allegation that the R.D.S. automatically defends all animal experiments of whatever sort, maintaining that the Society sought only to stress the value and necessity of animal work. With regard to two of the experiments, mentioned above, Paton had this to say :

Lewisite and British anti-Lewisite (B.A.L.)

During World War II the first effective antidote to the arsenical Lewisite was discovered, and would have prevented an enormous amount of suffering had Lewisite been used. After the war experiments were published in which the capacity of B.A.L. to protect even against really severe ocular damage was shown. B.A.L. is now among the standard remedies for poisoning by a range of heavy metals, as well as arsenic.

The fire extinguisher fluid. B.C.F. (bromochloro difluoromethane), which, on test by inhalation, produced convulsions in a dog. Well-known substances chemically related are :

- a) trichloromethane : chloroform, an anaesthetic;
- b) tetrachloromethane : carbon tetrachloride, an anaesthetic and poison.
- c) bromo chloro-trifluoroethane : halothane, a very widely used anaesthetic.
- d) hexafluorethyl ether ; Indoklon, a convulsant, used for some time for therapy of depression, as alternative to electroconvulsion therapy. It was necessary in the light of this to know anaesthetic and/or convulsant potency and toxicity.

Whether or not, in the light of this information, "the imputation of unwarranted suffering evaporates" depends upon whether one is prepared to justify the severity of the suffering inflicted in these experiments on the grounds that some useful information was obtained.

What the examples do show is that virtually no limit is imposed upon the severity of suffering which may be inflicted in non-surgical experiments. In these cases severe suffering was prolonged for several days (in the case of the Lewisite experiment for a whole month). A senior laboratory animal technician of some sixteen years standing has stated : "It would be hard to dream up an experiment the Home Office

wouldn't let you do".¹⁰⁷

Similarly, in the case of experiments under certificate B (which formed 11.70% of the total in 1976, i.e. 640,593 experiments), reformists are concerned that the effects of operative procedures may be severe and the suffering prolonged. A further cause for concern is the efficacy of post-operative treatment. After surgery experimental animals seldom receive the type of post-operative nursing and analgesic treatment given to alleviate the pain and discomfort of human and veterinary patients. Some witnesses before the Littlewood Committee gave evidence of "Monday morning mortality" and questioned whether arrangements for night and post-operative care were always adequate. The Committee found that this problem was taken most seriously in commercial establishments. Other licensees informed them of their practices of visiting animals out of working hours and the Committee concluded that there was no general lack of regard of animal care. Nevertheless, it observed, "We do not think the risk can be excluded that supervision may be inadequately organised to safeguard animals outside ordinary working hours", and recommended that the Home Office attended to such arrangements when examining the schemes of management of laboratories which the Committee had recommended.¹⁰⁸

In reply to questions in the House, Home Office officials have adopted the practice of simply stating the terms of the pain condition which is supposedly an assurance that pain is always reduced to the minimum,¹⁰⁹ though it is quite clear that the pain condition, limited as it is, need not always be applied; this is left to the discretion of the Home Secretary. At the 1976 U.F.A.W. Symposium, one questioner drew

107. Angela Walder quoted in "Feedback", *New Scientist*, 72 (1976), 392.

108. *Littlewood*, rec. 58 para. 402. See also Section (4) of this chapter.

109. e.g. H.C. Deb. [877], c.165-169.

attention to a shampoo test on the eyes of rabbits where the cornea had remained swollen for up to 21 days, and asked "How does that sort of experiment come through the net so persistently without any kind of restraint ?" In his reply, Dr. J.D. Rankin, Chief Inspector under the 1876 Act, stated that, though he could not give a full answer without all the relevant facts to hand :

There is, however, every likelihood that this experiment was carried out quite properly under the Act. Experiments of this kind are, from time to time permitted for special purposes. There probably was some good reason why the animals were not killed under the pain condition of the licence. 110

In the Home Office view :

Most of the procedures used in experiments without anaesthetic, involve no significant risk of pain and consist of inoculations, external applications of stimuli, modifications of diet or environment or the administration of some pharmaceutical or biological product followed in each case by observation of any effects. 111

It is precisely the observation of these effects which reformists are worried about. While it is true that a very large proportion of experiments under certificate A do not involve significant risk of pain (application of mild stimuli, positive results of therapeutic inoculations, mild modifications of diet and environment, and negative results of diagnostic toxicity and other tests) the significant remainder, in which severe alternations to the animal's condition have been induced and the observation period is prolonged, are cause for deep concern. A precise definition of "pain" is probably of little value here. In the words of Lord Platt :

110. U.F.A.S. Symposium Report 1977, 127.

111. Viscount Colville of Culross (Minister of State for the Home Office) speaking in the debate on the Cruel Experiments Bill 1973, H.L. Deb. [347], c.983. (my italics).

I think there is something more than pain in a lot of these experiments. There is misery. I think it's a wretched state to see an animal wasting away perhaps with vomiting or diarrhoea, miserable in it's cage. 112

Most societies and individuals prominent in the reform movement feel that many of their criticisms levelled at the 1876 Act and its administration may apply almost equally to the Littlewood Report. The Committee shied away from any strong condemnation of suffering which had been inflicted in specific experiments, and accepted assurances from licensees and inspectors that such suffering had generally been kept to the minimum.

One example is the case of experiments carried out by the Ministry of Defence at Porton Down where animals (rabbits and occasionally sheep) had been subjected to blast effects in target vehicles on open range. None had been placed in the path of strike and "direct injury by fragments did not normally occur". 113 After exposure, the animals were quickly removed and humanely killed; effects were examined post mortem. There was no evidence that the animals were subjected to such tests repeatedly. The Committee calmly accepted that they had not been anaesthetised "because anaesthesia might produce minor degrees of change in tissue simulating the effect of blast damage". However, according to Dr. Kit Pedler, "No anaesthetic is in fact known which will simulate the aeration and division of tissue produced by blast". 114

It is true that the Littlewood Report made a serious attempt to tighten up control relating to suffering in experiments but it is questionable whether, even were they to be fully implemented, its

112. Lord Platt, General Practitioner, 5 Dec. 1975, 9.

113. Littlewood, para. 268, (my italics).

114. Guardian, 8 Oct. 1975.

recommendations would be stringent enough to result in a substantial diminution of such suffering. The Committee stated that it had found remarkably little criticism of the limits to pain imposed by the pain condition,¹¹⁵ though the Secretary of the Scottish Society for the Prevention of Vivisection had informed it that during the last 37 years he had visited almost every registered laboratory in Scotland. and during the course of such visits he had seen severe suffering and illness amongst animals; he did not, however, suggest that licencees were guilty of deliberate cruelty or callousness.¹¹⁶

The S.S.P.V. was the only society to suggest an amendment of the Pain Condition on the lines of the minority Report of the Second Royal Commission signed by Church, Collins and Lockwood, which recommended that the animal should be immediately killed if "real" or "obvious suffering" supervened whether or not the suffering was likely to endure and if the main object of the experiment had been attained.¹¹⁷ The Littlewood Committee agreed that such a provision would provide wider protection, but concluded that if clinical signs of minor pathological changes were taken as a deciding factor, much important experimental work would be ruled out. The rewording of the Condition as suggested by U.F.A.W. which described the present wording as verbose and confusing, was endorsed by the Committee and it recommended that the condition be actually "embodied in the Act as general restrictions on the performance of procedures authorised by it".¹¹⁸ This would have been valuable since it would have set down in the Act a firmer guideline for the licencee,¹¹⁹

115. Littlewood, para. 183.

116. Ibid, para. 208.

117. Littlewood, para. 184.

118. Littlewood, para. 185 and 188.

119. The Committee also felt that it might provide a basis for distinguishing substantial from technical irregularities (see also section (10) of this chapter), Littlewood, para. 188.

besides changing the emphasis from action to be taken should the animal be found to suffer severe pain, to a prohibition of such pain from being inflicted at all.¹²⁰ However, it would have afforded little additional protection to the animal in reality.

Though the Committee made no general recommendations restricting the severity of experiments which could legally be performed, it did make a number of recommendations designed to reduce suffering in such experiments. One of these related to the administration of anaesthesia which the Committee recognised called for considerable knowledge and skill. In some cases where this skill had been lacking, a wastage of animals had occurred. It was therefore suggested :

That where the services of a veterinary surgeon are not available, only persons adequately trained in anaesthesia by a senior licensee should be allowed to give anaesthesia to animals. 121

Even more important is the question of analgesia. The Committee found that analgesia was not widely used in laboratory practice. Clearly if it was generally administered in many types of experiment where pain is likely to result, as it is in human surgery, suffering would be much diminished. The Committee learnt, for example, that study was being given to the possibility of administering a stupefying drug to animals used for the assay of tetanus toxoid and antitoxin so as to deaden the onset of pain which may precede the clinical signs on which the animal is destroyed. The Committee did not, however, make a firm recommendation for the compulsory use of analgesia in all cases where the drug would not interfere with the experiment,¹²² but simply drew attention to the possibility by recommending :

120. Littlewood, para. 186

121. Littlewood, Rec. 4, para. 193.

122. It is interesting to note that provision for the use of analgesics has been incorporated into new legislation recently enacted in Denmark to exert stricter control over animal experiments.

That licencees, their sponsors and supervisors, and Home Office Inspectors should give special attention to the use of analgesics where helpful and possible. 123

U.F.A.W. has recently re-endorsed and amplified the suggestions it put before Littlewood. The Association would like to see the pain condition amended so that :

In no case shall any animal be subjected to severe pain which endures or is likely to endure, and is of the opinion that statutory regulations should be revised so that when an animal is found to be in severe pain it must be killed immediately, before the statutory time lapse, and the result of the experiment assessed from clinical and post mortem observations. Any animal found to be moribund should be killed and the results assessed post mortem. 124

The Houghton-Platt memorandum has also recommended that "there should be strong constant emphasis upon the need to restrict procedures likely to cause suffering of any sort, including stress",¹²⁵ and that "greater importance should be attached to the need for training in, and the application of, the techniques of anesthesia, analgesia and euthanasia".

4. Laboratory Animal Husbandry and General Care

Those who seek to defuse concern over the escalating numbers of experiments, stressing that a large proportion involves only trivial pro-

123. Littlewood, rec. 5, para. 194 (my italics).

124. U.F.A.W. Annual Report, (1977), 20.

125. Houghton-Platt Memorandum, 11.

cedures and effects, tend to overlook the suffering caused by conditions which, of necessity, must be imposed upon animals housed in laboratories and breeding centres. Such confinement of animals, even when the optimum health and hygiene is vigorously attended to, is likely to be just as productive of misery as many of the constraints imposed in factory farming, a subject which is currently causing an enormous outcry.

Premises registered under the 1876 Act must be approved by the Home Office inspector as to their suitability for housing the species whose use is proposed, and are thereafter subject to regular checks. The general welfare of laboratory animals is largely in the hands of animal technicians and the Animal House Curator, whose responsibility it is to liaise between technician, research scientist and Home Office inspector.

Laboratory animal science is now a discipline in its own right and a number of professional bodies has arisen to ensure that high standards are maintained. The Universities Federation for Animal Welfare was the first scientific society to concern itself primarily with these issues (though its scope extends well outside the field of laboratory animal welfare). It was founded in 1926 by Major Hume, as the University of London Animal Welfare Society, but had expanded to a national membership by 1938. Its basic aims, as regards laboratory animals, were to relieve distress inflicted upon them (often due to carelessness or ignorance) and to provide education about their essential needs and husbandry. U.F.A.W. has consistently attempted to maintain a practical "middle of the road" policy in which it seeks to balance the humane treatment of animals with human requirements. The Society takes no part on controversies over the legitimacy of experiments and has maintained friendly relations with all interested parties. One of U.F.A.W.'s most important contributions has

been the production of its Laboratory Animal Handbook,¹²⁶ which is a manual of experimental techniques, including methods of anaesthesia and euthanasia most suitable for the different laboratory animal species. This work has proved an invaluable guide for very many licensees. U.F.A.W. has been involved in several schemes for improving the quality of laboratory animal welfare and it has been most effective in bringing interested bodies together by means of symposia on a wide variety of subjects.

The Laboratory Animal Science Association (L.A.S.A.) was founded in 1963 with the object of advancing laboratory animal science by promoting exchange of scientific information through meetings, publications and other media, by encouraging education and training, and by co-operating with other bodies interested in laboratory animal welfare and technology. L.A.S.A. has a membership of some 400 scientists and it holds meetings twice yearly, sometimes jointly with similar organisations. Specialist subsidiary groups meet more frequently. L.A.S.A. publishes a quarterly journal entitled Laboratory Animals, and various laboratory animal handbooks.

The Institute of Animal Technicians is involved primarily with the care of laboratory animals and with the education of those technicians to whom that care is largely entrusted. It seeks to achieve higher and more uniform standards in animal houses and disseminates knowledge through its journal, its manual, its annual congresses and through further education courses run under the auspices of local authorities and in many technical colleges throughout the country. The institute ensures a high degree of training to those partaking of its schemes and

126. The U.F.A.W. Handbook on the Care and Management of Laboratory Animals(U.F.A.W., 1947). Enlarged and revised editions appeared in 1957, 1967 and 1976.

its membership now exceeds 1,600. Unfortunately no formal training for laboratory animal technicians is compulsory and animal houses are at liberty to employ staff who are totally unqualified in the field of animal care.

The Littlewood Committee recommended that all steps should be taken to encourage professional development, qualification and training of technicians, that attention should be paid to the status proposed to be accorded them by the laboratory applying for registration and that suitably uniform conditions and incentives be introduced in government laboratories.¹²⁷ It further recommended that a statement regarding the training of animal handlers be incorporated into the scheme of management required to be set down by each laboratory.¹²⁸

Voluntary bodies have also been responsible for the quality and care of animals supplied to laboratories. Of course, since the laboratory animal breeding business was not envisaged in 1876, it is not covered by the Act. In 1947 the Laboratory Animals Bureau was set up by the M.R.C. This body has been responsible for a large number of publications relating to husbandry, and for several surveys on scale and purposes of usage. These were originally published annually as collected papers; frequent symposia were also held and advice has been available from this body on design of animal houses and facilities. The Bureau became the Laboratory Animals' Centre in 1958.¹²⁹ Animals employed for purposes outside the scope of the Act, such as for sera and vaccine production, are not protected by the Act or amenable to Home Office inspection. This also applies to stock animals bred by laboratories.

127. Littlewood, rec. 56, para. 399.

128. Ibid, rec. 57, para. 401.

129. See M.R.C. .L.A.C. Manual series No. 7 (2nd Edit., Jan. 1974), 3. See also section (8) of this chapter.

On occasions they may be housed in small cages for months or even years before being subjected to an experiment.

It may be discerned from the above that, despite the earnest and diligent efforts of voluntary bodies, the lack of unifying control results in a great variance in the quality of animal husbandry from one laboratory to another. This was confirmed by the Littlewood Committee. In any case, the highest degree of expert care and advice is no guarantee that the animals' true needs will be catered for. Indeed, expertise may sometimes operate to the exclusion of common sense. It has recently been disclosed that a panel of veterinary experts reporting on practices involved in the intensive veal industry, concluded that it was not in the interests of a veal calf to be able to turn around.¹³⁰ Similarly in the laboratory, downright misery may result simply from inadequate consideration of the natural needs of the animal (which vary from species to species) and from an absence of positive stimuli necessary to promote its mental well-being. Such considerations may even go unnoticed by those whose expert knowledge tends to guide them primarily towards the physical health of the creature and whose training teaches them to regard it as a "tool". A certain degree of sentiment is probably relevant and valuable here.

Lord Platt has stated :

No one will convince me that cats and dogs in small cages are happy. Anyone with feeling knows when animals are suffering and miserable, even if no physical harm has been done to them.

130. Cited by Ruth Harrison, authoress of Animal Machines (London, 1964) in her talk at the R.S.P.C.A. Symposium on Animal Rights, Cambridge 1977. No reference was given in the talk itself (proceedings in press). Ruth Harrison has been involved in the campaign against factory farming for many years.

He adds :

I am sure that our conditions and inspection of animal experiments are the best in the world. I am equally sure that they could be still further improved. 131

Richard Ryder's interest in the animal welfare movement stems from his observations of misery among animals housed for psychological research both in this country and in America. As a graduate at Cambridge he saw primates housed in ultra-hygienic conditions, in small cages, often measuring approximately three feet in length and little over two feet in width and depth.¹³² While awaiting brain surgery for psychological research, these animals were thus housed for weeks or even months, on wire mesh, with no positive stimuli whatever to relieve their boredom. They had no contact with other members of their own species and were fed an unvaried diet of pellets.

Richard Body, M.P. has stated :

I became interested in vivisection when I visited one of these laboratories and saw the way in which the animals were kept. I saw a number of cats kept in cages little bigger than the dispatch box, and they were allowed out for only a couple of minutes in the course of every day. A great deal of suffering must be caused when animals are detained and incarcerated in those conditions throughout their lives, because, in the ordinary way, cats, monkeys, rabbits and many other animals have a great deal of liberty. 133

131. Lord Platt, letter dated 27 Apr. 1974, B.M.J., II (1974), 220.

132. Actual cage sizes recommended by one British manufacturer are as follows

Monkeys and Apes	2'4 $\frac{3}{4}$ " wide	x 2'3" deep	x 3' high
Dogs	3'	2'9"	6'
Cats	3'	1'9"	1'6"
Rats	11 $\frac{1}{2}$ "	13"	8 $\frac{1}{2}$ "

Figures given in the S.S.P.V. Annual Pictorial Review, 1975. A more detailed consideration of laboratory conditions is given by Ryder in Victims of Science (London, 1975), chapter 5.

133. Richard Body, speaking in the Commons debate on Littlewood, 11 Jun. 1971, H.C. Deb. [818], c.1453.

Similarly Ryder concludes :

Those who have been fortunate enough to closely observe unfrightened animals living in the wild are often struck by the complexity and richness of the life they lead. These positive pleasures the laboratory animal never knows - for him the same four white walls and the smell of disinfectant.

134

The Littlewood Report states :

The Animal Technicians' Association, the Laboratory Animals Centre and the Ministry of Health reminded us that animals did not need to live in ideal conditions to thrive. Many did well in seemingly bad conditions provided there was kindly interest and skilled handling.

135

In view of this it is likely that promotion of the role of animal handlers, technicians, and in particular the Animal House Curator, and assignment to these persons of greater authority, would be more effective in improving animal husbandry than would the provision suggested by the Littlewood Committee that veterinary advice should be available in all laboratories.¹³⁶ Much more can be achieved by a skillful and humane staff involved in handling the animals every day than can be ensured by any degree of outside advice or inspection.

There is, however, no agreed code of standard relating to animal accommodation on premises registered under the Act and though advice may be given by the inspector he is not in a position to enforce changes in this field. The Littlewood Committee received evidence from the Animal Health Trust, the British Veterinary Association and the Laboratory Animals Centre, all of which testified that there was much room for

134. R.D. Ryder, Victims of Science, 89.

135. Littlewood, para. 384.

136. Ibid. para. 395.

improvement. In some cases conditions were described as "formidable".¹³⁷ During visits to laboratory premises the Committee witnessed a considerable variety of conditions, a sizeable minority of which were described as poor.

The Committee referred to legal precedents for the Statutory prescription of minimum standards and it considered that these were applicable in the laboratory field.¹³⁸ However, it recognised that the optimum environmental standards for many laboratory animals were not yet known and specifications would need to be reviewed as new information became available. It was therefore concluded that the time was not ripe for statutory regulations, but the Committee recommended that provision be made in the Act enabling the Secretary of State to make such regulations (which should also cover stock animals) with a view to enforcement of minimum standards when this was practicable, and in the interim, it recommended that the Home Office should issue a code of standards after consultation with veterinary and other bodies.¹³⁹

The Committee was of the opinion that, as usage of animals continued to expand, the need for enforceable standards would become increasingly important. Notwithstanding the fact that such expansion has occurred and that a considerable corpus of knowledge relating to the environmental needs of laboratory animals has now been built up, no such minimum standards have been enforced. The Committee also recommended that more specific and stringent conditions should be applied concerning

137. Ibid, para. 382.

138. It referred to the Shops, Offices and Railway Premises Act. (1962).

139. Littlewood, para. 386. Some useful recommendations on this subject have been incorporated into the H.O. and R.D.S. Guidance Notes for Licensees, see chapter III, footnote 38.

the initial registration of premises which would also provide for power to withdraw registration if the laboratory failed to comply with standards or Home Office requests for improvements.¹⁴⁰ It also wished to see greater co-ordination of schemes of management within each laboratory with specification of certain individuals responsible for the overall management of the premises and more direct responsibility on the part of Heads of Department for their staff and advised that each laboratory authority should submit an annual report to the Home Office describing the "Bill of Health" of its animals throughout the year.¹⁴¹

The R.D.S. has not endorsed the various recommendations of Littlewood relating to premises and husbandry. In this Society's opinion,

These recommendations seek to impose detailed Home Office control on matters that should be regarded as within the general competence of laboratory authorities and administrators ... in fact, experimental animals in this country, large and small, are probably better cared for than any other class of animal. We consider that the powers already held by the inspectorate are adequate, (142) but doubt whether inspectors are always the ultimate authority on animal accommodation. 143

No doubt there is some truth in the last sentence of this rather complacent statement. It has frequently been maintained that the greatest safeguard to the laboratory animal lies in the overseeing of the experimenter's work by his colleagues and technicians, although this ought to be the case, while the present veil of secrecy shrouds the whole practice of experimentation, this statement does not carry sufficient weight to

140. Ibid, recs. 51-53, paras. 389-390.

141. Ibid, para. 405.

142. It has already been noted that the inspector has no statutory authority with regard to premises once these are registered and that several classes of animal, for example those housed in breeding establishments and used in the production of biological products, are not amenable to inspection at all.

143. Conquest, No. 160 (1969), 21.

reassure the public. It is a well known fact that professional persons are loath to openly criticise their colleagues; such peer group solidarity must, surely, be reinforced by the potentially explosive atmosphere surrounding the whole question of animal experimentation. Further, there is growing unease among laboratory animal technicians that their opinions are often not respected, or even that too outspoken an interest on the subject of animal welfare might place their jobs in jeopardy.¹⁴⁴ The Littlewood Committee stated that many witnesses suggested that senior staff "were not sufficiently knowledgeable or interested in the care of animals and conditions in animal houses, and we saw some evidence of this during our visits".¹⁴⁵ This would seem to be supported by one instance which has recently come to light, the case of Angela Walder. Walder was in charge of the animal houses at Grey Laboratories, Northwood, Middlesex (part of the Cancer Research Campaign). For thirteen years in this capacity she had repeatedly made allegations of excessive and unnecessary cruelty occurring within the confines of the 1876 Act in that laboratory. Her contentions were supported by Dr. Harold Hewitt, head of the Tumour Radiobiological Section. One example was over the issue of tumour insertion. This operation causes much less pain if done under the loose skin on the flank of a mouse than if it is put into the chest. It also provides better data as it is less liable to ulcerate. However, the former is more difficult and requires suturing. The operation had been performed in the chest at Grey for the last five years (only since the Directorship

144. One technician at a London Pathology laboratory has told Richard Ryder that candidates who express ethical doubts about animal experimentation are not given jobs. Another technician at a London hospital left her job because she was powerless to do anything about the distressing conditions there. (Personal communications with Ryder and others).

145. Littlewood, para. 391.

was taken over by Dr. Jack Fowler in 1970, with whom Walder had a number of disagreements, many of which seem to be due to a straightforward personality clash). Other scientists disagreed with Hewitt and Walder over this and other issues and she was often accused of disrupting the work of the laboratory. Walder was finally dismissed after she was cited anonymously in an article in the Observer.¹⁴⁶ In this she had complained that licences were granted to almost anyone, that the Home Office Inspectorate was a farce, that there was a serious lack of physiological knowledge among many experimenters, that some were even sadistic and that many experiments were carried out for pure careerism.

Two junior technicians were also dismissed, but were re-instated after a seven day strike of technicians at Grey. One of these technicians, Carol Dear, has stated, "two-thirds of my work was chasing scientists to get them to tend to animals that were having convulsions or dying".¹⁴⁷ Walder maintains that "a lot of cruelty is simply due to badly designed experiments".¹⁴⁸ She claims to have witnessed incidents where the irradiated feet of mice became so gangrenous that they fell off, and that scientists often forgot to leave instructions for animals to be killed after the experiments had been completed. The Home Office has given no support to Dear's contention that she was told by the inspector that if she did not like the situation she should get a job in a sweetshop. Fowler has denied that the workers were sacked for their interest in animal welfare, claiming that the dismissals were for disciplinary matters of a nature which no institute would tolerate.¹⁴⁹

146. Observer, 13 Jun. 1976.

147. New Scientist, 72 (1976), 392.

148. Angela Walder, P.M. Reports, Radio 4, 12 Jul. 1976.

149. Jack Fowler, ibid, (I am indebted to the B.B.C. for a transcript).

He has said that all Walder's allegations were entirely false and that an enormous amount of research time had been wasted investigating them. Walder has received compensation of £4,000 which she regards as public money, and she intends to continue campaigning for better laboratory animal welfare.

It would be highly irresponsible to conclude from this example that the majority of scientists are not humane or that high standards of animal welfare and care are not generally maintained. However, when such an incident comes to light concern will understandably be generated in the public mind, especially since the facts are not open to verification by anyone outside the scientific community. Dr. Peter Eaton has stated that it would be useful to establish a centre to which enquiries or disputes about animal welfare and husbandry could be directed. He stresses the problems facing the curator who must often rely upon his own judgement or that of his colleagues :

When a dispute arises between the curator and a scientist or Home Office inspector, then the lack of direction in the Act towards animal welfare becomes too clear. 150

This important role of the animal house curator was not envisaged in 1876 and the administration of the Act would clearly benefit by being updated so as to officially recognise his areas of responsibility and authority. While every attention must be paid to these important questions if and when the opportunity for new and comprehensive legislation arises, the greatest amelioration of suffering must, in the final analysis, be achieved by a general reduction in animal usage, as discussed in other sections of this chapter.

150. U.F.A.W. Symposium Report 1977, 74.

5. The Inspectorate

A common misapprehension among M.P.s and some societies in the past (and probably still a widely held view in the public mind) is that the inspectorate is meant to carry out a 'policing' type of role, being constantly on the lookout for misdemeanors among licencees.¹⁵¹ The Littlewood Committee pointed out that this is not so. In any case, it would not be possible to prevent cruelty by such methods if the climate of opinion with laboratories were not conducive to humane treatment of animals. Littlewood stated :

The view always taken by the Home Office has been that the inspector's task is to ensure that licensees understand and fulfil their responsibilities under the Act rather than to inspect experiments. 152

According to the Home Office, duties of the Inspectorate are:

1. To keep in touch as closely as they can with licensees in their districts, to know what the licensees are doing and be ready to guide and advise them so as to remove any risk of contravention of the Act or the conditions imposed in licences.
2. To advise the Secretary of State on all applications requiring his authority received from within their areas.
3. To scrutinise all publications dealing with experiments and to satisfy themselves that each published experiment has been carried out under proper authority.
4. To inspect premises registered for the performance of experiments.¹⁵³

The Inspectorate is also expected to exercise a general vigilance over the design and method of experiments.

Giving evidence before the Committee, the R.S.P.C.A. suggested relieving the inspectors of some of their paperwork so that they would be

151. See chapter II, 72-74.

152. Littlewood, para. 416.

153. Ibid, para. 418.

able to concentrate more upon laboratory visits. It regarded the inspector's essential primary function as carrying out a definite humane mission and suggested that he should evaluate suffering, order destruction of any animals found to be in severe pain thought likely to endure, and give guidance in post-operative care, humane techniques and methods of reducing the numbers of animals used (for example, by the use of alternative material). Littlewood was informed that inspectors had often given advice on such matters and on occasion had ordered the destruction of animals. The Home Office did not regard it as necessary to rely upon the inspectorate to ensure humanity on the part of licensees. It took the view that if the person had been judged fit to hold a licence he could be trusted to comply with the Act; his suitability had already been testified by the statutory signatories.¹⁵⁴

The Committee rightly saw little scope for "emergency rescue" work :

The fact is that the Act permits under conditions the infliction of pain for experimental purposes, and if he is complying with the law the licensee has no disposition to conceal it.

also :

It would serve no useful purpose if the Home Office were to authorise procedures administratively and then divert or interrupt their execution by routine inspectorial challenge. 155

It can be seen from this that any fundamental change in the role of the Inspectorate would not be possible without a corresponding change in interpretation and application of the Act as discussed elsewhere in this work.

The Committee, therefore, concluded that the role of the Inspectorate had been rather that of helpful consultants with whom the licencees willingly co-operated. It was of the opinion that this was its correct role.

154. It has already been seen in Section 2 of this chapter that the reform movement does not consider this safeguard to be sufficiently stringent or efficient.

155. Littlewood, para. 420.

Littlewood received little criticism of the calibre of the Inspectorate, though there was universal agreement that it should be given additional duties, higher status, and added numbers. The general pattern of the inspector's duties was upheld, but, as already discussed, inspectors should also make recommendations with regard to premises and husbandry in line with the Committee's proposals in this area. It also urged that there should be no limitation on the inspector's authority to question the purpose and design of any project, so as to enable him to reduce wastage and ensure that pain was reduced to a minimum. The Committee was of the opinion that humanity must be an important quality of all inspectors and that they must have a thorough knowledge of animal physiology, husbandry and diseases, and a familiarity with laboratory procedures. They should be recruited between the ages of 35 and 45 - most inspectors are recruited after retirement from other fields.

The Committee felt that a more recognisable career structure should be created and with this in mind it made detailed recommendations relating to inspectors' pay.¹⁵⁶ Littlewood recommended that candidates with veterinary qualifications should be recruited in addition to those with medical qualifications (the first veterinarian, also medically qualified, was appointed in 1963 and the second in 1964), but that recruitment should be restricted to these qualifications. Both qualifications would fit the inspector to assess the general merits of a research programme, while veterinarians would be more adept in the field of animal husbandry. The Committee felt it advisable that novice inspectors should be attached for a period of observation to experienced inspectors in several regions and sent on courses of training in animal husbandry, anaesthesia and other routine procedures. They should also be attached to large research institutes for familiarisation with special fields of research, such as

156. Ibid., recs. 63 (viii) and (ix), para. 441-443.

drug testing and stress, and provided with suitable instruction in ethics, methodology and statistical design. Training ought to be comprehensive, though the Committee recommended no formal list of requirements, since these could be expected to change with the progress of science and would largely depend upon the qualifications and experience brought to the job by the person in question.¹⁵⁷ The Committee suggested that the system ought to be further regionalised, with pairs of inspectors deployed in each region. A grade of Superintending Inspector should be introduced, located at headquarters or in selected regions, and responsible for oversight of activities of subordinate regional offices.

At the time of the Littlewood Committee, most laboratories were receiving not more than two visits per year from the inspector, and in some cases less than one visit per year. The Committee concluded from its evidence that about four visits would be necessary. Assessing the overall situation the Committee concluded that a minimum of 21 inspectors, made up of sixteen inspectors, four Superintending Inspectors and one Chief Inspector was required, whether or not the law was reformed in the manner it had already suggested. It further recommended that this be provided as soon as possible and deployed on a regional basis.¹⁵⁸

The Home Office did not act particularly swiftly to implement these recommendations and they have never been implemented in full. Part of the reason may be the additional expense which would be incurred. However, the Inspectorate has always been kept under review. In 1962, only six full time inspectors were employed, but by 1968 the number had been increased to ten. The composition at that time was nine medically-qualified persons and one veterinarian. In 1969 it was disclosed that

157. Ibid, para. 433.

158. Ibid, rec. 63 (vi) and (vii) para. 440.

each premises was visited on average about three times per year, usually without notice.¹⁵⁹ The complement of inspectors now stands at fourteen, seven of whom have veterinary qualifications. In 1971 a spokesman for the Home Office pointed out that in assessing the required strength of the Inspectorate the Littlewood Committee had failed to take account of the sizeable number of licensees who are inactive each year. It had concluded that the desirable number of licensees each inspector could deal with would be 500, an absolute maximum of 750. In 1969 there were 605 registered premises, 1,252 active licensees and thirteen inspectors. This meant that each one was responsible on average for 712 active licensees, which was coming down to the range envisaged by Littlewood.¹⁶⁰ At this time the Home Office felt that the inspectorate force was adequate and that the field work was properly balanced with the administrative duties. It was not felt that the force of 21, recommended by Littlewood was necessary, though the whole area was to be kept under review. Currently, therefore, there is now roughly a proportion of one inspector to 1,300 licensees, that is about one to every 420 active licensee. In 1976 there were 5,861 visits to approximately 500 licensed premises.¹⁶¹

The frequency of visits depends upon a number of factors. Lord Platt has pointed out that the system cannot be worked-out according to a mathematical sum.¹⁶² The Inspectorate may now be considered adequate since in many cases thousands of animals may be housed in a single establishment. Inspectors do find time to visit such establishments three or four times per year. In some cases it is more frequent than this, in others, less frequent, depending upon the workload of the

159. Lord Stoneham speaking for the government during the Lords debate on Littlewood, 6 Feb. 1969. H.L. Deb. [299], c.203-207.

160. These figures were given to Mark Carlisle speaking for the government during the Commons debate on Littlewood, 11 Jun. 1971. H.C. Deb [818], c. 1395-1475.

161. The number of premises fluctuated during the year. See H.O. 'Return of Experiments on Living Animals 1977.

162. See the Houghton Debate 14 May 1975, H.L. Deb. [360], c.746-752.

of the establishment. The inspectorate is now regionalised along the lines suggested by Littlewood. The Home Office has under review the question of relieving the Inspectorate of some of the administrative duties which, at present, take up approximately half of the time.

The R.D.S. has expressed the opinion that there can be no objection to an increase in the number of inspectors, apart from expense, though the number is now sufficient to provide a frequency of inspection which compares favourably with other Inspectorate schemes relating to the health or welfare of animals or humans.¹⁶³ This Society does, however, take grave exception to a number of the recommendations put forward by Littlewood regarding the Inspectorate, for example, the recommendation that there should be no limit to the inspectors' authority to scrutinise and advise upon method and design of experiments. It has stated :

Like so many of the other recommendations, but to a greater extent, it attempts to take out of the licensee's hand a degree of discretion that he should be encouraged to exercise. The assumption that inspectors are capable of giving a highly technical opinion on all research procedures is patently absurd. The nature and design of experiments vary so much in the different disciplines that few, if any, of the inspectors could be competent advisers in all fields. 164

The R.D.S. also felt that young and successful workers were not likely to contemplate a career in the Home Office Inspectorate, and in any case no one of that age would have the expertise and background to justify the level of interference with concept and design of experiments envisaged by Littlewood.

There is some justification for these criticisms, though it is possible that if the Advisory Committee were reconstituted and its functions

163. R.D.S. paper No. 2 "Briefing Notes on R.S.P.C.A. Animal Experimentation Advisory Committee Recommendations", in Conquest No. 167 (1976), 9-11.

164. "Experiments and the Littlewood Report", Conquest No. 160 (1969), 21-22.

extended as recently suggested,¹⁶⁵ it could be used to deal with appeals from licensees who felt that the Inspectorate was making unreasonable demands. Since a great deal of administrative work might result, these proposals would have to be very carefully thought-out and the question of whether they could operate efficiently considered.

A number of other criticisms is still levelled at the Inspectorate from various groups. Many reformists feel that there is still an insufficient number to enable inspectors to keep fully in touch with all licensees or to do little more than affix a rubber stamp to applications. Some reformists would like to see, rather than a simple regional division of the work, the recruitment of a small number of persons specially qualified in selected fields (e.g. laboratory animal husbandry), who could be consulted in special circumstances. As scientific research develops, the need for specialists will become more apparent.¹⁶⁶

Some laboratory technicians have been critical of the Inspectorate. One pathologist confided to Richard Ryder that whenever the inspector visited them, the laboratory telephoned other local laboratories to give them forewarning that he was on his way.¹⁶⁷ Others have stated that a "bush telegraph" operates in most laboratories so that even when the inspector arrives without notice, all departments are aware of the fact

165. See section 10 of this chapter.

166. A research worker in a Scottish laboratory was recently overheard remarking that one Scottish inspector has insufficient knowledge of primatology. He is said to have been unable to identify a marmoset and was under the impression that a squirrel monkey, (whose cheek pouches were full of food and therefore swollen), was suffering from some illness. (Information disclosed privately at the International Primatological Conference, Cambridge 1976).

167. Instance cited by Ryder at the Association of British Antivivisection Societies' Meeting in the Commons, 16 Jun. 1971, (minutes of meeting in B.U.A.V. archives).

within a few minutes.¹⁶⁸ Angela Walder has been more forthright in her criticisms :

Home Office inspection is a farce. The inspector turns up here, has a cup of tea with the Director to get his form signed and goes away. The only time he got steamed up wasn't over the welfare of animals, but because our windows weren't properly blocked off to prevent people seeing in. 169

Some of these criticisms seem to be based on the idea that the Inspectorate should be acting as a kind of police force, but as already pointed out, this idea was construed by the Littlewood Committee as mis-conceived, and in any case impracticable. Any scope for exercising greater control over procedures performed within the framework of the Act would depend upon a re-interpretation of its application. This could perhaps be done by a reinforced Inspectorate working in conjunction with a fully functioning Advisory Committee as discussed in section 10 of this chapter. The reform movement would like to see the Inspectorate strengthened further.

The Chief Inspector himself has stated :

While I could immediately make good use of one additional increase of thirty per cent or even fifty per cent as has sometimes been suggested, would be dependent on a restructuring of the inspectorate. Such suggestions are based on a lack of understanding of the function of the inspector and how he carries out his duties. Even if a case could be made out for such an increase there is little prospect of its succeeding during the present financial and manpower restrictions. 170

Bearing such difficulties in mind, the Houghton-Platt Memorandum makes no specific recommendation as to numbers, but suggests that there should be more inspectors, of whom not less than half should have veterinary

168. Private Communications with workers in commercial laboratories.

169. Quoted in the Observer, 13 Jun. 1976.

170. J.D. Rankin, U.F.A.W. Symposium Report 1977, 128.

qualifications and some of whom should be trained in behavioural science. It is recognised that a substantial increase in the Inspectorate in the near future is unlikely because of expense, but the Memorandum suggests that other recommendations of Littlewood should be followed, except that the Inspectorate ought not to be entirely regional but should allow for some degree of specialisation. It continues :

It should be part of the inspector's duty to advise licencees about techniques in anaesthesia, analgesia and euthanasia, and to make sure that these humane techniques, and any others recommended by the Advisory Committee, are being properly applied. We would maintain the existing relationship between the Inspectorate and the Home Office : that is to say that the Inspectorate would continue to be under the direction of the Home Secretary. Suitable liaison between the Inspectorate and the Advisory Committee would be needful and possible within this arrangement.

These recommendations presuppose the adequate training of inspectors as suggested by Littlewood and a reconstitution of the Advisory Committee as suggested by the memorandum and discussed in section 10 of this chapter.

6. The Scope of this Act

Procedures outside the scope of the Act

The scope of the Act is not sufficiently wide to meet the demands of the contemporary situation. The Littlewood Committee recommended extension of its provisions to cover passaging of parasites production or biological products, and the breeding of animals for research purposes (the breeding of animals with certain specified susceptibilities to be

regarded as an experimental procedure.¹⁷¹ Animals used in these categories are not protected under the Act,¹⁷² though in some cases, (for example in the production of anti-sera) they may be subjected to considerable discomfort and even death, while in all cases they must be confined within the restrictions of laboratory animal housing. The reformist movement would welcome extension of the Act to cover these procedures and the Houghton-Platt memorandum suggested that no procedure which interferes with animal's normal state of well-being (exclusive of veterinary diagnosis and treatment) should remain outside the scope of the Act. Thus many agricultural procedures and similar manipulations which are not strictly "experiments" would be included. Clearly such extensions would be desirable in a completely new Act, but would be productive of an enormously increased load of administrative work, and given the present economic climate, they are unlikely to be effected in the foreseeable future. Other extensions would be less difficult to effect.

However, the R.D.S., no doubt with public misapprehension in mind, has complained that some of the Littlewood proposals regarding scope would unnecessarily swell the numbers of experiments, and has stated that such procedures as breeding of specialised strains are already sufficiently controlled.¹⁷³

171. The Home Office has interpreted the term "experiment" to mean any procedure of which the outcome is uncertain. Littlewood adopted a wider definition of usages which should be controlled, including research diagnosis, teaching and student practical work, and suggested new schemes for such control. See Littlewood, chapters 16 and 17.

172. Other controls, however, are exerted, Ibid, paras. 283-286.

173. Conquest, No. 160 (1969), 20-21.

Application to the Crown

There seems to be no logical reason why the Act should not apply to the Crown. Government ministries are not bound by the Act, thus experiments performed by them need not be licensed or the details returned to Parliament. In fact all Government laboratories are registered under the Act and therefore amenable to inspection. All procedures which can properly be considered experimental, such as those carried out by the Ministry of Defence (excepting those restricted under the Official Secrets Act) are, in fact, licensed and returned. A number of procedures not considered to be experimental, such as some modifications of diet and breeding experiments carried out by the Ministry of Agriculture, are not.

Demonstration Experiments

The Littlewood Committee recommended a more specific control of experiments used in the teaching and training of students.¹⁷⁴ In accordance with this it suggested that the Home Office should approve the syllabus of each establishment, scrutinising numbers and variety of species, qualifications of staff and the type of qualification for which the student is studying. Furthermore :

To ensure reasonable uniformity of standard and to discourage the use of animals in "live" demonstrations of slender value we recommend that the Advisory Committee should be asked to consider and advise upon each scheme. 175

Species

The Act should now be extended to include a number of species not currently protected. Modern biological knowledge has added new pers-

174. Littlewood, paras. 306-314.

175. Ibid, para. 358.

pective to man's understanding of many species, for example, the phylum mollusca. It is known that the octopus can distinguish the twenty-six letters of the alphabet. Though little is yet understood about the intelligence or susceptibility to pain of this species it is clear that it may well merit the protection of the Act. Lord Halsbury has somewhat disdainfully pointed out that the reformist movement often fails to include invertebrates in its proposals and he has suggested that one reason may be their nasty, slimy disposition as opposed to the cuddlesome nature of cats and dogs.¹⁷⁶ Certainly the special provision afforded cats, dogs and equidae in section 5 of the Act and upheld by the Second Royal Commission seems to have been based on sentiment as much as any evidence of the greater sensibilities of these species.¹⁷⁷ The Littlewood Committee recommended that section 5 be repealed and the usage of species controlled administratively by a requirement that all applicants for licences and certificates specify more closely the species they intend to use, so that the most suitable choice and restriction of numbers in all experiments likely to be productive of pain might be effected.

One species which ought to be afforded very special protection is the dolphin. It is now known that this species has a level of intelligence close to our own, possibly in excess of it, and a very high degree of sensibility to pain. Though no experiments upon this animal have been conducted in Britain, any new legislation ought to make provision for it. Primates also are afforded no special protection by the Act, though these species have been used in considerable numbers.

176. See the speech made by Lord Halsbury during the second reading of the bill presented by Baroness Phillips, 10 Dec. 1975, H.L. Deb. [347], c. 991 997.

177. See chapter II,

The Littlewood Committee suggested that in specific fields of control, the Secretary of State should have extensive power to make regulations which would enable the system to keep abreast of new developments in experimental work. Under the new system of control envisaged by the Committee, this power to impose conditions upon licences would be available in fields of work not presently covered by the Act.¹⁷⁸ In the absence of new legislation, a considerable updating of the provisions of the Act along the lines discussed above, might be effected administratively. Much of this might be achieved by the Advisory Committee as suggested in the Houghton-Platt Memorandum.¹⁷⁹

7. Alternatives to Animal Experiments

The Littlewood Committee concluded that the Act could not be used as a means of altering the course of research, and the Home Office has always taken this view, seeking only to administer the Act as it has found it.¹⁸⁰ Alternatives to the use of living animals in experiments have been developed by the scientific community and often readily adopted by them. Moreover their development has been encouraged and promoted by voluntary bodies.¹⁸¹ Much greater scope for the reduction of animal usage by employment of alternatives exists at the present time than was the case in the early 1960's. However, no Government initiative in this area has yet been forthcoming; the need clearly exists for a clear direction of government funds into this specific area.

178. Littlewood, paras. 451-452.

179. See section 10 of this chapter.

180. Littlewood, para. 300.

181. See chapters VI and VII.

In the opinion of one scientist :

All investigators using animals would like to find alternatives, but often they lack the resources to pursue the search for alternatives. A real contribution to this problem could be made if reasonable support for this search could be implemented. 182

Animal Welfare groups have continually urged the Government to allocate funds for this purpose. In 1974, the S.S.P.V. pointed out that total government expenditure for 1972-73 on medical research amounted to £65.5 million, while a further £5.6 million was spent on veterinary research,

If just two percent of that sum was directed into the search for alternative techniques, this would provide nearly one and a half million pounds per annum. 183

In the 1971 Commons debate on Littlewood, Richard Body drew attention to the fact that a large proportion of animal experimentation in Britain is conducted on behalf of the government and is paid for, directly or indirectly, by the taxpayer. The public, therefore, have a right to look to the government for a lead in the development of alternatives. Without being critical of experimentalists he pointed out that a changeover to new methods and ideas must always be difficult and would require the stimulation and leadership which was currently lacking and which both the public and the licensees wanted the government to provide.¹⁸⁴ In 1970¹⁸⁵ and again in 1973¹⁸⁶ bills were introduced into the Commons to amend the 1876 Act so as to enforce the use of alternatives where they

182. Professor Edsall, Head of the Microbiology Department at the London School of Hygiene and Tropical Medicine, letter to the Times, 13 Jun. 1973.

183. S.S.P.V. Annual Pictorial Review (1974), 48.

184. See also chapter VII.

185. The Cruelty to Animals Act 1876 (Amendment) Bill brought by Richard Body, first reading 30 Nov. 1970 H.C. Deb. [807], c.913. Second reading 23 Apr. 1971 H.C. Deb. [815], c.1596. Sent to Standing Committee on 16 Jun. 1971. Official Report Standing Committees C and D Vol. III 1970/71. Session 1970/71 Bill no. 59.

186. The same bill brought by Douglas Houghton. First reading 11 May 1973 H.C. Deb. [847], c.429. Second reading 11 May 1973 H.C. Deb. 856, c.884-942. Sent to Standing Committee 23 May 1973, Official Report Standing Committee C, 1972/73. Session 1972/73 Bill no. 31.

were feasible. This campaign was backed by the N.A.V.S. which was pressing for the setting up of a government sponsored institute designed to develop alternatives.¹⁸⁷ The move was not supported by the M.R.C. or by F.R.A.M.E. because, as Margaret Thatcher, then Secretary of State for the Department of Education and Science, rightly pointed out with respect to the development of alternatives :

All such developments arise from a particular research problem. Indeed, work of this kind is more likely to be fruitful if pursued in close conjunction with the scientific research activity to which it may be applied. Results become widely known through scientific literature and are, therefore, adopted by other workers in relation to their own particular research problems ... the fact is that progress is likely to be quicker through existing scientific channels than by pursuing the search for alternatives outside the main stream of research.

She continued :

Indeed the M.R.C. is not in favour of establishing an institute for the development of alternative techniques in isolation from other research; rather, it has chosen to encourage new methods by the development of specialist sections and divisions within its establishments where staff with special technical skills can work with other scientists to the best mutual advantage. 188

She concluded by stating that it had been a policy of the M.R.C. to foster collaboration between the scientific disciplines by placing its research institutes within existing universities, thus facilitating access to the scientific community at large. As the R.D.S. has shown, the adoption of alternatives could not be enforced by law, nor would such legislation speed up their development. Prior to the committee stage of Houghton's bill in 1973 the Society had circularised licensees asking them what problems they envisaged if the bill was enacted. The replies drew attention to the following points :

187. See also chapter VI, 330-332.

188. 31 Mar. 1971 H.C. Deb. [814], c.1645. For F.R.A.M.E.'s view see letter to the A.V. Times, (B.U.A.V. newspaper), Mar. 1973,3.

1. it would be outside the competence of the Inspectorate to answer queries of licensees as to whether viable alternatives were in fact available in each case;
2. a decision in the courts as to whether or not a valid alternative was available would be unlikely to be of much use as a precedent because scientific methods were advancing all the time;
3. the proposals were in conflict with existing legislation. Mandatory animal tests are laid down in a number of instances where alternatives are available. In fact these do tend to be replaced eventually where the alternatives are sufficiently validated, e.g., in the case of vaccine production and testing.¹⁸⁹

Opposed by the scientific community and by the government, this bill was talked out during its third reading.

The subject of alternatives might not be amenable to legislation, but there is justification for reformists' complaints that, if the matter were left to the D.E.S., very little would be done to promote their development. There is very little liaison between the Home Office, which exerts control over animal experimentation and the D.E.S., which sponsors research. The Littlewood Committee was critical of this compartmentalisation, yet the government has done very little to amend the situation. As Kenneth Lomas, M.P., complained :

If alternatives exist, we must use them. If they do not exist, we must find them. Each year the number of animals used for experimental purposes increases, yet the Home Office sits back and does nothing. It has a moral responsibility to do something. 190

Positive incentives could and should be given to the development of alternatives within the mainstream of research. The Houghton-Platt Memorandum recommended the setting up of a central unit to collate and disseminate information, and to co-ordinate research programmes in

189. R.D.S. circular to M.P.'s 20 Jul. 1973.

190. H.C. Deb. [856], c.896-897.

existing laboratories. The chief objection to this much-needed scheme is expense. The F.R.A.M.E. centre has attempted to fulfil such a function with a very limited budget, but has been unable to secure government funds. The M.R.C. has always encouraged the employment of alternatives where possible in its own research programmes. Similarly in its "notes for guidance of research works" in the Guidance Handbook 1973, the Royal College of Surgeons urges that :

Before embarking on a project entailing the use of animals, a research worker should satisfy himself that no alternative technique will meet the needs of his investigation. 191

A senior Home Office official has tentatively suggested that a voluntary provision might be made requiring signatories of certificates to assert that no known alternative must be available for the proposed work.¹⁹² If they declined to sign applications, a full report might then be sent in to the Home Office. In this way a central pool of information could be built up. Clearly, the Advisory Committee as envisaged by the Houghton-Platt group could play a vital role in collating and disseminating such information. Very recently in response to the continuing pressure in this area, the Prime Minister, James Callahan, gave a definite undertaking to look into the question of co-operation between government departments so that the development of alternatives might be fostered and a reduction in animal usage secured.¹⁹³ As a result a preliminary meeting has been held between the Home Office and the D.E.S., the outcome of which is awaited, though it has been intimated that official exhortations from the Home Office to employ alternatives wherever possible will be issued to all licencees under the Act.¹⁹⁴

191. R.C.S. policy statement at the U.F.A.W. Symposium 1976. See Symposium Report 1977, 103-105.

192. Personal communication with H.O. official.

193. 8 Dec. 1977 H.C. Deb. [940], c.1642-1644.

194. I am indebted to Dr. A N Rowan of F.R.A.M.E. for this information.

8. Supply

As noted by the Littlewood Committee :

The 1876 Act contains no provision for regulating the supply of animals. The only specific provision in this regard is section 3(5) of the Dogs Act (1906) which provides that stray dogs seized by the police under authority of the Act may not "be given or sold for the purposes of vivisection". Experimenters are, therefore, at liberty to procure their animals in any way they please, provided they do not contravene the ordinary law, and neither the Act nor any other statute gives the Home Office authority to enquire into sources of supply. 195

When the Laboratory Animals Bureau was established in 1947 under the auspices of the M.R.C., most experimental animals were obtained from breeders selling their own stock direct, or from dealers buying from diverse sources and re-selling. (Brief consideration is given elsewhere in this work of wastage of animals which may occur through usage of diseased or otherwise unsuitable stock.)¹⁹⁶ In order to raise the standard of animals produced by breeders the L.A.B. accreditation scheme was started in 1950. In 1974 the M.R.C. noted that since this time the membership of the scheme has remained in the region of 70 accredited breeders "who are widely recognised as breeders of superior quality animals".¹⁹⁷ In 1958 when the Bureau became the Laboratory Animals Centre and the variety of species covered by the scheme, originally limited to mice, guinea pigs and rabbits was extended to cover also hamsters, rats, cats and dogs. Two schemes were then available to suppliers :

1. Accreditation for breeds of seven species.
2. A recognition scheme for the breeds of all other vertebrate and invertebrate species.

195. Littlewood, para. 141.

196. See chapter VII, 450.

197. M.R.C.L.A.C. Manual Series No. 1 (2nd edit. Jan. 1974), 3.

In 1969 microbiological grading of accredited species was introduced and after three years this system was carefully evaluated by the Centre with assistance of two advisory committees.¹⁹⁸ The schemes are entirely voluntary and were (until 1977) free of charge.

Facilities of the accreditation scheme include inspection of breeders' premises by L.A.C. staff and provision of expert advice upon all subjects of laboratory animal science, supply of the L.A.C. monthly journal Parade State to many laboratories, containing details of accredited breeders and recognised suppliers within the scheme, an annual conference for all participants in the scheme of the L.A.C. of which all breeders and suppliers receive the proceedings, the collection of names, addresses and all relevant details of each accredited breeder in a "Register of Accredited Breeders" widely supplied to laboratories throughout the U.K. and abroad, and publication of a Breeders and Suppliers News Sheet circulated to scheme participants. A consultative diagnostic service is also available to breeders in cases of death or disease of their animals.

198. The first, the Accreditation Grading Advisory Committee (A.G.A.C.), was composed of representatives from universities, pharmaceutical companies, government research organisations the Public Health Service and the Laboratory Animal Breeders Association (L.A.B.A.). This committee evaluated the significance of pathogenic and non-pathogenic micro-organisms and parasites infesting laboratory species. Special attention was paid to cross-infection between man and other animals and the effect that an infection might have on experimental results. The committee also investigated the incidence of infection in relation to breeders' systems of husbandry. The second committee, the Accreditation Microbiological Advisory Committee (A.M.A.C.), consisted of expert pathologists, microbiologists and parasitologists who laid down the methods of sampling isolating, and identifying the micro-organisms considered significant by the first committee. See the M.R.C. L.A.C. Survey Report, May 1974, Survey of the Numbers and Types of Laboratory Animals Used in the U.K. in 1972, Manual Series No. 3 1974.

The Recognition Scheme exists for supply of all species not covered by the Accreditation scheme and offers a similar service. Very specific rules apply in the case of cats and dogs which may be covered by either scheme.

The L.A.C. has also conducted surveys of the numbers and types of Laboratory Animals used in the U.K. The latest survey was undertaken in 1972. Though the information obtained from these surveys is incomplete, it is the only information of its kind available at the present time. According to the 1972 survey of the laboratories which participated, approximately 45% of animals were home bred and 43% supplied under M.R.C. approved schemes. Only 12% came from other sources. However, of the 608 questionnaires sent out to registered laboratories, only 425 were returned and so the above figures can not be taken as conclusive. Overall, the percentage of animals supplied from other sources may be considerably larger.

The Centre informed the Littlewood Committee that it had not always been possible to balance gluts against shortages. From time to time wastage of animals may result from this situation, but it is difficult to see how it might be avoided.

Supply of cats and dogs

It is the supply of cats and dogs which has caused the greatest concern to animal welfare workers and to laboratories.¹⁹⁹ For many years the majority of these were obtained from dealers and often passed through several hands before sale to laboratories. Supplies were unpredictable,

199. See the discussion of evidence before the Second Royal Commission in chapter II, 110-114.

the animals were of poor quality and the risk that they might be stolen could not be eliminated.²⁰⁰ Scientific authorities were so concerned about scarcity of supplies that it was often suggested that police should be empowered to hand over stray cats and dogs.²⁰¹ Unnecessary suffering had been occasioned by the practice adopted by some laboratories of purchasing animals and keeping them for long periods as an insurance against shortage.

Illegal Traffic of Pets

Antivivisection societies and other animal welfare organisations have repeatedly expressed concern that stolen pets are frequently sold to laboratories. Numerous representations about this have been made to the Home Office which has displayed considerable apathy about the situation. The usual reply given to questions on the subject in Parliament is that there is little truth in rumours about lost pets finding their way to laboratories, that most are specially bred or supplied by accredited breeders, and that any stolen animal would come under the Theft Act (1968).²⁰²

The Littlewood Committee made some enquiries into the matter and received evidence from the R.S.P.C.A., B.U.A.V., National Canine Defence League and members of the public to the effect that there was a thriving trade in procuring animals from the streets or from the public (who were deluded into thinking that were to be found good homes by vaguely-worded advertisements in local newspapers) and disposing of them to laboratories.²⁰³ The incidence of this traffic was difficult to establish, particularly in

200. See Littlewood, para. 507.

201. See chapter II, 110-114 and Littlewood, chapters 25 and 26.

202. For example see H.C. Deb. [777] c.210, H.C. Deb. [777], c.352, H.C. Deb. [780], c.70, H.C. Deb. [871], c.615-616, H.C. Deb. [912], c.414.

203. Littlewood, paras. 511-520.

the case of the cat which is ferae naturae and not subject to common larceny law except under the Larceny Act (1861)—when it could be shown that the animal had been "ordinarily kept in a state of confinement or for any domestic purpose."²⁰⁴

The Committee also made detailed enquiries of the police regarding missing and stolen animals but the information it received gave no clear indication of the extent in illegal trafficking. The Home Office informed it that "none of the police forces regarded the stealing of cats and dogs as a problem and none of them had any evidence to suggest that stolen animals are being sold to medical research laboratories."²⁰⁵ Shortly after the publication of the Littlewood Report the N.A.V.S. made the following comment :

It would be an understatement to declare that we are surprised to learn from the Report that the Chief Constables of seventeen areas had been questioned and none of them regarded the stealing of cats and dogs as a problem, and none of them had any evidence to suggest that stolen animals are being sold to medical research laboratories. It is our experience that seldom a week passes without someone telephoning us with details of an outbreak of pet stealing in their vicinity and we advise them, among other things, to notify the police. 206

The B.U.A.V., which states that it knows of a number of dealers who trade in stolen pets, has attempted for many years to keep track of their activities :

The B.U.A.V. alone has spent thousands of pounds in tracing suspects and now and again manages to bring a man to court on a charge of receiving or actual pet stealing, but, even then, it is not always easy to secure a conviction. 207

The N.A.V.S. statement cited above, went on to give authenticated cases

204. Ibid, para. 513

205. Loc. cit.

206. Quoted by Guy Heriot of the B.U.A.V. in his unpublished critique of the Littlewood Report, 178.

207. Loc. cit.

of cat stealing and showed that there was no lack of evidence of prosecutions for such offences; such evidence, said the N.A.V.S. was presented to the Littlewood Committee in the form of photostat copies relating to convictions obtained by the R.S.P.C.A. and by the Aberdeen Association for the Prevention of Cruelty to Animals. There was also a reprint from the Medical Review relating to 720 stolen cats.

In February 1966, Harold Walker M.P. called a short adjournment debate to draw attention to this problem. He stated that in his constituency many animals had often been reported missing and he also gave the case quoted in the Sunday Mirror of 21 June 1964 of a cat identity parade held at the Physiological Department of Cambridge University, where many cat owners from different parts of the country had reclaimed pets just about to be sold. He asked if the Littlewood recommendations at least relating to this problem could be implemented, but received no firm undertaking on this.²⁰⁸

The question of supply should be brought under statutory control. Such control has been effected in Sweden for many years by Act No. 219 on Protection of Animals, 19 May 1944, which stipulates that all laboratories should keep a purchase journal of relevant details relating to their suppliers of cats and dogs. This must be submitted to the local health board each year. No cats and dogs may be used until seven days after purchase, in order to allow time for lost pets to be recovered.

Appropriation of pets as described above is not only an outrage to public sentiment but it also results in a considerable degree of suffering being inflicted upon animals which have never been held in captivity. In recent years the problem has been partly alleviated by a considerable

208. 18 Feb. 1966, H.C. Deb [724], c. 1792-1800.

extension in laboratory breeding of these species. In the M.R.C. survey for 1972, figures for those laboratories taking part showed that around 30% of dogs and cats were home bred, and 40% were supplied by M.R.C. approved schemes, but 24% of cats and 30% of dogs were still supplied by dealers. Over the entire range of laboratories the latter figure may be higher.

Even when these animals are home bred, the provision made for them in premises not amenable to Home Office inspection seems appalling to animal welfare workers, who describe the conditions as comparable to those found in poor zoos and on factory farms. Carnivora are not species amenable to close confinement. The Houghton-Platt Memorandum states that the conditions in breeding establishments should be carefully scrutinised and these premises should be registered and inspected. The Littlewood Committee recommended that the whole question of supply should eventually be brought under statutory control. It observed the very varied standards of husbandry in breeding establishments and emphasised the need for inspection. However, twelve years after detailed suggestions were offered by the Littlewood Committee no government initiative has yet been given in the direction of bringing supply under statutory control, or of bringing breeding establishments within the purview of the Act. In 1969 Eric Lubbock, M.P., supported by David Steel and Mrs. Winifred Ewing, brought forward a Bill to Control Supply of Live Cats and Dogs for Purposes of Painful Experiments, drawn up along the lines of control recommended by Littlewood. It received no government support and was dropped at the second reading.²⁰⁹

209. H.C. Deb. [779], c.687.

Supply of Primates

The supply of primates poses special problems. Usage of these species is small as a percentage of the total animal expenditure in the U.K., but in terms of absolute numbers, it is not inconsiderable. As already stated, primates receive no special consideration in the Act, and numbers used are not reported separately in the Return. A survey conducted by Hobbs and Bleby on behalf of the M.R.C. in 1976 indicated that approximately 9,400 primates are used annually.²¹⁰ About 4,300 were used in the field of vaccine manufacture and testing, in which some use of these species is still indispensable.²¹¹ Hobbs and Bleby found evidence that research workers would always choose to employ other species in their research wherever possible, but they listed a number of fields in which use of primates had been considered necessary.²¹²

The survey showed that 99% of primates used in the U.K. are imported from the wild. Because of the high mortality in transit and early confinement, in addition to the wastage of animals which are found to be diseased and unsuitable for use, it is estimated that at least two animals are trapped for every one used. The conditions of trapping, boxing and transportation are often appalling and result in considerable stress, a heavy mortality and high abortion rate. Some of the species used are either threatened with extinction or likely to become endangered. The main causes of this are habitat destruction due to urbanisation, but the situation is exacerbated by trapping. An example is the once prolific Indian rhesus monkey, still common but now becoming scarcer in rural areas. Other endangered species included certain marmosets and the chimpanzee. Some species are subject to import controls in the

210. See K.R. Hobbs and J. Bleby, Laboratory Non-Human Primates for Bio-Medical Research in the United Kingdom, M.R.C. L.A.C. Report, May 1976.

211. See also chapter VII.

212. Hobbs and Bleby op.cit., 6-8 and appendices.

U.K. and many countries of origin are imposing strict controls or absolute bans on export in line with recommendations of the International Union for the Conservation of Nature. In 1977 India banned the export of rhesus monkeys largely as a result of the efforts of the International Primate Protection League, (I.P.P.L.).²¹³

Thus there are strong incentives on humanitarian, ecological and scientific grounds for the captive breeding of primates for biological research as long as their use is to continue.

Primate breeding is expensive and requires skilled management, but all of the most commonly used species can be successfully bred in captivity, costs of such breeding being offset by saving of monies incurred through tremendous wastage of unsatisfactory animals obtained from the wild. A number of primate breeding colonies have been established in British institutions, but primates are not yet bred on a commercial scale in the U.K. The M.R.C. survey was produced in 1971 but publication was unavoidably delayed until 1976. Its authors concluded :

The reasons for producing the report are stronger than ever and as forecast in the report, many species of primate are now either unobtainable from the wild or in very short supply. The breeding of primates specifically for laboratory use is urgently recommended.

The conservation of primates in the wild is a grave, urgent and international problem which should not be exacerbated further by trade for laboratories.

213. Prime Minister Desae had been unsympathetic until the publication of a paper by Shirley McGreal of the I.P.P.L. which convinced him that these animals were used in cruel experiments such as radiation research. Representations had also been made to the Indian government by the I.A.A.P.E.A. during the large Animal Welfare Conference held in New Delhi in 1977.

However, humanitarians will not be satisfied by a simple switch from imported to captive-bred animals. The intelligence and sensitivity of these species must qualify them for special protection, and animal welfare workers feel that all steps should be taken to reduce primate usage still further. The sufferings incurred by these animals not only when they are subjected to experiments, but when they are closely confined in laboratories (and zoos) is a distressing problem.

Export

The export of British bred laboratory animals to other countries lies outside the scope of the 1876 Act. However, reformists have pointed out the inconsistency of exporting animals to countries where controls over animal experimentation are less stringent than our own. Richard Ryder has also expressed concern about agreements with other countries whereby experiments prohibited under the 1876 Act are carried out on behalf of British scientists in foreign laboratories.²¹⁴ No information is available from the Board of Trade or the Home Office regarding numbers, species and destination of exported animals. Repeated calls for such information have been made in Parliament. A number of attempts to secure legislation banning this trade have failed;²¹⁵ the government excuse being that such a ban would constitute an abrogation of reciprocal agreements between British and foreign scientific communities and governments.

Professor Paton has also pointed out that an export ban would penalise developing populations who are dependent upon supplies of suitable animals for example in the production and testing of vaccines. He states :

214. See Victims of Science, 132.

215. Export of Animals for Research Bill, 1966/67 bill 130, 1967/68, bill 108; 1972/73 bill 29. Introduced into the Lords and debated 30 Jan. 1969, H.L. [298], c.1321-1366. A more comprehensive bill was put before the Commons in 1975/76, bill 157.

It must be remembered that the technical requirements for maintaining these latter systems are considerable and often beyond the capacity of the countries requiring help.

Many countries, particularly those of the developing world, do not have the facilities, or skills, required for the production of high grade laboratory animals free from specified diseases, and therefore without specific antibodies. Such animals are important in the early diagnosis of epidemic diseases, as well as in dealing with routine endemic problems in human and animal populations. Britain was the only country able to provide guinea-pigs in connection with the pandemic of African Horse Sickness in the Middle East. Similarly U.K. stocks of dogs are, at present, free from hepatitis and rabies and for this reason are in demand all over the world where these diseases are rampant. 216

As this trade is likely to continue, the reform movement is concerned that rigid controls must be exerted over conditions of transit, both within and outside the U.K. The Houghton-Platt Memorandum suggests the provision of special export licences. Numbers of animals exported and conditions should be closely monitored.

9. The Advisory Committee

The Advisory Committee to the Home Office was appointed by the Secretary of State to replace the A.A.M.R. in 1913, as a result of recommendations made by the Second Royal Commission.²¹⁷ Its function has been to consider applications for authority to perform experiments only in cases of a novel character or which pose particularly difficult questions of principle. It has met only when requested to do so by the Home Secretary, and these meetings have been exceedingly rare. Its constitution has been a scientific one; at the time of the Littlewood Report it consisted of three persons nominated by the Royal Society,

216. R.D.S. Press Release, 25 Oct. 1976.

217. See chapter II, 121-122.

three nominated by the Royal College of Physicians, three nominated by the Royal College of Surgeons, and one person nominated by the Royal College of Veterinary Surgeons.

Littlewood stated that both Royal Commissions appeared to have in mind two main purposes for this consultative machinery, namely :

1. To prevent eminent scientists from feeling aggrieved because their own proposed experiments were disallowed by the Home Office on its own unsupported authority;
2. To reassure the public that proposals for undesirable or cruel experiments would be subject to critical scrutiny.²¹⁸

Owing to the fact that the Advisory Committee has been precluded from meeting on its own initiative and because referrals to it have been so exceedingly rare, it certainly has not fulfilled the latter function.

The Littlewood Committee was informed that, since its inception in 1913, the Committee had considered only 148 proposals, and until 1962 when it was consulted by the Home Secretary, it had been given no opportunity whatever to comment on general aspects of the working of the Act.²¹⁹

In view of this Littlewood was not surprised to find that many licensees were unaware of the existence of the Advisory Committee.

The Committee made a number of valuable and important recommendations with respect to the advisory body :

1. In addition to giving expert advice on individual proposals of a novel or controversial nature it should be called upon to comment upon mandatory tests prescribed under the Diseases of Animals Act (1950) and Therapeutic Substances Act (1956) and the use of animals for teaching purposes.²²⁰

218. Littlewood, para. 455

219. Ibid, rec. 71. para.460.

220. Ibid, paras. 335 and 358.

2. For an initial period of, say, five years, it should be consulted about every proposal to perform experiments designed to induce stress.²²¹

3. The Home Office should bear in mind the desirability of consulting the Committee whenever a particular trend or volume of applications appeared to justify special review.

It was further recommended that provision be made in the Act for the establishment of the Advisory Committee as a standing body to advise on such matters as were referred to it by the Secretary of State.²²²

While the Committee did not envisage giving statutory authority to the decisions of the advisory body (since this would detract from the ultimate authority of the Secretary of State, giving rise to confusion and conflict), it did recommend that the Advisory Committee be empowered to meet on its own initiative in order to advise the Home Secretary concerning any matters relevant to the care and usage of laboratory animals. In this way the Advisory Committee would be given a continuing responsibility and a roving commission to examine and make recommendations upon the administration of the Act. Such a function was recommended by U.F.A.W. and would pre-suppose that the Committee be adequately staffed, provided with detailed information, empowered to make enquiries on its own responsibility and given free access to laboratories and licensees. Littlewood noted that in these respects its status would not be unlike that given to the Central Health Services Council in section 2 of the National Health Services Act (1946).²²³

221. Ibid, paras. 459 and 460.

222. Ibid, rec. 71 (iv) para. 467.

223. Act 9 and 10 Geo. 6 c.81.

Littlewood agreed with the R.S.P.C.A. proposal that the constitution and function of the advisory body should be such that the public would :

Be assured that vivisection in this country is thoroughly known to a body of men and women of distinction and knowledge whose concern is to bring about a balance between the legitimate claims of research and the paramount need to obviate all possible animal suffering. 224

It was also felt that if the advisory body were statutorily empowered to meet on its own initiative, opportunity would be afforded for it to take a broader view of the whole working of the Act which the Littlewood Committee felt was required by the three unanswered questions outside its terms of reference and subject of Joyce Butler's Reservation Memorandum. 225

Furthermore, it was suggested that the status and value of the Advisory Committee would be strengthened if it were required to submit an annual report of its activities and its own comments on the Home Office Annual Return each year to the Secretary of State for publication. 226

Such a requirement would ensure that the Committee had adequate information with which to review general administration of the Act and to enable it to concentrate upon developments of major importance. It was pointed out that a precedent existed for such a duty in the Legal Aid and Advice Act (1949). 227 Littlewood went on to make the following recommendations :

1. The Advisory Committee should consist of a legally qualified Chairman and 12 members comprising :
 - 5 drawn from the fields of medicine, biological science, and pharmacy (including 2 representatives of teaching establishments,
 - 2 veterinarians,
 - 1 person knowledgeable in experimental psychology,
 - 4 lay persons.

224. Ibid, para. 466.

225. Ibid, para. 237, see also Chapter III, 135.

226. Ibid, rec. 71 (vi) para. 467.

227. Act 12, 13 and 14, Geo.6 c.51.

2. Both scientific and lay members should be chosen for their personal qualities and knowledge and in their own individual capacity.
3. The Secretary of State should consult the Royal Society, Royal College of Physicians, Royal College of Surgeons, Medical Research Council, Association of the British Pharmaceuticals Industry, Pharmaceutical Society of Great Britain and the Research Defence Society about the selection of experts in the fields of medicine, pharmacy and biological science; he should consult the Royal College of Veterinary Surgeons, British Veterinary Association and Agricultural Research Council about the selection of veterinarians; he should consult the Committee Vice Chancellors of Universities in the United Kingdom, the Association of Principals of Technical Institutes and the Pharmaceutical Society about the selection of persons from teaching establishments.
4. Appointments should be made by the Secretary of State for a period of four years with a compulsory interval between terms (if members are reappointed) and staggered retirements.
5. The Committee should have power to appoint other persons to serve on sub-committees.

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The last recommendation was based on the suggestions of U.F.A.W. that there should be a panel of advisors to deal with exceptional cases and of the British Veterinary Association which had proposed that the Committee should have power to appoint sub-committees of experts for consideration of particular problems. Littlewood was of the opinion that a provision along these lines would be a valuable means of reinforcing the standing body while keeping representation of special interests to a manageable size.

With regard to lay members, Littlewood felt that they would be particularly helpful in questioning the real merit of expert suggestions and in giving indirect reassurance to the public. It was also acknowledged that the presence of lay members on an expert committee should materially
 228. Littlewood, rec. 72 (vii) para. 471.

contribute to its efficiency, since experts may be diffident about questioning the opinions of other experts, while it was the duty of the lay member to do so.

The majority of these recommendations would require no legislation, nor would they have resulted in prohibitive expense, though the cost would be considerable if they were implemented in full. Furthermore, they seem to have been largely endorsed by the scientific community. The R.D.S. has recently stated that it would welcome greater use of the Advisory Committee, broadly as recommended by Littlewood. It sees this as important for public reassurance and suggests that the new Committee should publish its conclusions so far as they are relevant to work which has been publicly criticised.²²⁹ Dr. Lane-Petter has stated :

The reconstitution of the Advisory Committee would not require legislation. If the Home Office had overwhelming reasons for disregarding the advice it had been at great pains to obtain, these reasons have not been revealed. Such as have been given have failed to convince and Littlewood almost seems to have been a waste of effort, time and money. 230

He also endorsed many of the other Littlewood recommendations which have been largely ignored.

Similar sentiments have been expressed throughout the last twelve years in Parliament, to which the reply has often been that more than half of the Littlewood recommendations merely give statutory authority to what is already Home Office practice, while others are too impracticable. No satisfactory explanation has been given with regard to the failure to act concerning the Advisory Committee and there would seem to be no reason why these recommendations could not have been implemented soon after publication of the Littlewood Report, as indeed the Report

229. R.D.S. paper No. 2, Conquest, No. 167. (1976), 9-10.

230. W. Lane-Petter "Laboratory Animal Legislation in the United Kingdom" in Animals and the Law (U.F.A.W. 1976), 22.

suggested. It has already been pointed out that Littlewood regarded the creation of a new Advisory Committee as the first priority and an essential prerequisite to any new legislation, concerning which the Committee would be consulted.

However, the advisory body was not reconstituted, it was not given its own initiative and it continued to meet only on rare occasions.²³¹ The Committee was composed of persons with medical qualifications, mostly elderly. As a result of the public outcry with regard to the 'smoking beagles', the Home Office finally appointed four lay members to the Advisory Committee in March 1975.²³² The question of the smoking dogs was referred to the Committee, which reported its findings the following November.²³³ It was also disclosed that year that the Government had no proposals to alter the functions of the Advisory Committee

231. The Committee met once in 1966, not at all in 1967, once in 1968, not at all from 1969-1971, once in 1972, not at all in 1973, once in 1974, three times in 1975, and not at all in 1976 (though it considered two cases by correspondence). Between the years 1966 and 1975 it dealt with 20 cases at the 7 meetings and three by correspondence. See H.C. Deb. [909], c.370 and the Annual Return for 1976.

232. The present constitution of the committee is as follows : (asterisks = lay persons appointed in May 1975).
 The Rt. Hon. Lord Cross of Chelsea P.C. (Chairman)
 *Professor The Rev. Canon Gordon Reginald Dunstan
 *Mrs. Peggy Fenner
 Dame Frances V. Gardener, D.B.E., M.D., F.R.C.P., M.R.C.S.
 *Peter Hardy, M.P.
 Sir Francis Avery Jones, C.B.E., M.D., F.R.C.P.
 William Neville Mann, M.D., F.R.C.P.
 Sir John McMichael, M.D., F.R.C.P., F.R.S.
 Charles Edward Newman, C.B.E., M.D., B.C.L., F.R.C.P., M.R.C.S.
 Col. P. Storie-Pugh, M.B.E., M.C., T.D., D.L., M.A., Ph.D., F.R.C.V.S.
 C. Chem., M.R.I.C.
 John Wakeley, C. St. J., M.B., B.S., F.R.C.S., F.A.C.S.
 *Mrs. Mary Warnock
 D. Innes Williams, M.D. M.Chir., F.R.C.S.
 The Rev. Canon G.R. Dunstan is professor of Morals and Social Theology, Kings College. Mrs. Peggy Fenner is an ex-member of Parliament, Mrs. Mary Warnock is Research Fellow in Philosophy, St. Hugh's College, Oxford, Home Office Annual Return, 1977.

233. H.C. Deb. [902], c. 286-291, and H.L. Deb. [366], c.1063-1070.

since it was felt that such a role was already adequately filled by the Inspectorate. The Home Office did, however, intend to consult the Committee more frequently with regard to unusual or controversial experiments such as the smoking dogs and it also had it in mind to refer to the Committee the whole question of experiments involving stress.²³⁴

Intimations were given by the Home Office at about that time that there was general opposition among junior ministers and civil servants to the idea of any radical change in the function of the advisory body. The chief reasons appear to have been bureaucratic inertia (general opposition to change of any description) and a feeling that the new system would create more work for the Home Office while at the same time impinging upon its authority.²³⁵ This obstacle is certainly not inconsiderable.

Resistance from bureaucrats probably constitutes the major opposition to reforms in the Act's administration. An assessment by a well-reputed journalist, noted for his continual campaigns against the Department of the Environment, is probably pertinent here:

Government consists of elected politicians and unelected bureaucrats. The politicians are pretty irrelevant since they pass too fleetingly through the corridors of power to have much chance of making a difference one way or the other.

The bureaucrats, on the other hand, spend not just a few months but whole lifetimes in their departments. There are too many of them and they are too powerful. Behind their smokescreen secrecy they are a law unto themselves. Theoretically they are answerable to Parliament; in fact Parliament hasn't a clue what's going on half the time. Our elected representatives have moved on before they've had time to learn the

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234. This was disclosed by government minister Viscount Colville of Culross during the debate on the Baroness Phillips' bill on cosmetics testing 22 Feb. 1977. H.L. Deb. [380], c.13-83. See also replies to questions by Lord Houghton, 25 Mar. 1975 H.L. Deb. [358], c.1097-1099. 5. May, 1975 H.L. Deb. [360], c. 101-102.
235. Personal Communications with a senior Home Office official and also between Richard D. Ryder and the Home Office.

geography of the building, let alone influence
policies. ²³⁶

Reconstitution of the Advisory Committee and a radical alteration in its functioning was central to the proposals of the Houghton-Platt Memorandum presented to the Home Office in May 1976. The Houghton Group wishes to see a committee with considerable powers which could serve to exercise some real control over questionable areas of experimentation in the absence of the new legislation which the reform movement has been unable to obtain. It is a subject upon which Lord Platt feels strongly, having sat upon the Committee for eleven years himself, during which period it met only five times and advised upon nineteen cases, five of them by correspondence. He has further complained that the Committee never met at all to consider general principles such as animal husbandry and supply. Thoroughly disillusioned, he resigned from the Committee in July 1972. He has stated :

I think that the case is overwhelming for a reconstitution of this Committee, of its functions and duties and of the duties of inspectors to refer certain types of experiment to the Advisory Committee. ²³⁷

While the Houghton-Platt Memorandum was in preparation the group received a letter from Dr. Shirley Summerskill stating :

That the time is right for a general review of the composition of the whole Committee and the qualifications of its various members,

but she continued :

As I think you already know, we believe that the Littlewood Committee went too far in recommending a role for the Committee which would largely duplicate the existing responsibilities of the Department. At the same time, subject to one or two reservations we think that something broadly on the lines of the composition recommended by Littlewood would be appropriate for the role the Home Secretary would like to see the Committee perform. ²³⁸

236. Richard Boston, Guardian, 4 Dec. 1976.

237. H.L. Deb. [360], c.751.

238. Letter dated 10 Feb. 1976, quoted in the Houghton-Platt Memorandum, 7.

Far from wanting to duplicate the existing responsibilities of the Home Office, the group has put forward proposals for a much bolder approach to the whole question of control which would extend the existing responsibilities of the Department considerably. The memorandum recommends that the authority of the Home Secretary should be supplemented by a continually functioning Committee which would be representative of informed public opinion. Its function would be to carry out constant surveillance, check excesses and abuses, examine trends, such as the wide extension of commercial laboratories and the tendency to widen the interpretation of the Act so as to contravene its spirit, as discussed in section 1 of this chapter.

The Group feels that the Committee ought to be more representative of animal welfare and 'lay' opinion, have much wider terms of reference, a permanent staff of its own and a duty to make and publish annual reports to the Home Secretary. It proposes that the Committee should strengthen the Littlewood recommendations, with particular regard to the use of animals for toxicity and other tests of a growing range of products, many of which are non-medical. It also supports the recommendation made by Littlewood that the question of stress requires close scrutiny. The Memorandum makes the following suggestion for the constitution of the new Committee :

- a) a Chairman of standing but not necessarily a lawyer;
- b) seventeen members, of whom six shall be medical doctors, biologists or pharmacists, two with veterinary qualifications, one specialist in behavioural science, four animal welfare experts, three lay members and one lawyer.

The Littlewood Committee recommended against the inclusion of animal welfare representatives on the Committee. The R.S.P.C.A. had strongly favoured this but most other bodies been opposed to it. While the futility of inviting a representative of an abolitionist society to

advise upon the working of the 1876 Act is obvious, there would seem to be some scope for representation of animal welfare interest, particularly if the representatives chosen had some specialised expert qualities. Obvious possibilities might be R.S.P.C.A. inspectors, veterinarians, representatives of U.F.A.W. and a member of the scientific staff of F.R.A.M.E.

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In order that the functioning of the new Committee might be properly harmonised with the work of the Inspectorate and of the Home Office generally, the Houghton Memorandum laid down the following essential conditions :

- a) the Home Secretary would remain the minister responsible.
- b) the Inspectorate should become more independent, like the Factory Inspectorate, and should make, through the Chief Inspector, an informative (and not merely a routine) report to the Minister which would be published; and
- c) the Advisory Committee would not be confined to matters referred to it by the Home Secretary, but would have an initiative and powers of investigation of its own.

The Houghton-Platt Group envisaged the possibility of a real reduction of the suffering of animals in laboratories and feels that this can be accomplished if the numbers used can be reduced, and if also a closer interest is taken in the purposes for which animals are being used under the Act. If this function were to be fulfilled by the Advisory Committee the group believes that pressures for extensive revision of the 1876 Act would be considerably relieved, though new legislation must be envisaged in the long term.

239. F.R.A.M.E.'s suggestion that the Home Secretary appoint one of its representatives is now under consideration. See F.R.A.M.E. Progress Report No. 15, May 1977.

Reaction to the proposals of the Houghton Group has been mixed.

In his somewhat vituperative commentary upon the Memorandum, ex-Chief Inspector Colonel Vine took extreme exception to any usurping of what he saw to be the proper role of the Inspectorate. In his opinion :

The Houghton-Platt Committee does not appear to have considered the views of the inspectors nor to have properly informed itself on the functions of the Inspectorate. Instead it took upon itself to pontificate on the manner in which the Inspectorate should conduct itself, laying particular emphasis on carrying out certain procedures which have in any case been its normal routine practice. The Houghton-Platt Committee fails to realise that the Inspectorate is itself an advisory body to the procedures that may be new and unusual or unduly severe. Such occasions are comparatively rare.

More facetiously he continues:

The Houghton Platt Committee recommends a permanent Advisory Body (the Advisory Committee) to advise the existing Advisory Body (the Inspectorate) to advise the Home Secretary. Presumably at some future date another Advisory Body, doubtless a politically appointed one, will be set up to advise a new permanent Advisory Committee to advise the Inspectorate to advise the Home Secretary. Why not cut out the intermediate advisory stages altogether and simply have a political Advisory Committee to advise the Home Secretary directly ? It would certainly be an enormous financial saving ! 240

The R.D.S. is somewhat less reactionary. The Society welcomes the addition of lay members as well as the proposals for more frequent consultation of the Committee and its consideration of special issues. However, while it sees the most important role of the Committee as being to reassure public opinion that procedures carried out under the Act are justifiable, it is unlikely that the Society would fully endorse giving the Committee a free hand to scrutinise the purpose for which such experiments are carried out, and to make recommendations for strengthening the law or otherwise exerting more restrictive control as envisaged by the Houghton-Platt Group.

There does seem to be some limited support within the scientific community for a number of the proposals. Dr. W. Lane-Petter has stated that scientists must be required to judge whether the suffering they inflict upon animals is justified by their purpose and since this is a difficult question to answer an independent view would be invaluable. A profitable exchange of views and information could be made between the Committee and the Inspectorate.²⁴¹ Although the proposals were welcomed by the Lancet, it warned however :

All change, even for the better, involves discomfort. The establishment would hate the amended Committee; experimenters would be upset; the extremists would still be dissatisfied; but the thoughtful public might feel happier that an improvement had been made.

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The government reaction to the proposals of the group was lukewarm at first but more interest has been generated through subsequent meetings. Early in 1977 a minister disclosed that the government did not regard the Advisory Committee as a suitable medium for achieving the ambitious proposals of the Houghton Memorandum. However, it did propose to make greater use of the Committee and was discussing suitable proposals with the newly found C.R.A.E. Committee.²⁴³

The first major subject put before the Committee subsequent to its consideration of the smoking dogs experiment was the controversial LD₅₀ test. The choice of this topic is due in no small part to the efforts of Richard Ryder, who has been campaigning against the widespread use of LD₅₀ for a number of years.

241. W. Lane-Petter, J.Med.Ethics, 2(1976), 118-126.

242. Lancet 2, (1976), 667-668.

243. 22 Feb. 1977 H.L. Deb. [380], c.13-83, see also chapter III, 165.

At a meeting with the Home Secretary, Merlyn Rees, on 15 February 1977, C.R.A.E. was promised radical changes in the Advisory Committee along the lines proposed in the Houghton-Platt Memorandum. These have been postponed until the Committee makes its report on the L D 50. The Home Office is also considering a number of names submitted by C.R.A.E. of persons that the Committee would like to see represented on the new advisory body.²⁴⁵

Ethical Control

The general view taken both by the Home Office and the scientific community has been that the Act and its administration offer little scope for the application of ethical control. This question is simply outside the scope of the Act. However, as Dr. W. Lane-Petter has stated:

Animal experimentation is an activity with a considerable ethical content. Any such human activity must inevitably be subject to some restraints. 246

244. Quoted from the U.F.A.W. Annual Report 1977 in which the evidence presented by the U.F.A.W. to the Committee is also published. This subject is discussed more fully in Chapter VIII.

245. Any changes made will be announced by the Home Secretary after the Committee has submitted its findings on the L D 50 test in 1978.

246. U.F.A.W. Symposium Report 1977, 3.

Since no voluntary code would be universally accepted legislation must set down guidelines, and there is some evidence within the scientific community that firmer guidelines would be welcomed at the present time.

Lane-Petter continues :

Legislative restraints must set standards of behaviour in regard to animal experiments, that are readily accepted by the scientist, even when he does not wholly agree with them because society will only accord him the privilege of working in necessary privacy if he grants such an acceptance. 247

However, since no ethical guidelines are set by the present statute, and since the practice of animal experimentation is in any case not amenable to close police-type scrutiny, much is left to the conscience of the individual experimenter and consequently the desirable public acceptability is largely wanting.

The vastly changed nature of the practice of animal experimentation has rendered ethical guidelines far more essential at the present time than was the case in 1876 or at the time of the Littlewood Committee. Dr. Louis Goldman has accused some scientists of simply papering over the cracks. He has suggested that if scientists were really serious about containing their practice within ethical constraints, efforts would have been made to set up ethical committees in all major research institutions, along the lines of committees set up in all hospitals to discuss the ethical content of clinical practice. Such committees might be required to scrutinise all scientific papers. Goldman suggests that a rejection of papers on ethical grounds would be most effective in bringing about a rapid change of outlook. 248

247. Loc. cit.

248. Louis Goldman, World Medicine, 7(1971), 52-61.

It should be pointed out that some scientific bodies already do attempt to exert a certain amount of ethical control. The Royal College of Surgeons believes that much can be achieved by peer group surveillance. The college monitors the research activities of all its members, exerting rather more stringent criteria than does the Act itself, in an effort to reduce wastage of animals and to ensure that they are not employed where valid alternatives exist.²⁴⁹ A committee set up within The College monitors all in-house projects carried out elsewhere by Fellows which are considered worthy of special attention. Scientific and ethical advice is freely available to all Fellows. A similar initiative has also been taken by the British Psychological Society. At its Annual Meeting at York in 1976, a motion was put forward by Dr. David Sperlinger and Dr. D.A. Shapiro that a working party should be set up to look into important questions relating to psychological experiments. The motion was not extensively discussed and the subsequent working party was on a smaller scale than that envisaged by the proposers. However, this working party, under the direction of Dr. H. McGurk of the Department of Psychology, University of Surrey, comprises some of Britain's leading experimental psychologists,²⁵⁰ and it is taking evidence from interested organisations and individuals on all aspects relating to the use of animals in psychological research. Two important tasks will be :

To consider the ethical questions raised by interference with the natural life patterns of animals in the course of psychological investigations and to determine whether an 'ethical cost' of such interference may be assessed (in a qualitative or quantitative fashion) with sufficient certainty to allow it to be weighed against the likely benefits of the findings. 251

249. See policy statement at the 1976 U.F.A.W. Symposium. U.F.A.W. Symposium Report 1977, 103-105.

250. B.P.S. Working Party on Animal Experimentation. Membership : Dr. H. McGurk, (Convenor), Prof. D.E. Blackman, Dr. J.E. Orme, Dr. D.A. Shapiro, Prof. L. Weiskrantz, Prof. O.L. Zangwill.

251. The full terms of reference of the working party were published in the B.P.S. Bulletin, 29 (1976), 377.

The Advisory Committee envisaged by the Houghton-Platt Group would clearly be expected to exert considerable ethical control. While a central ethical committee might achieve a great deal by examining trends and considering special aspects such as stress, cosmetic and other tests, etc., insuperable administrative difficulties might be presented if it were expected to monitor every application for licences and certificates. A more effective level of control might be exerted if, in addition, to this national examination of general trends, control were also effected at a local level by peer group surveillance through the media of local ethical committees. Such a system would probably be more readily accepted by the scientific community.

A national ethical Committee was set up several years ago by the Laboratory Animal Committee of the Swedish M.R.C. (S.M.F.R.) The Committee has a scientific constitution and three lay members were recently added when it achieved official recognition. One is a representative of the National Federation of Animal Protection Societies, one is an M.P., and the other a civil servant from the National Board of Health and Welfare. Scientific and ethical aspects of all proposed experiments are considered before funds are granted. Since funds are also available from other sources, the establishment of local ethical committees attached to Universities and other institutions is being carried out and a pilot project is in operation at the University of Uppsåla. A similar project to that instituted by the S.M.F.R. has been set up by the Norwegian Research Council for Science and Humanities (N.A.V.F.) At the 1976 U.F.A.W. Symposium, Dr. K.J. Obrink, a professor in physiology and President of the Scandinavian L.A.S. (The Scandinavian equivalent of the British Laboratory Animal Science Association) outlined some details of the Uppsåla pilot scheme. Dr. Obrink was of the opinion that

ethical committees organised on a local level would be of great value in bringing about changes in the climate of thought.

There was much discussion about the national and local committees detailed by the Scandinavian representatives at the U.F.A.W. Symposium and British experimentalists and animal curators evidently found the ideas interesting. Sweden was complimented as one of the most humane countries in the world and one from which Britain may now take her lead. The Home Office representatives also expressed their interest in the concept. Such a system might achieve a greater degree of public acceptability for the scientists' work if it were felt that a considerable proportion of animal experimentation really was being turned down on ethical grounds. Restriction imposed at a national level might well be acceptable to many researchers and would be all the more acceptable if it were imposed by the scientific community itself. As Dr. W. Lane-Petter has concluded :

Ethical behaviour in animal experiments, like safety, must exact a price in expense and/or inconvenience, even if it is only pausing for a moment to redesign an experiment because the Home Office inspector is reluctant to give his blessing to the first proposal. That price must be recognised and accepted; to refuse to do so is like seeking an insurance policy and being unwilling to pay the premium. 252.

10. Public Accountability

The Littlewood Committee endorsed the opinion of the R.S.P.C.A. that :

Animal experimentation constitutes a moral and social problem of the first magnitude and one that does not exclusively concern

the expert.

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The R.D.S. has regarded this view as an overstatement,²⁵⁴ though it would concur with the opinion of Littlewood that since the subject touches the life of the community at innumerable points it is right and proper that what is done for the benefit of that community should be understood and accepted as necessary by it. In the view of William Paton, a former chairman of the R.D.S. Council :

Much of the heat would go out of the anti-vivisection discussion and a better deployment of resources in animal welfare work will result, if we scientists took more trouble to explain the purposes of the work, 255

Such a view would seem to be in tune with the opinion of Littlewood that :

A properly informed public opinion would exercise a moderating influence upon any undesirable trends in experimental activity and remove needless anxieties from research workers about the public image of their work. 256

The words "properly informed" are vital to the whole issue. An analysis of the tactics of antivivisectionism in the nineteenth century explains in large part the origins of the defensive attitude of the Home Office and of the scientific community. Until relatively recently little has been done to amend this situation. Misunderstandings have been fostered in the public mind by a wealth of inaccurate or inadequate information put out by the antivivisectionists, the R.D.S., the Home Office and the media. The resultant ill-conceived public attitudes and controversies have in turn led to a greater defensiveness on the part of the Home Office and the scientists.

The administration of the 1876 Act has been shrouded in a cloak of secrecy. Members of the public are excluded from laboratories by the

253. Littlewood, para. 543(1).

254. Conquest, No. 160 (1969), 20.

255. "Call to defuse the Antivivisection Argument", R.D.S. Press Release, 25 Oct. 1976.

256. Littlewood, para. 236.

common law of trespass and though some research workers have made special attempts to show responsible persons around their laboratories, it has not been a general rule. This atmosphere of defensive secrecy has been actively encouraged by the Home Office. The Littlewood Committee found that a note prepared by the inspector for guidance to applicants for registration of premises specifically states :

That the location should be quiet and undisturbed by traffic; the presence of the animal should not be obvious to the general public; and no clue given to the fact that experiments are being carried out there. 257

Such an attitude, originally intended to prevent public misconception, has in fact fostered it, while public concern over the degree of secrecy has been deliberately promoted by the antivivisection societies.

The Littlewood Committee accepted the desirability for a greater degree of openness surrounding the whole subject. With the wider dissemination of information it is clear that a larger percentage of the population is beginning to take an active interest in the whole subject of animal experimentation. Tam Dalyell, M.P. has reported :

As a constituency member of Parliament, I am very well aware that there is a growing public concern about the whole range of activity in laboratories, where animals are involved. Nor does it any longer come from "good crackpot" members of the community, but from people who should not be ignored. 258

Public interest in a subject with a large degree of social and ethical content is clearly legitimate. Lord Houghton has pointed out that the public not only has a right to know what is carried out in its name, but it has an obligation to face up to these facts, for if it cannot, the community should not expect scientists to carry out these experiments on its behalf. 259

257. Ibid, para. 123.

258. Tam Dalyell, H.C. Deb [925] , c. 182.

259. Douglas Houghton speaking in the Commons Littlewood debate 11 Jun. 1971, H.C. Deb. [818], c. 1395-1643.

Moreover a large number of experiments are currently carried out on behalf of government departments and are funded by public money. The taxpayer should have the right to express approval or disapproval of such experiments, but it has been pointed out :

If the public is not made fully aware of the facts about vivisection, how can it decide whether these experiments are justified or not ? This blanket of secrecy which presently surrounds experiments on animals must be lifted, information must be made available to the general public. 260

Lord Houghton has drawn attention to the fact that the drafters of the 1876 Act saw its passage as a revolt against the claim of science to become a sovereign state. He believes that such an aspiration still needs to be challenged, and researchers must be made accountable to the public and to Parliament.²⁶¹

This requirement forms the core of the Houghton-Platt Memorandum and the demands of the Group regarding this are strongly expressed :

We cannot be satisfied with the persistent refusal of government to accept responsibility for assessing the value to the community of the use of resources in the field of science. No minister appears willing to concern himself with the development of alternatives to the use of animals or to give any financial help for research towards this objective. No minister shows any interest in the rising toll of destruction of diminishing species for experimental purposes, or the growth of the commercial sector. There is no public or Parliamentary control over what experimenters are doing (or indeed whether some activities are 'experiments' at all). Only when fortuitous circumstances bring some activities to light (such as the smoking dogs) can public opinion be brought to bear. We wish therefore, to establish as an overriding obligation of government a substantial measure of public accountability within the provision of the Act, and indeed, on acknowledgement of Parliamentary responsibility for wider boundaries of public enquiry and debate. The whole subject needs opening up. As the Littlewood Committee said in paragraph 462, 'it is clear to us that there has been an appearance of secrecy about the practice of animal

260. Branch Chairman W. Taylor speaking at a meeting of shop stewards of the General and Municipal Workers Union, Bridgeport News, Dorset, 26 Nov. 1976.

261. Lord Houghton, Debate on Abuses of the 1876 Act, 14 May 1975 H.L. Deb. [360], c.718-734, 746-775.

experimentation in the past.' ... 'The public has little information to go on.' ... 'Members of the public have been excluded from laboratories by the ordinary law of trespass; and Home Office inspectors, we understand, have tended to discourage laboratory authorities from inviting private persons or the press into animal houses.' Although some of the Littlewood Committee's minor recommendations have been administrative practice for some time, major recommendations requiring legislation have not been acted upon. The Inspectorate and the Advisory Committee have been slightly enlarged but little else has been done in twelve years. The complacency of the Home Office on this subject and the defensive posture of the Department on all attempts at reform is a serious matter. The public concern must now be re-asserted and pressed more strongly. This means the right of the public to know; the right to insist upon constant vigilance and oversight; and the right to ask for Parliamentary actions to meet public criticism or changing public opinion on the use of living animals for purposes on a scale never dreamed of in 1876. 262

Section 6 of the Act prohibits exhibitions of experiments to the general public. The Littlewood Committee noted that though this provision does not in fact exclude admission of private persons by invitation of the licensee, it had often been interpreted as so doing and the Home Office had actively encouraged such an interpretation.²⁶³ The Committee was clearly of the opinion that it was beneficial to allow responsible representatives of the public, such as M.P.'s and zoological experts, to visit laboratories. When this had been suggested in 1962 by the Advisory Committee,²⁶⁴ licensees had concurred with it. It was, therefore, recommended that Section 6 be amended so as to make it clear that the Act did not prohibit this. Some anti-vivisectionists have suggested that this provision achieves little since the visits could only be made by prior arrangement. Furthermore, they would be prohibited from seeing animals actually under experiment.

262. Houghton-Platt Memorandum, 2-3.

263. Littlewood, para. 483.

264. H.C. Deb. [668], c.105-110.

It has already been noted that a detective function could not be effectively exercised even by the Inspectorate. In the case of the public, such visits could only be expected to serve as public relations exercises informing persons as to the general working of the laboratories.

The R.D.S., however, advises extreme caution, especially as regards giving information regarding specific experiments. In 1973 when the R.S.P.C.A. was conducting a survey on the housing and management of animals in universities and wrote to a number of licensees asking for specific information, the R.D.S. advised :

It does not seem proper for anyone other than
the licensee or the Home Office to discuss this. 265

While the Society felt that private visits would provide a welcome opportunity to repair common ignorance about animal work, it was of the opinion that licensees should be advised to satisfy themselves as to the aims and qualifications of such visitors, and possibly should ask them to provide a written commentary of their visit before leaving the laboratory. This attitude is understandable, given the questionable antivivisectionist tactics which have sometimes prevailed in the past.

It will be seen, however,²⁶⁶ that attitudes on both sides of the question are changing. The M.R.C. for example has recognised that the public is now better informed than it used to be and **is** more capable of dealing with detailed information. This body has consequently adopted a more 'public image' and a much more open policy, whereas ten or fifteen years ago it was a concerted policy of the Council to have nothing whatever to do with the press.²⁶⁷ Scientists and even Home Office officials repeatedly stressed at the 1976 U.F.A.W. Symposium that the time was now ripe to lift the veil of secrecy surrounding experiments.

265. R.D.S. Newsletter, Nov. 1973.

266. See chapter VI.

267. M.R.C. Policy statement, U.F.A.W. Symposium Report 1977, 98.

Another provision which seems to be an extension of Condition 6 of the Act, is a condition (9a), attached to every licence since 1958, forbidding the making of cinematographic films of experiments except with written permission of the Secretary of State and subject to conditions which might be imposed by him.²⁶⁸ This provision was again intended to prevent public misapprehension by forbidding the display of such films to non-scientific audiences. This is a very difficult point and the Home Office attitude can be understood, though it is clear that if such films could be made responsibly, with sufficiently clear interpretation and explanation, they could be a valuable source of information to the public. They might, for example, be shown at scientific meetings which are open to the public. There is no prohibition upon the publication of still photographs of animals under experiments though this has generally been severely restricted by heads of department. Its effect has been the dissemination by antivivisection societies of a large number of gruesome photographs taken in foreign laboratories which has led to a far greater degree of public misapprehension than is necessary. The Littlewood Committee recommended that express provision should be made in the Act for the production of films for teaching purposes so that a reduction in the usage of animals might be effected in this field.²⁶⁹

The Committee also accepted the value of films as a media for public education notwithstanding the special risks that this method carries with it. It therefore recommended that the exhibition of such films to non-scientific audiences be prohibited except with prior approval of the Home Office. This would enable the inspector to determine its suitability for public viewing.

268. Littlewood, para. 487.

269. Ibid, para. 495-497.

Another sphere in which the administration of the Act has failed to make the practice of animal experimentation accountable to the public and to Parliament is in the provision of adequate information. The only public information sources have been outlined in the Houghton Platt Memorandum:

- a) the Home Office Return
- b) the list of registered premises under 1876 Act available to the public (£5.00).
- c) a card index at the Home Office giving the names and addresses of licensees and the type of licence they hold.

The Home Office Return has, for many years, been criticised as inadequate and misleading. Simple questions in Parliament relating to numbers of species used and purposes for which experiments are carried out have repeatedly met with the reply that the information is not available. Clearly, the 1876 Act must not only work efficiently but must be seen to be working. Two pieces of information that would seem to be very necessary for this are the nature of qualifications of licensees and the numbers (and reasons) of licences and certificates refused annually. Typical Home Office replies to such questions are that this information is not required for the administration of the Act and could not be obtained without disproportionate cost.²⁷⁰ It is difficult to see how the public can be assured that any real control is being exercised if the Home Office does not have such basic information at its disposal.

Lay witnesses before the Littlewood Committee described the Annual Return as virtually incomprehensible to the average reader. The Committee noted that less than 1000 copies were sold each year and it took note of the opinions of experienced publicists that the Return should provide a more 'popular' account of the administration of the Act which would reach a wide public through newspaper comment

²⁷⁰ Examples, 20 May 1971 H.C. Deb. 817, c.332-334. and 17 Jul. 1974, H.C. Deb 877, c. 165-169. However, the qualifications of licensees are known to the Home Office, see Section (2), 175.

and publicity. After receiving the opinions of many interested bodies, the Committee concluded that the public was most likely to be interested in information about animals themselves such as :

1. the species of animals and numbers used in different kinds of experiment;
2. the procedures to which they are subjected;
3. the purposes for which different species are used;
4. the number of painful experiments;
5. the safeguards applied.

The Committee recognised that "the formulation of statistical returns and supporting records is a complicated matter which needs to be studied by experts,²⁷¹ and that so long as the system of certificates was retained, radical revision would not be practicable. However, if the Committee's other recommendations for reclassification of usages and experiments had been adopted the collection of information concerning experiments would have been greatly facilitated. Littlewood recommended that one of the first tasks of the newly reconstituted Advisory Committee should be to consider the collection of more information regarding painful experiments and the safeguards applied. It was also recommended that information about mandatory testing should be included. The Committee felt that the Return should provide a picture of the whole apparatus of control and its contribution to the avoidance of unnecessary suffering. It was felt that much of the necessary information would be at the immediate disposal of the Home Office or could be provided by the inspectors. In line with the other recommendations of the Committee it was recommended that the Return include assessments of standards in :

1. the general organisation of responsibility;
2. local veterinary supervision;
3. premises and husbandry;
4. the avoidance of wastage.

271. Littlewood, para. 479.

It was also considered desirable that the Home Office draw attention to changing trends in animal usage and to novel issues. Had the other recommendations in the Report been followed the Advisory Committee would have been given the opportunity to comment upon these in an annual report.

The Home Office should include in the report a reference to the guidance it has issued during the year, e.g. by general memoranda or codes of practice, and to the activities of inspectors, so that the public may inform itself of administrative efficiency.

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None of these proposals was adopted, and critics have for many years continued to protest that no breakdown is given as to species, procedures (such as the L D ₅₀ test), testing for commercial purposes (such as production of cosmetics), pesticides, food additives and industrial chemicals, behavioural experiments, defence and medical research. Richard Ryder has also stressed the need for information relating to qualifications of licensees; the numbers who are students, technicians, and who hold medical qualifications. The chief anti-vivisectionist criticism has been the lack of categorisation of experiments which are painful. On the contrary, the Return has tended to give the misleading impression that very few experiments carried out under certificate A are painful, as in the following comment from the Chief Inspector, which is included in every Annual Return :

The procedures used consisted for the most part of inoculations, external applications or stimuli, modifications in diet or environment, or administration of some pharmaceutical or biological product, followed in each case by observation of any effects.

This statement gives no indication whatever to the uninformed reader of the degree of suffering which may ensue in experiments under this certificate. It has already been shown that it is this enormous
272. Ibid, para. 482.

category (more than 85% in 1976) which is the greatest cause for concern among reformists. The S.S.P.V. has pointed out that even if only one per cent of experiments performed under this certificate produced severe pain, this would result in more than 47,000 painful experiments annually.²⁷³

For many years the Home Office has been subjected to pressure from both antivivisectionists and the R.D.S. to provide more detailed information. In 1975 Alan Whittaker, General Secretary of B.U.A.V. wrote to the Home Secretary informing him that the B.U.A.V. was willing to provide detailed suggestions for a new format of the Return at its own expense. The reply received was that the Home Office already had changes in mind, but that such alternations would take some considerable time to effect. The R.D.S. has also been pressing a case for more information for some years, though the motivation of this Society is inevitably different from that of the reformists and antivivisectionists. Far from seeking to isolate a category of non-medical research with a view to greater restriction, the R.D.S. is seeking to draw attention to the medical connections of all experiments. It states :

The statistical report presented annually by the Home Office could be greatly improved, particularly to make clear the extent to which experimental work is for purposes of medical and veterinary science. At present the only experiments which can be identified as specifically medical are those concerned with cancer, diagnostic procedures and mandatory tests for the standardisation of sera, vaccines, medicines and materials required under the Therapeutic Substances Act (1956) and the Diseases of Animals Act (1950) and the regulations made under these Acts. This leaves unquantified the substantial number of the other experiments connected with medicine, e.g. on the cause and treatment of disease and on the scientific

273. S.S.P.V. Annual Pictorial Review (1976), 24.

background, on the quality control of insulin, and the general screening of potentially therapeutic preparations under regulations laid down under the Medicines Act (1968). In addition there are tests on therapeutic preparations required by U.S., Japanese and other foreign legislation. The U.K. has a large pharmaceutical export trade. Similarly unquantified are those experiments made necessary for purposes of safety by the Agriculture (Poisonous Substances) Act (1952), Food and Drugs Act (1955) and Health and Safety at Work Act (1974). Once such figures were available it would be possible to assess the extent of testing of food additives, cosmetics and other 'environmental' chemicals. The R.D.S. would be willing, if required, to help in discussing how to collect and analyse the information needed.

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The R.D.S. sees the publication of more detailed information regarding the reasons for which experiments are carried out as leading to greater public acceptability.

The Houghton-Platt Group viewed the same need in a somewhat different light. Its proposals for more information are based on the following premise :

Public opinion surveys suggest that there is a big difference in the minds of ordinary people between the use of animals for bona fide medical research (cancer coming most readily to mind) and those used for toxicity testing of non-medical substances. This 'big divide' in public attitudes should be recognised and met as far as possible in the information to be given. The signal omission from the Return is any explanation or discussion of its contents.

The intention is clear, as the Memorandum continues :

In general, under our proposals it would be the duty of the Advisory Committee to keep under constant review the use of animals, for whatever purpose, within the protection of the Act of 1876. The balance to be struck between two interests - both of them public interests; the public interest in suppressing or controlling cruelty to end the abuse of animals; and the public interest in medical research, safety of drugs and safeguards against the use or marketing of harmful substances. No private or commercial interest in the use of living animals for these purposes can be

admitted. It is all within the legitimate scope of the public interest. Therefore, those concerned in these operations must accept this, and accept with it that their desire for unhampered activity and investigation and freedom from 'interference' has to be reconciled with public opinion.

Accordingly the Memorandum recommends that experiments should be defined in clear categories, that the term 'experiment' and any other term be clearly defined and that the numbers of animals used for each of the following purposes be specified :

1. the testing of drugs and medicines
2. cancer research
3. other strictly medical purposes (specified)
4. testing of cosmetics and toiletries
5. weapons, riot-control and defence devices
6. industrial chemicals
7. pesticides and herbicides
8. food-additives (types specified)
9. detergents
10. behavioural research

These categories should show the numbers and species of animals used for each purpose, and the various types of procedures (e.g. L D ²⁷⁵₅₀ and other methods). Experiments under certificate A should be qualified regarding the proportion of those believed to cause discomfort, stress or pain; licensees should be categorised according to qualifications and position; details should be supplied of the amounts of public money given to support the various categories of research, and the number of experiments supported by commercial enterprise should also be published. All this information, says the Memorandum, would be additonal to that already made available.

When the Houghton-Platt Memorandum was presented, the Home Office already had changes in the Annual Return under review. Coincidentally some changes did appear in the 1976 Return (for 1975). These may have

275. See chapter VII, 4/4-427.

been partly due to the pressure being applied upon the Home Office by all sides and partly due to the replacement of the somewhat reactionary Colonel R.S. Vine, by Dr. J.D. Rankin as Chief Inspector. Rankin seems to be a fair and open-minded man, amenable to consideration of sensible changes. The 1976 Return contained an introduction by Rankin stating that the previous format of Returns had been considered inadequate by many and had given rise to misconceptions. It was stated that the Home Office had already initiated a review of the Return but would not be in possession of all the statistics required before 1978. In the meantime it was intended to introduce changes in the text and presentation of those statistics which were available in order to make the information more useful.

The basic information remained the same, but its presentation was considerably altered to appear in tabular form, with the figures for all the years from 1962 included, so as to bring up to date the statistics appended to the Littlewood Report. The most important additions were an indication of the number of licensees carrying out different classes of experiment and the classification of the organisations by which they were financed. It was stressed that these figures showed that at least 70% of the licensees (all of whose experiments fell into the residual category of those which are neither for cancer research, diagnostic procedures nor mandatory testing) were working entirely for non-commercial organisations; however, what was not stressed was the salient point that of the numbers of actual experiments, 64.57% were performed for commercial undertakings. The commentary on experiments under certificate A, so often condemned as misleading by the antivivisectionists, was absent.²⁷⁶

276. See p. 275-276.

Meanwhile a questionnaire had been prepared by the Home Office to obtain more detailed information from licensees. In December 1976 a pilot survey was carried out among a small number of selected licensees in order to ascertain what the difficulties of filling out new forms with this additional information might be.²⁷⁷ As a result of the survey, and of various consultations with licensees and invited organisations (including animal welfare societies), a new questionnaire was prepared which was sent out in 1977. The 1978 Return is expected to be far more extensive and comprehensive. The Home Office looks forward to the new information which will then be available, since it now feels this is necessary before the much needed administrative streamlining can be planned.

The Return published in 1977 (for 1976) followed broadly the lines set out in the previous year, (though for some reason, the statement regarding certificate A, considered objectionable by antivivisectionists reappeared). It contained details of the addition of four lay members to the Advisory Committee, the Home Office review of the L D₅₀ test and the consideration of the C.R.A.E. proposals at several meetings with ministers. It was stated that the Home Secretary proposed to reconstitute the Advisory Committee after its consideration of the L D₅₀ test and to have regard to the remaining proposals in the Houghton-Platt Memorandum. The Return contained a new table in which more detail than was given the previous year concerning the organisations financially-responsible for experiments and the purpose of them, was supplied. It was noted that two-thirds of all experiments performed were carried out for commercial undertakings, but that one-third of these were mandatory tests. It was stated that a complete analysis of the

277. 250 licensees(out of a total of 18,000) were selected, of these only 146 co-operated fully.

remaining two-thirds of these, which had caused such a great degree of speculation, would be available in 1978.

The intimation that the pilot study had indicated that a large percentage of experiments might be accounted for by procedures involved in the selection of new drugs is perhaps a premature statement, since the sample taken had been very small and non-random.

Indeed, C.R.A.E. had some strong criticisms of the pilot survey, chiefly that the wording of the proposed Return seemed to encourage licensees to describe their work as medical (or as cancer research) when this would be misleading. For example, there was no category provided for cosmetics testing while one was provided for tests involving "the possibility of carcinogenesis". It has frequently been pointed out that there is hardly a test substance in existence which does not involve this possibility. However, as a result of the information obtained from the pilot study, the Home Office has drawn up a more extensive document which licensees will be required to consult when completing the form for the Return of Experiments 1977. This document²⁷⁸ will require the licensee to state the purpose of his experiment in terms of the following categories : study of normal or abnormal body structure or function, selection, development and study of hazards and safety of medical, dental or veterinary products and appliances, study of transplant techniques and selection, development and study of hazards or safety of pesticides, herbicides, substances used in industry, household products, cosmetics and toiletries, food additives, tobacco and its substitutes, injurious plants and

278. Home Office Return of Experiments 1977 - Explanatory Notes and Code lists. The document is available only to licensees, I am grateful to the Home Office for providing me with a copy.

animals and their toxins, and general environmental pollutants.

The types of test must be categorised according to whether they constitute acute toxicity tests, sub-acute and chronic toxicity tests, teratological tests, or other types. The reasons for carrying out the procedure will have to be given, stating whether or not they are performed in line with voluntary or statutory regulations under other Acts and codes or not. Particularly interesting to the reformists will be the requirement to make special note of the performance of certain procedures which include :

application of substances to the eye, interference with the senses, brain, central nervous system, etc. for behavioural studies or other purposes, use of aversive stimuli for behavioural training or for inducing psychological stress; any other means used of inducing stress, exposure to ionising irradiation, burning or scalding by any means, infliction of any other physical trauma to simulate human injury, and inhalation.²⁷⁹

Irregularities

Another cause for concern among antivivisectionists and the public is the almost total lack of prosecutions under the Act, there have only been three in one hundred years, only one of which was for cruelty.²⁸⁰ There has not been a single prosecution since 1913 - a prosecution under the Act would be extremely difficult for anyone (except perhaps the inspector, a scientists' colleague or a technician) to bring; section 21 requires the written consent by the Secretary of State before a prosecution may be instituted against a licence-holder. Proceedings cannot be commenced after a period of six months from the time when the act was committed. There was much complaint about

²⁷⁹. Ibid, 10.

²⁸⁰. See section 1 footnote 18.

this before the Second Royal Commission.²⁸¹ There is very little chance of anyone outside a laboratory availing himself of information which would enable him to bring a prosecution. Any information which might come to light would be published in scientific journals in which the papers are often published more than six months after the work has been done.

The view taken by the Home Office and the scientific community has been that an absence of prosecutions is an illustration that the Act has worked well. In an adjournment debate in 1962, T. Fletcher-Cooke, the government minister, described the situation as :

A tribute to the spirit in which experiments
are undertaken and demonstrates that licensees
have no interest in causing needless pain. 282

Such statements provide little reassurance to critics of the Act who are not convinced that in 100 years no act has occurred which was worthy of prosecution. In a recent BBC Horizon programme²⁸³ Janet Fookes, M.P., stated that as a criminal barrister she had no experience of any Act which had been so consistently breached as was the 1876 Act without any criminal proceedings resulting.

G.I. de Deney, a senior Home Office official, stated somewhat complacently that all the breaches were of a minor and technical nature and had resulted in no suffering to the animals. The Act had worked as intended to reduce suffering to a minimum and no prosecutions had been necessary because it had been complied with. Professor Patricia Scott of the R.D.S. stated that a very important control was the overseeing of experiments by technicians. Most scientists would take the chief technician's directive if it was felt that an animal should be killed.

281. See chapter II, esp. p. 54.

282. H.C. Deb. [653], c.1780.

283. "The Guinea Pig and the Law," Horizon, BBC 2 18 Feb. 1977.

However, as already stated, Angela Walder, a senior laboratory technician, stated that her dismissal from a cancer research laboratory was due to the conflict between her concern for animal welfare and the way in which research was carried out in her laboratory.²⁸⁴

While such conflicts exist the public can hardly be assured that the Act is working well. Every year a number of irregularities are discussed by the inspector either during his visits or from his perusal of the laboratory reports. Letters of admonition are sent to the offender and the instances are recorded in the Annual Return. Most of the offences have been inadvertent or due to a misunderstanding of the complicated certificate system. In other cases licensees had exceeded the authority given them. The attention of the licensee has been drawn to the matter and then an apology received. At the 1976 U.F.A.W. conference, T.G. Field-Fisher, Q.C. stated :

That, to my mind, is simply not good enough - no wilfulness or intention to cause cruelty is necessary under the Statutes. An offence is made out if a forbidden act is done. The Home Office attitude is like saying that a motorist who drives dangerously should not be prosecuted because he had no intention to do so - he was merely doing his incompetent best. 285

At the same conference senior Animal House Curator Dr. Peter Eaton, stated :

The penalties for infringement of the 1876 Act contrast strangely for example with the present legislation for the control of rabies, and the total absence of prosecutions may well cast doubts upon the effectiveness of its implementation. The latest Return of experiments presented to Parliament mentions a dozen irregularities. Licensees were found to have transgressed the rules, admitted their error when it was discovered and apologised.

284. See pp. 219-221.

285. U.F.A.W. Symposium Report 1977, 7.

If I am stopped by a policeman and subsequently charged with having a blood alcohol level in excess of the legal limit, how dearly I should like to be allowed to confess to the error of my ways and have the magistrate accept my apology and assurance never to repeat my wrong doing.

In response to such statements G.I. de Deney explained the Home Office view. He agreed that there was a need for a greater openness regarding the administration of the Act and that the Courts were the only competent bodies to make judgements but disputed that they should be required to do so in every case. The 1876 Act had laid down that prosecutions should be instituted at the discretion of the Secretary of State so that the time of the courts need not be wasted with a large number of minor offences. In other similar cases the consent of a minister, law officer or General Director of Public Prosecutions was required. There were many instances where the police and other authorities did not bring before the courts a wide range of minor and technical offences. In many cases an information caution was given by the police officer on the spot. Less frequently, a formal, written caution was issued which was published in the criminal statistics. It would be an abdication of the responsibility placed upon the Secretary of State if he allowed every minor irregularity to be passed into the courts. This, of course, is sound reasoning. However, a number of irregularities disclosed in the Annual Return have not been of a minor and technical nature, and have resulted in added suffering to the animal. One such example is report in the Return for 1973. On a routine visit the inspector found a rabbit to be ill and ordered it to be killed. When he returned some hours later it was still alive. The licensee was summoned and killed it painlessly in the presence of the inspector. The licensee was subsequently interviewed at the Home Office and instructed on the importance of making arrangements for emergency attention to be given

to sick animals on occasions when he was unable immediately to attend them himself, in order to ensure at all times the strict observance of the "pain condition" attached to every licence. In some cases licensees have quite clearly exceeded their authority. In the 1976 Return it is disclosed that two licensees carried out experiments in direct contravention of conditions attached to their licences. Such excesses have not usually been considered very serious as they have not resulted in the performance of procedures which could not be authorised under the Act. In the two cases cited above the necessary authority was subsequently applied for and the restrictions removed. In the 1977 Return it was disclosed that a research student had overlooked a condition of his licence restricting him to work upon only one eye of any one animal, another student had performed terminal experiments, thus contravening a condition of the licence. Both were admonished. In such cases threat of revocation of the licence may well be a more effective deterrent than prosecution; however, this has occurred only on rare occasions and the licence has usually subsequently been re-granted.

One case which came to light in 1976 is to be brought before the courts. A scientist whose licence had expired continued to operate without one, despite having received three reminders from the Home Office that it was due for renewal. Since this scientist is no longer a licensee the Secretary of State is no longer responsible and the matter has been brought to the attention of the Director of Public Prosecutions. This case was still under consideration at the time of publication of the 1977 Annual Return. The decision to prosecute reflects the general change of attitude which has come about inside

the Home Office. This is also illustrated by the case of Malcolm Head, an animal nutritionist, who, in 1978, was successfully prosecuted under the Protection of Animals Act 1911 by the R.S.P.C.A. for cruel neglect of animals on his farm. As a result, his licence to experiment under the 1876 Act was rescinded by the Home Office.²⁸⁶

286. Information from Richard Davies, an R.S.P.C.A. Inspector.

P A R T I I

ANIMAL EXPERIMENTATION AND
THE SEARCH FOR ALTERNATIVES

CHAPTER V

THE ROLE OF THE EXPERIMENTAL ANIMAL IN RESEARCH

No attempt will be made here to assess the extent to which animals are indispensable to scientific and medical research. Such an assessment would be a major (if not impossible) task and would require the collaboration of practising scientists across the disciplines. A critical analysis of animal experiments weighed against the possibility of alternative techniques as replacements in various fields, would be both interesting and valuable; but this daunting task has yet to be attempted. This discussion of the role of animal experimentation in research will be limited, therefore, to a brief analysis, in so far as it relates to the scope for alternatives discussed in chapter VII, and to an understanding of scientific methodology which is vital to any critique of arguments for and against animal experimentation.

Ethical arguments are not relevant to any scientific analysis of the utility of an experiment, conversely the utilitarian argument is not strictly relevant to an ethical assessment.¹ The philosophies of the scientist who employs sentient material in the pursuance of the scientific method, and of the antivivisectionist who opposes any manipulation of such material as a means to man's own ends, are diametrically opposed.

1. However, if some degree of ethical control is to be affected as discussed in chapter IV, some assessment of utility must be made so that those least justifiable experiments might be eliminated.

There is no common ground upon which these two minds can meet, because they do not share the same system of ideas. No solution can ever be found to the vexed problems of animal experimentation which will please both parties. On the other hand, if any moderate reform is to be achieved which will exercise some degree of ethical control while safeguarding the interests of science, all interested parties, while agreeing to differ, must at least come to fully understand each other's viewpoint so that they can work together in the best interests of science and of experimental animals. As this thesis will show, there have, in the last few years, been encouraging signs that such moves towards greater harmonisation are at last beginning to take place.²

The Experimental Method

It was Magendie (1783-1855) of the Paris school who first separated physiology from anatomy in the early nineteenth century, and who explored function independently of structure. Before physiology could become a science in its own right it was necessary to divorce it from vitalistic ideas and teleological language, and to base it upon the scientific study of its component parts, physics and chemistry. This physiological revolution was brought about by the work of Magendie's pupil, Claude Bernard (1813-1875), who firmly established the study of medicine as a scientific discipline. The cornerstones of Bernard's scientific method were those of any science : hypothesis, observation and experiment. Magendie had established vivisection as the chief experimental tool of the physiological scientist. Applying this tool in his clearly defined scientific method, Bernard converted the subject

2. See especially chapter VI of this thesis.

from empiricism to experimental science. The method was set out in great detail in Bernard's An Introduction to the Study of Experimental Medicine,³ the first work of its kind, and one which was to become the handbook of every French medical student. Claude Bernard's attempt to overthrow vitalism was rooted in his belief in determinism, i.e. in the reproducibility of exact phenomena under rigidly defined conditions, in the inherent stability of the properties of the organism to which physio-chemical laws can be applied, and to the use of a clearly defined a priori postulate as a working model, which is modified according to the results of experiment.

The efficacy of Bernard's experimental method is attested to by the numerous major discoveries made by the scientist himself, including the glycogenic function of the liver.⁴ The applicability of his methodology to the whole of biological science was immediately recognised;⁵ the Introduction was reprinted again and again in France and remains a classic.

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3. The edition referred to in this thesis was published in New York, 1957 and is hereafter cited as Bernard. It was first published in Paris in 1865 but was not translated into English until 1927. See also chapter I, 2.
 4. Bernard's study of the 'milieu interieur' laid the foundations for a modern theory of homeostasis. Other work included his demonstrations of the mechanisms of curare, anaesthesia, carbon monoxide, the role of bile in protein digestion, innervation of the vocal cords, function of the cranial nerves, mechanism of digestion in carnivores and herbivores, function of the pancreas, the inhibitory action of the vagus nerve on the heart, elucidation of 'recurrent sensitivity', general carbohydrate metabolism; discovery of the vaso constrictor nerves, description of 'Horner-Bernard' syndrome, and work on animal heat.
 5. The physiological method, as laid down by Bernard, is still followed today. For a modern interpretation see G. Lapage, Achievement - The Contribution of Animals to Man's Conquest of Disease (Cambridge, 1960), chapter 1, hereafter cited as Lapage, and C.J.V. Nossal, Medical Science and Human Goals (London, 1975), chapter 1, hereafter cited as Nossal. See also W.P.D. Wightman, The Emergence of Scientific Medicine (London, 1971).

Thanks to the perfect co-operation of mind and hand, the results he gave to the science of living bodies have a quality of precision which makes them similar to those of the physical and chemical sciences.

6

There was no room for ethical considerations in Bernard's rational system :

A physiologist is not a man of fashion, he is a man of science, absorbed by the scientific idea which he pursues; he no longer hears the cry of animals, he no longer sees the blood that flows, he sees only his idea and perceives only organisms concealing problems which he intends to solve.

7

In order to set out his principle and to wrench the study of medicine from empiricism, it had been necessary to relegate the living animal to the status of a 'tool'. In attacking vivisection, antivivisectionists were not merely attacking one chosen method of exploration, they were attacking the fundamental basis of scientific methodology as it had been applied to the study of life processes by Bernard.

Arguments for and against Animal Experimentation

The argument against the utility of animal experimentation has often been inextricably bound up with ethical considerations. Arguments of inutility were probably more calculated to appeal to the public mind than were long ethical expositions. However, if the antivivisectionist failed to establish his inutility argument on the basis of fact, he could always revert to his ethical argument with the appeal that even if the results were useful, the experiments were unjustified.

6. Joseph Schiller "Claude Bernard and Vivisection", J.Hist.Med. and Allied Sciences, 22 (1967), 246-260.
7. Bernard, 103.

It was in such a manner that nineteenth century vivisectionists attacked all the major scientific and medical discoveries. They denied the basis of the discoveries themselves, or their medical value, they claimed that the discoveries were really, in fact, made by means other than vivisection, or could have been; they claimed that differences of opinion between scientists and doctors attested to the fact that vivisections proved nothing, they cited scientists out of context, generalising from a particular criticism to the whole issue of animal experimentation in general, in order to support their claims that vivisection was useless.⁸ Faced with the spectacular advances of bacteriology and immunology, antivivisectionists could do little more than dispute the mortality figures, renounce the entire germ theory of disease, and denounce the method of vaccination as unclean and abominable. As already mentioned,⁹ the antivivisection movement in the nineteenth century was intimately connected with the anti-vaccination movement and 'fringe' medicine. These latter connections and the way in which religious and ethical arguments were related to the scientific viewpoint has largely enabled the antivivisection movement to avoid meeting the scientific community on its own ground. However, where it has done so, the arguments display an inability (or refusal) of the antivivisectionist mind to grasp the fundamental tenets of scientific methodology. It has been argued, for example, that factors such as alterations in normal physiological constitution produced during an experiment, pain, stress, anaesthesia and species differences, all render the results of experimental explorations invalid. It will be clear from the discussions in chapter VII that while such factors do

8. There is a wealth of nineteenth century antivivisectionist literature illustrating these arguments which were presented before both Royal Commissions. See for example chapter II, Section 2.

9. Chapter II, 83-85.

pose very real difficulties (for example the problem of widely differing metabolic pathways between species in toxicological research), this is not to deny the experimental method per se. Such difficulties are simply acknowledged and can be compensated for, both in the experimental technique and in the interpretation of results. The same may be said of the problems presented by 'alternative' methods of research. There is a need for the integration of all available methods of research and observation in any rational system of medicine. The experimenter chooses the species of animal, or other experimental system, most nearly suited to his purpose. His aim is to reach a stage of reasonable certainty before applying his knowledge to the treatment of man.

The numerous arguments put forward for and against animal experiments have produced a profuse, tedious and sterile literature. An insight into what resulted can be gleaned from an analysis of two books published in the early twentieth century -- Stephen Paget's Experiments on Animals¹⁰ and Edward Berdcoe's Broken Gods - A Reply to Mr. Stephen Paget's Experiments on Animals.¹¹ Paget's book was approved by the A.A.M.R. of which he was then Council Secretary; listed in the preface are the names of a number of eminent physiologists (all of whom gave evidence before the Second Royal Commission) who helped in the book's revision. Its stated aim was to set out, chapter and verse, all the arguments relevant to the vivisection controversy,

10. Stephen Paget (1855-1926) was a surgeon, physiologist and first secretary of the R.D.S., see his obituary in Nature, 117 (1926), 831. The third edition of Experimentation on Animals (London, 1906) contained a commentary upon Berdcoe's reply to the original which was published in 1900.

11. Edward Berdcoe (1836-1916) was a medical practitioner for 40 years, an ardent antivivisectionist and a founder of the Browning Society. He was strenuously opposed to the germ theory of disease. Once editor of the Zoophilist (the journal of the National Antivivisection Society in the early twentieth century), he was the author of a number of works on medicine and vivisection. His obituary (B.M.J., 1(1916), 398-399) commends his ability and character but points out that he was often carried away by fanaticism and that his works were coloured by prejudice: Broken Gods - A Reply to Mr. Stephen Paget's Experiments on Animals (London, 1903).

and thus to answer the arguments of the antivivisectionists. What emerged was a monotonous history of all the major scientific breakthroughs and medical discoveries from antiquity to the time of writing. The book also included a commentary on the 1876 Act (to which Paget was clearly hostile) and a section entitled 'The Case Against Antivivisectionism', reprinted from an R.D.S. pamphlet.

Berdoe's book is an equally tedious refutation of Paget's examples, every one of which he claimed had been overthrown by the clinicians. The aim is stated to be a denial of the spurious claims of the vivisectionist apologists, done for the benefit of medical science and for the sake of common honesty. An excellent example of the sterility of such arguments is seen in the discussion of William Harvey's proof of the circulation of the blood. This case clearly demonstrates the integration of research approaches : the study of anatomy, which gave Harvey his original insight into the circulation, and of vivisection, which enabled him not only to demonstrate the theory to others and thus gain acceptance for it, but also to elaborate and verify it for himself. This discovery is claimed both by Paget and Berdoe in arguments for and against the necessity of animal experimentation. Indeed, the example has been cited ad nauseum in such arguments by many writers. Harvey himself had stressed the importance of experimentation; great discoveries, he said, came

Not from books, but from dissections; not
from the tenets of philosophers, but from
the fabric of nature. 12

Other cases frequently cited by both scientists and antivivisectionists which are given lengthy treatment both by Paget and Berdoe, included

12. From De Motu Cordis (London, 1957) 7, an English translation from the original Latin by K.J. Franklin.

Bernard's discovery of the glycogenic function of the liver, the efficacy of diphtheria antitoxin, Sir Charles Bell's work on the nervous system, and the treatment of myxodema. The latter case clearly illustrates the divergence between antivivisectionist and scientific reasoning. Since it was noted that the disease followed surgical removal of the thyroid it would seem possible that this fact, coupled with clinical observation, could have led to treatment of the disease with thyroid extract, without any vivisection having been necessary. Such a course would not, however, have contributed to an understanding of the thyroid's function. In fact it took the work of Sir Victor Horsley in 1884 to do this and to suggest the treatment. Horsley showed that removal of the gland in healthy monkeys had the same effect as removal of the diseased gland in patients.

In fairness to Berdoo, though he does not give the experimental method full credit, neither does he put forward his book as a complete refutation of the utility of vivisection. The book draws attention to other means of gaining information which are equally important, and which are seriously underplayed in Paget's somewhat less than objective glorification of the experimental method.¹³ As will be seen from an analysis of current A V literature (and the R.D.S. response) in chapter VI, these sterile arguments are still perpetrated by spokesmen for both sides of the controversy. While antivivisectionists attack the utility and justification of experiments, the R.D.S. quickly leaps to counter the attack by means of pamphlets, in the journal, Conquest, and in the annual Stephen Paget Memorial Lecture. Through these media the Society stresses the indispensibility of experimen-

13. An even less objective assessment may be seen in Charles Richet (then professor of physiology at the Faculty of Medicine, Paris), The Pros and Cons of Vivisection (London, 1908).

tation on animals. Correspondingly, a number of works deriding the importance of the experimental method and emphasising clinical achievements are still to be found in the archives of A V societies.¹⁴ Such works set out endless lists of examples which seek to belittle the claims of experimental science, and all fall into the same errors of narrow thinking as their nineteenth century predecessors.

Pure and Applied Research

The nature of scientific research is such that major discoveries can never be predicted. In the words of Sir J.J. Thomson,

Research in applied science leads to improvements, but research in pure science to revelations.

15

Almost every major applied discovery in biology and medicine has been an accidental one. In many cases the application has been far removed from the field of the original research. For example, the elucidation of the functioning of the thymus has been cited by C.V.Nossal in illustration of the way in which isolated facts from different fields are built up into an integrated picture which finally gives the answer to many problems.¹⁶ The pieces of this particular problem were put together by Muller in 1961. Muller had been working in cancer research, but his experiments had accidentally illustrated that the thymus was the 'mastermind' of the immune apparatus, a discovery which revolutionised the science of immunology overnight. Since this breakthrough Muller has remained in the field of physiological research.

14. Examples are M. Beddow Bayly, a medical practitioner, Chairman and supporter of the National Antivivisection Society for many years, Clinical Medical Discoveries (N.A.V.S., 1961), and The Futility of Experiments on Living Animals (N.A.V.S., 1962).

15. Quoted by Sir Henry Dale at the 27th Earl Grey Memorial Lecture, "Methods and Aims of Scientific Research", London, May 1945.

16. Nossal, 12-16.

While it is obviously desirable to reduce the number of animals expended in experiments, this cannot be done by claiming that only experiments with medical applications are legitimate. Medical knowledge is rooted in an understanding of basic physiology, the study of which is motivated by scientific curiosity, and all knowledge is potentially valuable. Its real value (or indeed its inherent danger) depends upon its application, which is usually out of control of the scientific community. It is no more desirable to restrict the pursuit of free scientific enquiry than it is to allow such enquiry to be carried out completely free of ethical constraints. In the case of animal experimentation the potential value of the results to be obtained must be weighed against the cost in terms of animal lives and suffering. Any conscientious scientist will make such an assessment for himself before commencing his research. Nossal has stressed that experimental physiology and clinical practice are often more closely related than the lay public might think. He states that the clinical researcher must always have an eye upon current developments in basic research because it is from this field that most new medical treatments spring. For this reason also, he should himself perform both clinical and laboratory research in his field. The patient provides him with the theories, the animal is the model on which he may test them.¹⁷

Notwithstanding these considerations, the value of any research will, in the final analysis, depend upon the motivations behind it and the calibre of the experimentalist. Some research is undoubtedly trivial and not inspired by noble motives. The difficulty for the restrictionist reform movement will be to exert a greater degree of restraint over such experimentation, while leaving the responsible pursuit of knowledge unhampered.

17. Ibid, 23.

It is difficult to place a value judgement upon individual pieces of research and the scientific community has often considered it arrogant of the layman to do so. Although this attitude is quite understandable, it is clear from discussions elsewhere in this work that there are strong arguments for making scientists accountable to society at large in cases where their work has a considerable ethical content.¹⁸ Therefore it does not seem unreasonable to make subjective value judgements upon scientific experiments, such as those made in the two sample studies presented in this chapter. It should, perhaps, be added that the conclusions are simply a matter of personal opinion and no 'in-depth' study of these researches, involving consultation with the authors of the contemporary papers cited, has been attempted. The survey is intended simply to stress the validity of weighing the importance of the objective behind the research, and possible application of the results, against the degree of suffering inflicted upon the animal. In the words of the R.D.S. :

The Society wishes to stress ... that neither it, nor medical and veterinary workers generally, believe that all and any animal experiment is justified. There is always a balance between the benefit (short-term and long-term) to men and animals in reduced suffering and mortality, against the constraints of suffering involved in the experiment. 19

The R.D.S. is of the opinion that this evaluation can only be made by the individual experimenter-which is certainly desirable; however, the practice of animal experimentation is liable to abuse, and as pointed out by the 1875 Royal commission, constraints (statutory or otherwise) are established not for those who are conscientious and prepared to maintain their practice within reasonable limits, but for those who

18. See chapter IV, esp. Sections 9 and 10.

19. R.D.S. Press Release, Nov. 1975.

are not.²⁰ There is, moreover, a case for imposing an even stricter level of ethical control which would result in a real reduction of animal experimentation. Whatever the potential value of the experiment, there must be limits beyond which (on purely ethical considerations) no experimenter should go.²¹ The definition of these limits must remain a subjective and arbitrary one and will change according to the prevailing climate of opinion both within the scientific community and in society at large.²²

As there are numerous examples and assessments available from secondary sources, all that is presented here is a brief outline using selected examples of the contribution of animal research in a number of fields where that contribution has been outstanding. This is followed by a sample survey performed on one medical journal (the British Medical Journal) and a physiological one (the Journal of Physiology),²³ over the last seventy years. The survey is intended to give some general indications of the place and importance of animal experimentation in research and its applications to medicine, and of the changing trends which have taken place over the last century.

These two reviews enable some qualitative assessment of the value of animal experimentation, past and present, to be made.

20. See chapter II, footnote 45.

21. See chapter IV, esp. Section 9.

22. See the discussion in the concluding chapter of this thesis.

23. Since this journal is the official organ of the Physiological Society (the "pro-vivisection" lobby) it is possible that the 1905 issue especially may have been "censored" owing to the intense activity occurring prior to the setting up of the second Royal Commission.

The Contribution of Animal Experiments to Medical Research -
Selected Examples.²⁴

1. Infectious Diseases in Man

The conquest of infectious diseases, due almost entirely to animal experimentation, is based upon the principles of attenuation and vaccination developed by Pasteur in the latter half of the nineteenth century. The revolt of the antivivisectionists against this revolution has already been mentioned.²⁵ The part played by general improvements in sanitation and public hygiene has not been insignificant, but its importance has been somewhat overplayed by writers seeking to diminish the role of animal experiments. An objective and rational assessment of the importance of animal work has been given by Lapage.²⁶

i) Diphtheria

This was once a common European disease causing heavy mortality, especially among children. The bacterial cause of the infection - corynebacterium diphtheriae - was discovered by Edwin Klebs in 1853. Roux and Yerskin, working with Pasteur in 1888, showed that this organism was responsible for the disease, and that it produced an endotoxin. An antitoxin, the basis of vaccination treatment, was developed by Behring in the guinea pig in 1896; further experimental work produced a reasonably safe vaccine which was introduced in the latter half of the nineteenth century. Its efficacy was hotly disputed by anti-vivisectionists and the arguments for and against its use involved much manipulation and interpretation of the figures to suit the purpose

24. The examples chosen here are those relating to important areas of medical science where the contribution of animal experiments can be clearly demonstrated. Some of these areas are also discussed in relation to the potential for "alternatives" in chapter VII. Many important areas have been omitted completely because of their complexity and the impossibility of discussing them briefly, obvious examples are the study of immunology, cancer and many tropical diseases.

25. See chapter II, 83-85.

26. See footnote 5.

of the protagonist.²⁷ A great deal of the literature on the subject is unreliable.²⁸ Although gross mortality figures can be misleading, the case mortality figures clearly testify to the efficacy of the treatment. Active immunisation with diphtheria toxoid was introduced by the Ministry of Health in 1940, and this reduced both mortality and incidence drastically. In 1930-39 there were ~~58,000 cases and 2,800 deaths~~ while in 1965 there were 25 cases and no deaths. The antitoxin is produced mainly in horses; testing and standardisation is carried out in small laboratory animals.

ii) Poliomyelitis

This disease, caused by three separate strains of virus, was comparatively uncommon until the late nineteenth century when it became more frequently observed throughout the world. Epidemics occurred both in Europe and North America. It chiefly attacked young children, often leaving survivors with permanent paralysis. The virus will propagate only in the cell, and therefore must be studied in living material. Much valuable early work was done in monkeys, until Enders, Weller and Robins succeeded in growing the virus in primary monkey cell cultures in 1949.³⁰ Sabin's work (circa 1956) on the serology of the different viral strains, conducted in monkey kidney cell cultures led to the production of the famous Salk vaccine containing killed cells. In 1957 an immunisation campaign, launched in Britain with this vaccine, met with considerable success. A more universal scheme was achieved with Salk's oral vaccine introduced in 1963. The following figures illustrate the efficacy.

27. For example, see the evidence before the second Royal Commission and also "The Truth About Vivisection", R.D.S. Pamphlet No. 1 (1910).

28. An objective assessment is given by Lapage, chapter 4.

29. Conquest No. 160 (1969), 7.

30. J.F. Enders, T.H. Weller and F.C. Robbins, "Cultivation of the Lansing strain of Poliomyelitis Virus in Cultures of Human Embryonic Tissue", Science, 109 (1949), 85-87.

Incidence of Poliomyelitis in England and Wales³¹

			Vaccination introduced ↓						Oral vaccination (killed) introduced ↓		
	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
Notified cases	6,331	3,200	4,844	1,994	1,028	378	876	271	51	35	91
Deaths	241	114	226	129	66	23	59	18	3	4	3

iii. Rabies

This dreadful disease has been eliminated in Britain and is kept at bay only through strict quarantine measures. Its reintroduction could occur at any time, since rabies is endemic throughout much of Europe. It is caused by a virus which is transmitted through the bite of a rabid animal, usually a carnivore. Once infected, the victim is certain to die unless vaccinated. The development of a successful vaccine by Pasteur in 1835 is a well-known story. Pasteur was in fact reluctant to perform the necessary experiments because of their unpleasant nature and his abhorrence of severe vivisections.³² Preliminary experiments had indicated to Pasteur that the infective agent (now known to be a virus) would grow only in living nervous tissue, and production of the vaccine involved culture of infective material in the trephined brains of experimental animals. The final vaccine was attenuated (following the principle adopted by Pasteur in his successful manufacture of anthrax vaccine) by dessication of the

31. The occurrence and severity of the disease is much reduced by vaccination. These figures were taken from Conquest, No 160 (1969), 8. The authors note that the higher incidence in 1965 was due to an outbreak in Blackburn of 60 cases, only 29 of which showed paralytic symptoms; of these 15 had not been immunised, 10 had received Salk vaccine and 4 had no reliable records.

32. In the 38th Paget Memorial Lecture, Sir John Boyd, speaking on "Some Achievements in the Prevention of Disease", quoted a translation of an account to this effect by Pasteur to Roux, published (sans refs) in Conquest, No. 161 (1970), 4-5.

infective material (the spinal cord of the experimental animal) and passage through a series of animals until the virulence of the vaccine decreased. Successful treatment depended upon a series of injections of increasing virulence. The success of the method was first shown on nine-year old Joseph Meister, who had been severely bitten by a rabid dog. The boy received thirteen of Pasteur's injections and lived.

The unpleasant nature of the manufacture of this vaccine caused a wave of antivivisectionist protest, not least in Britain, and anti-vivisectionists sought to demonstrate that the method was at best ineffective and at worst severely dangerous. Given the severity of the disease, these dangers did not prevent hundreds of patients from flocking to the Pasteur Institute. Despite antivivisectionist propaganda to the contrary, the efficacy of the method was well proved. Pasteur's method was subsequently refined, but the basic principles remained the same. In a recent article³³ G.S. Turner of the Lister Institute of Preventative Medicine, noted that an average of 60 million doses of rabies vaccine are produced annually from the brains of various experimental animals (rabbits, sheep, goats, etc.) and about 75% of it is designed for immunisation of animals. The side effects of vaccination can be severe and permanently debilitating and the course of treatment is somewhat traumatic. The development of an inactivated vaccine prepared from duck embryos in the late 50's (DEV) proved less dangerous for use in man due to its freedom from neuro-allergens, but the side effects were still very significant.

33. "The Role of Animals in Recent Improvements to Rabies Vaccine", Conquest, No. 168 (1977), 10-11. See also G.S. Turner in C. Kaplan (Ed.), Rabies - The Facts (London, 1977). Semple produced the first killed vaccine in 1911. Since then killed vaccines have been the most widely used. Highly effective vaccines were made from suckling mouse brain in South America in the 1950s, -neurological accidents were less frequent but more severe.

More recently it has been possible to cultivate rabies vaccine in human diploid cells. Vaccines produced in this way (H D C S and WI38)³⁴ are thought to be safer, less productive of side effects and less traumatic to administer (smaller and fewer doses are required for effective treatment). They are now on clinical trial throughout the world. This example again illustrates the integration of animal work with new "alternative" methods. The reluctance of scientists to depart from traditional methods may well have hindered the development of vaccine in culture, but it is certain that no vaccine could have been developed at all without the preliminary animal work. The use of vaccine is essential in some heavily infected areas, although control of potentially infective animals, where this is possible, is the most effective method of reducing the incidence of cases. It must be stressed that large numbers of laboratory animals are still required for potency tests and standardisation of rabies vaccines. Indeed, vaccines produced in culture were not released for clinical trial until their efficacy had been proved by twenty years of experimentation on laboratory rodents and, latterly, on primates. Animal experiments have also been essential for the development and testing of anti-rabies serum which is used in conjunction with the vaccine. This also carries serious side effects which can now be reduced by obtaining the serum in man after infection with cell culture vaccines. There are prospects for even safer and more effective vaccines from culture in the future.³⁵

34. Human Diploid Cell Strain and Wistar Institute 38.

35. The subject of rabies control is a complex one and only a brief outline has been given here. For further information see E.A. Hildreth, "Review - The Prevention of Rabies or the Decline of Sirius", Annals of Internal Medicine, 58 (1963), 883-896; and the World Health Organisation Expert Committee on Rabies : W.H.O. Technical Report Series No. 28 (1950) and no. 321 (1966). See also Colin Kaplan (Ed.) Rabies - The Facts (London, 1977), and J.E. Hampson, "Could Your Pet be a Killer ?", Animal Welfare, Mar. 1976, 12-13.

2. Veterinary Research

The contribution of animal experimentation to the conquest of animal diseases has been just as significant, if not more so, as it has to human medicine. This fact has been used as a jibe against antivivisectionists, namely the somewhat disparaging assertion that it illustrates their lack of real concern for the animal world. The argument is misplaced since it fails to come to grips with the fundamental ethical tenets of antivivisectionism which are, of course, non-utilitarian.

In veterinary research diseases and parasites can often be studied in the natural host, avoiding the difficulties presented by interspecies extrapolation when applying the results of animal experiments to man. Similarly, in testing of drugs and vaccines, trials may be done upon the species for which the medication is intended.

A large number of animal diseases can now be prevented by immunisation. These include anthrax, dysentery in lambs, feline enteritis, blackquarter of cattle, sheep and goats, braxy of sheep, malignant oedema of cattle, sheep, horses, pigs and man, a number of diseases of domestic fowl, foot and mouth, and distemper in dogs. In most cases the vaccines have been developed through animal experiments and though some can now be prepared in culture, animals must still be employed in vaccine testing and standardisation. For example Sir John Boyd has noted that some forty years ago distemper was responsible for considerable mortality among the canine population. The epidemiology of the disease was worked out in ferrets specially bred for the purpose in a study conducted by P.P. Laidlaw and G.W. Dunkin which 'was carried out in a brilliantly logical and methodical fashion which will

long be a model for investigations of this kind."³⁶ Subsequent studies were then conducted along similar lines in dogs. This work led to the first successful immunisation against the disease, vaccination with killed virus followed up by a dose of live vaccine. Later it became possible to culture and to attenuate the virus in hens' eggs and to confer immunity with a single dose of vaccine. The vaccine also, incidentally, conferred immunity against hardpad. Thus, through experimental work, a disease once dreaded among dog owners and breeders has been virtually obliterated in Britain;

The beneficial effect of the vaccine is best seen in controlled populations such as packs of foxhounds. Prior to the introduction of vaccination against distemper the mortality from the disease in pups was 20% to 50%. It is now less than 1%. 37

The R.D.S. has also frequently drawn attention to the benefits to the animal kingdom conferred by the application of new surgical techniques and other therapeutic procedures and from new veterinary drugs, all of which are developed with the aid of animal experiments. In a recent press release, Professor William Paton drew attention to a wide range of drugs listed in the Index of Veterinary Specialities.³⁸ The Society has stressed that a considerable proportion of experiments carried out upon cats and dogs are conducted in the course of veterinary science rather than for the benefit of man. In 1958 an investigation was made into these numbers which showed that of 5,465 cats used, 800 were used for research into feline enteritis (not a very high proportion), while the proportion of dogs used in veterinary research was much higher; of 7,442 dogs used, 3,669 were used in the production

36. Sir John Boyd "Some Achievements in the Prevention of Disease", the 38th Paget Memorial Lecture published in Conquest No. 161 (1970), 3-12.

37. Conquest No. 160 (1969), 17.

38. W. Paton "Call to defuse the Antivivisection Argument", R.D.S. Press Release 25 Oct. 1976.

of distemper vaccine and 1,954 for research into other canine diseases, making almost 75% of the total. It also pointed out that in three large pharmaceutical firms 400 dogs were used in one year for tests on drugs for human use, while 610 were used for research and testing of veterinary substances. In one large firm in 1966, 73 dogs were used for toxicity tests on drugs for human use while 92 were used for testing veterinary preparations.³⁹ It should be noted that the proportions of animals expended in medical and veterinary research will be made much clearer on publication of the new and more detailed Return in 1978.

The above examples have been cited to demonstrate the role of animal experiments in veterinary research. It is not the purpose of this chapter to discuss the relative ethics of the use of animals in research to benefit man or veterinary science, though it should perhaps be pointed out that antivivisectionists who believe that no experimentation is justifiable on utilitarian grounds would no more justify it for veterinary purposes than for human medical research.

3. Surgery

Research into surgical techniques dates back to antiquity. Stitching has been practised since the time of Galen and was often the cause of death from sepsis or excessive bleeding. As long as surgery has been carried out, there has been a constant search for better materials and methods. The first successful ligatures were performed in 1867 by Joseph Lister, who employed silk threads soaked in carbolic acid. Other surgical materials were tested upon experimental animals in which the various responses of the body were carefully monitored.

39. Conquest, No. 160 (1969), 18.

Experiments were conducted to measure such parameters as tensile strengths of stitching materials, rates of tissue healing, effects of healing upon tensile strength, effects of body juices and stresses imposed by movement and digestion of food. Like all other fields of medicine, surgery is based upon information, built up by experiment, clinical observation and study of human anatomy. Anti-vivisectionists, denying the need for this experimental basis, have drawn attention to surgeons who have attained their skills and perfected techniques without recourse to animal experimentation, for example, by work on corpses or by testing out minor procedures on themselves or their colleagues. The surgeon Lawson Tait was frequently cited as having stated that animal experimentation had added nothing to surgical practice which could not have been attained from anatomy alone.⁴⁰ However, this was a minority view, and the nineteenth century literature contains numerous examples of the writings of surgeons acknowledging their debt to animal experimentation. Increasingly sophisticated modern techniques clearly illustrate the extent of this debt. One of the greatest surgical revolutions has been the successful development of surgical replacements, either by organs transplanted from a human or animal donor and by mechanical prostheses. The contribution of animal experiments in these fields has been considered in some detail by Sir Michael Woodruff, Director of the Nuffield Transplantation Surgery Unit, Edinburgh.⁴¹ Animals have been used extensively in the study of immunological factors which are of vital importance to this field, and also for establishing the

40. See chapter II.

41. M. Woodruff, "The Contribution of Animal Experiments to the Surgery of Replacement" 40th Paget Memorial Lecture published in Conquest No. 163 (1972), 3-7. See also the detailed treatment by H. Spilg "The Rational Use of Animals in Organ Transplantation Research", in The Rational Use of Animals in Biomedical Research U.F.A.W. 1972 and H.D. Ritchie, "Surgery" in "The Place and Importance of the Experimental Animal Medicine Today", Proc. Roy. Soc. 65 (1972), 343-353.

safety of artificial materials, though the initial trials of these may be done in culture, thus reducing the numbers of animals which need to be used. The technical problems of the difficult operations involved can only be worked out in animal experiments.

One recently developed and very spectacular operation is of some interest here. This technique enables restoration of blood supply to the brain in cases where it has become diminished without permanent damage. It involves joining an artery in the scalp through a hole in the head to an artery in the brain in order to create a new supply. The two arteries are less than one millimetre wide and the whole delicate operation must be performed under a microscope. It was developed in the United States of America by Professor Purdon Donaghy and Professor Gazi Yasargil, working at the University of Vermont. The operation has recently been successfully performed in Britain upon a 57 year-old man in whom diminished blood supply to the brain had resulted in total loss of memory and a reduction of his mental age to six. This patient has made a spectacular recovery. The operation was performed by Carys Bannister, Britain's only woman neurosurgeon, at the North Manchester General Hospital. It is noteworthy that Bannister learned these techniques in Zurich, where Professor Yasargil now works, and that she practised the operation some 400 times upon rats before she felt confident to perform it on a human patient. Such experiments would be illegal under the 1876 Act (C use 3(6)) in Britain. Miss Bannister estimates that there may be several thousand people in Britain who could benefit from this type of surgical treatment.⁴² Practically every new surgical technique is first tested upon animals and the continued advance of surgery is almost entirely dependent upon animal experiments. Such experiments have also played a vital role in

42. Reported by Oliver Gillie, Medical Correspondent in the Sunday Times, 18 Sep. 1977.

the testing of new, safer and more effective anaesthetics, analgesics and other drugs connected with surgical practice.

4. Chemotherapy and Control of Biological Substances

Animals are used extensively in the testing of synthetic drugs and biological substances such as vaccines, hormone preparations and anti-sera. As already noted in chapter III, most of this testing is done under statutory regulations. In drug development, new compounds are subjected to a battery of acute and chronic toxicity tests in laboratory animals before being passed for clinical trial.⁴³ Though stringent regulations brought into force over the years, have resulted in an escalation in this field, there is considerable potential for reduction, as will be seen from the discussion in chapter VII. Though it is justifiable to criticise some aspects of modern drug development, such as the vast resources in terms of money and animals being directed into the proliferation of non-essential "me too" drugs,⁴⁴ it must be acknowledged that chemotherapy has proved to be of inestimable value to man's conquest of disease. Each year the R.D.S. in its newsletters, press releases and in the pages of Conquest draws attention to new and valuable drugs which have been added to the pharmacopoeia.

A recent and spectacular example of the success of drug therapy is the case of playwright and T V critic, Dennis Potter, who suffers from psoriatic arthropathy, an extremely severe form of the skin disease psoriasis, which also affects the joints. The disease is very painful

43. See chapter VII. The nature of these tests was described by J.D. Spink of the Wellcome Foundation at the 1976 U.F.A.W. Symposium, see "Drug Testing", in U.F.A.W. Symposium Report 1977, 44-50.

44. For a critical commentary on the drug industry see Vernon Coleman The Medicine Men (London, 1976) and Paper Doctors -- A Critical Assessment of Medical Research (London, 1977) and Alan Klass There's Gold in them Thar Pills, An Inquiry into the Medical-Industrial Complex (London, 1977). (Paper Doctors is hardly a critical assessment of medical research, but some noteworthy points are made.

and debilitating, and threatened to stop Potter from writing altogether. Every treatment which was tried had failed until, in January 1977, Potter commenced treatment with the anti-cancer drug Razoxin (manufactured by I.C.I.) at Guy's Hospital. The improvement was spectacular and almost immediate, and has enabled Potter to begin reliving an almost normal life. Paradoxically, the Committee on the Safety of Medicines⁴⁵ recommends that the drug should not be prescribed for this condition, but Professor Kurt Hellman, whose team developed the drug at the I.C.I. Laboratories, Lincoln's Inn Fields, has noted that Razoxin is possibly the best tolerated anti-cancer drug known. A series of coincidences led the developers to speculate about its usefulness in severe psoriasis, but the Committee has required I.C.I. to carry out more extensive animal tests before it will generally approve the drug for use in this condition.⁴⁶

The vital role played by vaccines in the conquest of infectious diseases has already been discussed and it was noted that vaccine therapy was developed as the result of animal experimentation. Though many vaccines can now be developed in culture, animals are extensively used in the safety testing and standardisation of potency of these products. Before such tests became standard practice, periodic disasters due to administration of impure vaccines did occur, for example, the death of 72 children from tuberculosis after administration of B.C.G. vaccine in Germany in 1929/30,⁴⁷ the occurrence of 260 cases of poliomyelitis in U.S.A. in the early days of vaccination

45. See chapter IV, 177-178.

46. This story was reported in the Sunday Times, 30 Mar. 1977.

47. Conquest, No. 165 (1974), 23.

after administration of virulant vaccine and similar untoward results of diphtheria inoculation in the early days of treatment.⁴⁸

Ironically, antivivisectionists have in the past attempted to use such examples in illustration of the futility of animal experiments and undesirability of vaccine treatment while it is only by animal experimentation that the safety of each batch of vaccine can be established before it is marketed.⁴⁹

In the case of attenuated live human and veterinary vaccines, animal tests are used to ensure that the microorganisms have not reverted to a virulent state and that the vaccine has not become contaminated with other pathogens. Immunological tests for potency are performed upon animals prior to production of the vaccine. However, final potency assessments can now be made in cell cultures.

The treatment of a number of inherited diseases with hormonal preparations might also be mentioned here. The control of diabetes mellitus by administration of insulin is perhaps the most spectacular example. Since this story is so well known it will not be reiterated here, it suffices to point out that the experimental study of this disease dates from the work of Bernard on dogs in the late 1800's. Its cause remained unknown until 1889 when Von-Mering and Minowski showed that removal of the pancreas in experimental dogs rendered four fifths of them diabetic. Other workers continued to study the

48. Loc. cit.

49. These tests were described in some detail by C.R. Coid at the U.F.A.W. 1976 Symposium, see "Vaccine Production and Microbiological Research", in U.F.A.W. Symposium Report 1977, and by A.M. Whittaker at the U.F.A.W. symposium Pharmaceutical Applications of Cell Techniques, 1978 (proceedings in press).

disease using experimental animals but it was not until 1922 that Banting and Best isolated insulin from glandular extracts and were able to show that the substances caused a lowering in the blood sugar level of experimental animals. It was, of course, this discovery which revolutionised the treatment of diabetes. It has been pointed out that before the use of insulin therapy, the life expectancy of a diabetic child of 10 was less than two years; with the treatment it is now about 45 years. The treatment has brought a near-normal life expectancy for many thousands of diabetics in Britain alone, and also greatly reduced the mortality rate of patients who fall into diabetic coma.⁵⁰ It has also greatly raised the fertility of diabetic women. Another effect, of course, has been an increase in incidence of the disease in the population a problem with many diseases now brought under control by modern medicine and one which presents an insoluble ethical dilemma.

THE RELEVANCE OF PHYSIOLOGICAL RESEARCH TO MEDICAL KNOWLEDGE - TWO SAMPLE STUDIES

This survey was performed upon one physiological journal and one medical one with a view to discerning the extent to which the results of pure research might be applied in medical practice. Some comments will be made regarding the justification of the work.

50. This information was summarised by Lord Cohen of Birkenhead in "Some Reflections on Animal Experiments", the 25th Paget Memorial Lecture 1957 published in Conquest pamphlet no. 4. For a detailed discussion of the role of the pituitary in relation to diabetes see G.F. Young "Diabetes Diet and Biochemistry", the 39th Paget Memorial Lecture published in Conquest, No 171 (1971), 3-10.

It is of interest to note here that Professor Henry Barcroft, a past Chairman of the R.D.S. Council, has performed a survey of the 333 papers appearing in the Journal of Physiology for the year 1971. Barcroft classified the experiments according to purpose, type of species used, and the type of procedure to which the animals were subjected. In his discussion he analysed the different purposes for which the various species are best suited.⁵¹

In my study I have taken one issue each of the J. Physiol and the B.M.J. for every tenth year in the years 1905 to 1976. Some comments and conclusions drawn from the sample are summarised below.

1. The Journal of Physiology

The issues sampled were as follows :

- Vol. 32 (1905), 1-94.
- Vol. 50 (1915-1916), 265-345.
- Vol. 60, Nos. 5 and 6, 31 October (1925), 347-478.
- Vol. 84, No. 1, 26 April (1935), 1-110.
- Vol. 103, No. 4, 28 March (1945), 359-478.
- Vol. 127, No. 328, March (1955), 449-640.
- Vol. 177, No. 2, March (1965), 161-322.
- Vol. 206, No. 2, October (1976), 255-504.

The sample contained some 75 reports, each of which described one or more experiments and referred to many others conducted by workers in the field concerned. Those experiments not carried out upon living animals which were conscious for at least some part of the experiment were excluded⁵² from consideration since only those experiments

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- 51. See Henry Barcroft, "The Place and Importance of the Experimental Animal in Medicine Today", Proc. Roy. Soc. Med. 65 (1972), 343-353.
 - 52. Some of the experiments were performed upon tissues taken from animals which had just been killed, some upon animals anaesthetised throughout and now allowed to recover, and a small number upon human volunteers, sometimes the researchers themselves.

productive of some suffering need concern us here. As pointed out elsewhere in this thesis,⁵³ it is believed that any assessment of the value of a piece of research must be weighed against the degree of suffering inflicted, so that while it may be perfectly acceptable to perform an experiment solely for the purpose of satisfying scientific curiosity, this may not be ethically desirable if the experiment is relatively trivial and the degree of suffering is very great.⁵⁴ The remaining experiments in the sample, which number 26 in all, were divided subjectively into the following categories :

- | | | |
|--|---|-------|
| 1. Productive of minor suffering - 27% |) | Total |
| 2. Productive of considerable or severe suffering - 73% |) | 100% |
| 3. Productive of knowledge with clear medical or physiological knowledge - 58% |) | Total |
| 4. Of questionable value or inapplicable to man because of the experimental conditions - 43% |) | 100% |
| 5. Both humane and clearly valuable - 19% |) | |
| 6. Valuable but productive of considerable suffering - 38% |) | Total |
| 7. Of questionable value but humane - 8% |) | 100% |
| 8. Of questionable value and productive of considerable suffering - 35% |) | |

The first experiment in the sample will be used to illustrate how the experiments were categorised. This was from the J. Physiol. 32, (1905) 28-32, and was an experiment carried out by Noel Paton to show the influence of the removal of the thymus gland upon the growth of the sexual organs. The thymus was removed from 24 young guinea pigs of different ages, they were then killed at various stages of maturity and the testes were weighed. The results indicated that there was indeed

53. See especially chapters IV and VIII.

54. No attempt will be made here to make any quantitative assessment of pain and it should be pointed out that it is not in the J. Physiol. that one might expect to find the most distressing examples; such examples might be more likely to occur, for example, in journals of psychology or neurology. It should also be noted that it is a policy of the J. Physiol. not to publish reports of foreign experiments which would be illegal under the 1876 Act.

a reciprocal action and so the experiments produced basic physiological knowledge of some value. It was not thought that the animals would have suffered very greatly in this experiment and therefore it would be classed in categories 1, 3 and 5 above.

The results of this subjective analysis indicate, at least in one author's estimation, that 35% of the experiments in the sample were highly questionable, these were the ones which fell into category 8. It is hoped that this sample might be representative of physiological research and it can therefore be considered applicable generally. It was taken over a long time scale but the proportions of experiments falling into the various categories did not alter considerably from the beginning to the end of the sample, thus it would be expected that if a large sample were taken of contemporary experiments only, the categorisation would be expected to come out approximately the same.

The scope for reduction in the level of experimentation and for reduction in the suffering occurring in those experiments remaining has already been considered in chapter IV and will be discussed in terms of actual prospects for reduction in the long and short term in chapters VII and VIII below.

2. The British Medical Journal

The examples in this sample were not so easily quantifiable. The sample contained not only experimental reports but letters and review articles which sometimes referred to experimental work. Most of the papers referred to clinical work, but the number of references to work involving the use of experimental animals occurring in the whole sample was not inconsiderable. All these references were noted and categorised as follows according to their application :

1. The study of disease
 - a. physiology and pathology in relation to clinical practice
 - b. study of infectious disease
2. general therapeutics and chemotherapy
3. cancer
4. surgery

It was clear from the sample that the medical profession does indeed make use of the results of physiological investigations. Two examples will be taken, one from the beginning and one from the end of this survey, to illustrate this point.

In the B.M.J. I(1905), 812-815, James Mackenzie, writing upon "New Methods of Studying Affections of the Heart", described how the information he had obtained from his clinical practice had been supplemented by what he had gleaned from physiological publications (notably those of W. Gaskell, a Commissioner on the Second Royal Commission), in his study of the heart in health and disease. Mackenzie stated that Gaskell's work on the origins of the heartbeat, mostly in cold blooded animals, had formed the starting point for studies in man, and had been vital to an understanding of drug treatment for diseases causing a disturbance in heart rhythm.

A much more recent paper, relating to surgery, appears in B.M.J. 1(1976) 621-622. This paper, entitled "Hormonal Assessment Before and After Vasectomy", and written by D.G. Skegg and others, described physiological sequelae studied by several workers following the performance of vasectomy on rats.⁵⁵ The paper itself discussed

55. The authors referred to were A.M. Sackler et.al. Science, 179 (1973), 293-295, M.D. Nickell et.al. Federation Proceedings, 33 (1974), 531 and G.A. Kinson and R.A. Layberry, Contraception, 11 (1975), 143-150.

findings from an epidemiological study carried out on vasectomy patients. The authors noted that it was not possible to conduct randomised, controlled trials in man and so inferences had to be drawn from imperfectly controlled clinical observations coupled with the knowledge obtained from animal experiments. It was also shown that animal experiments could provide valuable information in the interim involved between commencement and completion of lengthy clinical trials.

The B.M.J. sample clearly illustrated that not only does the medical profession make use of the results of experimental investigations, but that a number of practising doctors do themselves carry out experimental research often with the aid of their colleagues in the disciplines of physiology and pharmacology. However, the pressures and demands upon the doctor and surgeon are now becoming so great that he can no longer be expected to keep himself fully informed of current research published in the wide variety of scientific journals and the increasing volume of data may well be accompanied with a decrease in the efficiency with which it is being used.⁵⁶

Moreover, even in a journal such as the B.M.J., in which all papers might be expected to have clear medical value, some papers seem open to the criticism that they bear little relation to clinical conditions. An example is a paper written by a special correspondent on prevention and treatment of alcoholism which appeared in B.M.J. II(1965), 164. This described some experiments performed on rats in which the animals were induced to increase alcohol consumption by deprivation of thymine.

56. This problem is referred to in chapter VII,

They had also been given long-term injections of carbon tetrachloride (which resulted in liver damage) in order to increase alcohol consumption still further. It is difficult to see what bearing the results could have on clinical alcoholism in man, and yet the medical profession often seems unwilling to criticise the validity of such work. In the author's own assessment referring to one of the papers reviewed in his article :

Fascinating though the results of these experiments were, Dr. Sirnes states that there was as yet no indication that experimental craving was even remotely analogous to the clinical situation. 57

Quite so; in the clinical situation sociological and physiological factors are of paramount importance.

Another experiment of questionable value was reported in B.M.J. I (1976) 1031-1032. This review "Caffeine, Coffee and Cancer", described the teratogenic and mutagenic effects produced by coffee in mice at dosages vastly exceeding any normal intake even in man. No attempt has been made to give dosage parallelling that in man, based on some parameter such as body weight.⁵⁸ Furthermore, the vast difference in reaction between mice and men to mutagenic and carcinogenetic substances would render such experiments highly questionable. Important as cancer research is, such reports would seem to bear out the criticism that any project which can be shown to have the most tentative connection with the subject will be given support. The B.M.J. review goes on to describe the work of N. Nishimura and K. Nakai⁵⁹ who had produced embryonic deaths and congenital abnormalities in the progeny of mice by giving caffeine equivalent to 100 cups of coffee by intraperitoneal injection in a single dose. It is extremely difficult to see what relevance this

57. My italics.

58. See J.J. Mulvill, Teratology, 8 (1973), 69-72.

59. In Proc. Soc. Exptl. Biol. and Med. 104 (1960), 140-142.

could have to any naturally occurring situation in man. The review also described other work in which seemingly useless pieces of information had been produced in grossly artificial laboratory studies.

The examples considered in this chapter should be sufficient to demonstrate the role which the experimental animal has played, and will continue to play, in biomedical research. While the constant reiteration of such examples for the purpose of simply justifying the status quo is a rather sterile exercise, it is well to keep in mind the indispensibility of the experimental animal when discussing the possible extent of reduction. The central theme of this thesis is a consideration of the potential for reduction in animal usage, both by narrowing the scope of purposes for which animal experiments might be considered legitimate, and by seeking alternatives. While the scope for such reduction is thought to be considerable, it is not intended to give the impression that it is unlimited.

CHAPTER VI

ANTIVIVISECTIONISM IN THE TWENTIETH CENTURY -

ATTITUDES, LITERATURE AND CHANGING TRENDS IN THE A V MOVEMENT

The Roots of Contemporary Attitudes

The official policy of the leading antivivisectionist societies has altered considerably from the Victorian era to the present time, the most notable changes having occurred during the last decade. As indicated in previous chapters, the publications of anti-vivisectionists in the nineteenth century argued that animal experiments were unjustifiable both on grounds of ethics and scientific inutility.¹ A large proportion of the argument was highly emotional and scientifically uninformed, and the alignment of the movement with the vaccination campaign, sanitary movement² and 'fringe' medicine (e.g. homeopathy) exemplified itself in ill-advised and often hysterical attacks upon not only physiologists in particular, but the medical profession generally, including the hospitals.³

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1. The literature is prolific and a number of examples has already been given. The flavour of the movement is well portrayed in publications of the Victoria Street Society, see volumes of bound pamphlets and papers, British Library 8425K 19-25. See also the many writings of Frances Power Cobbe in popular nineteenth century journals such as The Cornhill Magazine and Nineteenth Century, and the antivivisectionist periodicals: A.P. Child's Weekly Home Chronicler (1876 - 1915), ed. Charles Adams, F.P. Cobbe and Benjamin Brian. Adam's monthly Champion (1884-1887) and Verulem Review (1888-1903). The London Antivivisectionist Society produced a general animal welfare periodical Animal's Guardian (1890- ??)(information from R.D.French Chapter 8). The Victoria Street Society, subsequently the N.A.V.S., produced the monthly Zoophilist (1881-1915) while the B.U.A.V. produced the monthly Abolitionist (1899-1948).
 2. See Chapter II, Section 2.
 3. A detailed analysis of the tactics and motivation of the Victorian A V movement can be found in R.D.French, esp. chapters 8-12.

It was a concerted antivivisectionist policy to instigate a public controversy wherever possible, and such controversy often took the form of a bitter and protracted dispute between individual scientists and antivivisectionists. A great deal of antivivisectionist propaganda was directed towards exposing the 'cruelties' of vivisection.⁴ Numerous examples are to be found in the Nineteenth Century, in A V literature, and in propaganda which appeared in the form of leaflets and bills posted upon public hordings. Many of the illustrations and examples used by antivivisectionists were taken from foreign journals and textbooks and were presented in such a way as to make their origin unclear. Such tactics alienated the scientific community, reinforcing its view that antivivisectionists were irrational, uninformed and unethical in their means of gaining support. The result was that the movement lost all hope of gaining any substantial support from the scientific and medical professions, which would have been vital to any rationally based humane movement. Instead, as discussed in Chapter 1, the medical profession closed ranks behind the experimentalists, thus ensuring the eventual collapse of antivivisectionist influence. This concerted opposition, originally generated in response to Victorian and Edwardian excesses, still survives as a defensive over-reaction on the part of the scientific community, causing it to be suspicious towards even the more moderate proposals of twentieth century animal welfare groups.

Disunity within the movement itself also helped to erode its effectiveness. Bitter dispute arose concerning aims, tactics, ethical standpoints, and arguments of a more personal nature resulted from jealousies between individuals.⁵

4. See for example F.P. Cobbe, The Modern Wrack (London, 1889) and Light in Dark Places (Victoria Street Society, 1883).

5. For example Cobbe's treatment of Anna Kingsford, see French, 223 et seq. and Vyvyan, Pity and Anger, 102 et seq.

French gives the following assessment:

The two basic and inter-related flaws of the anti-vivisectionist program were disunity among adherents and misjudgment of the temper of the general public. These flaws may in turn be traced to a problem that seems fundamental for all voluntary associations: The tendency for such associations, despite their nominally democratic ethos, to be run by small self-perpetuating coteries of dedicated enthusiasts.⁶

Cobbe, one of the foremost instigators of the antivivisectionist movement, and prominent throughout her life, is a supreme example of the over zealous enthusiast. Dedicated as she was to her cause, she allowed herself to subordinate it to a desire to monopolise the movement. Furthermore, 'Cobbe's vendettas with Kingsford and Charles Adams were microcosms of Victoria Street's rivalries with other antivivisection societies'.⁷

As French has pointed out, there are qualities inherent in the very nature of a movement such as antivivisectionism, which tend to draw to it persons of great dedication, strong character and a tendency towards self-gratification through their cause.

6. R D French, 285. French cites D.L. Sills, "Voluntary Associations", in D.L. Sills (Ed.), International Encyclopedia of the Social Sciences (New York, 1968), xvi, 362-376

7. French, 286.

In view of what has already been said, it is not surprising to find the trends which characterised the Victorian A V movement still discernable in the twentieth century. Current divisions within the A V movement are to a large extent rooted in its history. In 1894, Cobbe, who had campaigned ardently for abolition since the passage of the 1876 Act, partially retired to her home in Wales. Her post as Honorary Secretary of the Victoria Street Society was taken over by Stephen Coleridge who soon recognised the practicality of campaigning for a series of "lesser measures" as steps towards the goal of abolition. At a Council meeting in 1898, Cobbe was narrowly defeated on this issue, and the gradualist policy was adopted under Coleridge's leadership by the newly re-named National Antivivisection Society. A furious Frances Cobbe withdrew, and, with several of the older members whom she believed had formed the nucleus of her movement, she formed the British Union for the Abolition of Vivisection, formally constituted in Bristol in June 1898.

Cobbe was nearing retirement and her first task was to seek a successor. her choice served to deepen the rift between the N.A.V.S. and her own Society. John Vyvyan has assessed the situation:

In her view, unfortunately, it had to be someone who would not only fight vivisection, but who could also stand up to Stephen Coleridge. The rift was deep and the feelings bitter. What the movement needed at this time was reconciliation. It needed a statesman who would bring the two sides together, but what Frances Cobbe thought it needed was a crusader who would put the infidels to rout. This was a disastrous misconception.⁸

8. Vyvyan, Dark Face, 86.

Her choic was Walter Hadwen⁹, an outspoken medical practitioner and brilliant polemicist. He became treasurer of the B.U.A.V. and succeeded Cobbe as President on her death in 1904. Hadwen's opposition to vaccination served to further alienate the medical community, and bitter disputes which lay outside the real province of the A V movement ensued. Though a man of strong principle; Hadwen was singleminded to a fault, and his eccentric scientific opinions served to damage the credibility of his ethical arguments. The rift between the N.A.V.S. and the B.U.A.V. deepened during Hadwen's presidency. Vyvyan has concluded that it was to the lasting detriment of the A V cause that Hadwen and Coleridge, who ought to have been allies, were opposed.

Today there is neither animosity between the leading A V societies, nor any fundamental division over policy. However, minor rifts between them over campaigns and tactics have tended to keep them isolated. Attempts at effecting amalgamation of the major societies have so far failed.

The British Council of Anti-Vivisection Societies (B.C.A-V.S.), founded shortly after the Second World War, was one such attempt. It comprised all the leading British societies and a number of the smaller

9. Walter Robert Hadwen (1854-1932), First Prizeman in Physiology, Operative Surgery, Pathology and Forensic Medicine, Clarke Scholar, Gold Medallist in Surgery and Medicine. Honorary life member and lecturer to St. John's Ambulance Brigade. Hadwen was President of the B.U.A.V. for many years and devoted all of his spare time to public campaigning for repeal of the Vaccination Acts, abolition of vivisection and prosecution of reform movements connected with temperance, food, hygiene, sanitation, education and burial laws. Hadwen published various papers and articles on these subjects, Who Was Who.

ones.¹⁰ The Council disbanded following a statement by the N.A.V.S. that owing to a division within the movement, particularly with regard to Parliamentary matters, the organisation was no longer effective,¹¹ and the N.A.V.S.' consequent withdrawal in 1970. The Council was succeeded by the Association of British Anti-Vivisection Societies.

Attempts to effect amalgamation between the B.U.A.V. and the N.A.V.S. in the mid-sixties were frustrated by the N.A.V.S.' proposition that an amalgamated society should "be committed to a step-by-step approach towards the eventual abolition of vivisection".¹² The B.U.A.V. felt unable to accept such an ultimatum, which would preclude securing the ultimate goal by any other feasible means. In 1971 the Association of British Anti-Vivisection Societies (A.B.A.-V.S.) was founded to replace the old British Council. This body comprised all the original members of the B.C.A.V.S. with the exclusion of the N.A.V.S.—which declined the invitation to become a member. The aims of the A.B.A.-V.S. were:

To co-ordinate on behalf of member-societies
those areas of their activities which are deemed
to be more effectively executed as joint efforts.

10. The following societies were represented: The B.U.A.V., the N.A.V.S., the S.S.P.V., the World League against Vivisection, the Animal Defence and Antivivisection Society, the Manchester Society for the Protection of Animals from Vivisection and the Friends Animal Welfare and Antivivisection Society.

11. The Antivivisectionist, 69 (1968), 2.
ibid, 69 (1968), 28-30.

12. Minutes of B.C.A.-V.S. meetings, in B.U.A.V. archives.

To identify areas of duplication of effort and/or expense and to eradicate such duplication wherever possible.

To encourage all bodies sharing the Association's objects to join the Association, so that the Movement may speak with one voice to those it seeks to influence.

To work for the improvement of the Movement's image among legislators, scientists, and the lay public.¹³

It is a tragedy for the twentieth century A V movement that a society with such laudable aims should have proved largely ineffective in implementing them. The proposals put forward by the Association¹⁴ were both positive and rational, and could have served as guidelines for a strong and united movement. Though the A.B.A.-V.S. was never formally disbanded, it virtually ceased to function in 1974.

Notwithstanding the valuable work done by each society in its own right, there have been constant expressions of regret from all quarters of the movement, and from outside it, over the failure to unite. In the words of Kenneth Lomas, M.P:

May I now make a critical comment and say there are far too many anti-vivisection societies in this country. I only wish there was a means of co-ordinating their activities.¹⁵

This sentiment was supported by Clive Hollands, Director of S.S.P.V. and by Richard Ryder.

13. Unpublished M/S entitled Constitution of the A.B.A.-V.S. (undated), in B.U.A.V. Archives, (my italics).

14. Detailed coverage of these was given by the B.U.A.V.'s monthly newspaper, A.V. Times, throughout the early 1970's

15. Minutes of A.B.A.-V.S. meeting at the House of Commons, 16 Jun. 1971

There are still to be found among the ranks of prominent twentieth-century antivivisectionists, ardent and sincere workers whose efforts are creditable, but whose attitudes may well be damaging to their cause as a whole. Personal rivalries and disputes between the societies have continued to hamper what ought to be a unilateral progress towards greater humanity. Lack of sufficient communication between the societies has also resulted in unnecessary duplication of work, and dissemination of resources which, if pooled together, could be better directed towards achieving some of the aims about which the campaigners fundamentally agree.

This situation is accounted for partly by the movement's historical roots and partly by the wide diversity of viewpoints existing within it. The three major antivivisection societies of Great Britain¹⁶ are all committed, at least in theory, to the total abolition of all experiments upon living animals. However, all have realised the ineffectiveness of adopting purely ethical standpoints, and all are now willing to strive for compromises. They view such compromises as proceeding stepwise in the direction of their ultimate goal of abolition. The N.A.V.S. was the first to adopt this policy and we have seen that the formation of the B.U.A.V. was a direct result of Cobbe's refusal to make ethical compromises of any sort.

16. The British Union for the Abolition of Vivisection
The National Antivivisection Society
The Scottish Society for the Prevention of Vivisection

(The Irish Antivivisection Society has not been considered here since this society is not prominent in the parliamentary campaign considered in Chapter III. The numerous small A V Societies have also been excluded).

Since vivisection was ethically wrong, nothing short of total abolition was even worth fighting for.¹⁷ Ironically in the twentieth century, the policies of the B.U.A.V. appear to be more flexible than those of the N.A.V.S., though the ultimate aims of both societies remain the same. While the official policies of these societies can be clearly stated, the supporters are drawn from disparate quarters, and conflicts are inevitable.

Sympathisers may be attracted for ethical reasons based upon religious or humanitarian philosophies, by a general mistrust of modern science and medicine (which is often ill-conceived and unsupported by any real understanding of scientific methodology and its relation to medical practice)¹⁸, or by a simple desire to alleviate animal suffering. The latter category itself comprises many different viewpoints, and includes moderates who simply wish to reduce unnecessary animal suffering wherever possible, strongly principled persons who believe all animal exploitation to be morally wrong (usually vegetarians or vegans), and persons who can best be simply described (perhaps a little unkindly) as "uninformed sentimentalists", whose love of animals is so great that they cannot bear the thought of any kind of animal suffering and will support any organisation which sets itself up to fight against it. The latter group is usually composed of people who also "cannot bear" to equip themselves with the facts.

17. Cobbe saw intermediary measures as concessions to the scientific community which served only to diffuse the A V movement and lull the public into complacency. See Chapter I, 32 et seq.

18. At the 1977 N.A.V.S. annual public meeting one such indomitable lady of advancing years stood up and condemned all animal experiments on the grounds that she had lived to be 90 years and more without ever having had occasion to take a single drug.

Difficulties are presented by the fact that these societies are totally dependent upon donations received from supporters. More moderate individuals at the forefront of the movement may well be prevented from instigating proposals which would not receive the approval of the Society's supporters - in many cases die-hard anti-vivisectionists of the "old-style" movement. Bernard Dixon, editor of New Scientist has made the following assessment:

It is this dichotomy indeed that characterises the entire 'anti-vivisection' campaign at present. The misrepresentation and purple prose are necessary to sustain the supporters and attract funds, subscriptions, and legacies. Yet at the same time every one of the organisations involved has, over the past five years, taken more constructive action in seeking to catalyse progress towards alternatives to animal experimentation. 19

In other cases genuine conflicts over tactics and campaigns have arisen, which, rather than having been resolved by mutual discussion, have tended to degenerate into unproductive inter-society disputes, which serve only to divide the movement.

One example of this is the debate over the setting up of an Institute of Humane Research, mentioned in Chapter IV.²⁰ In the early 1970 s, the N.A.V.S. committed itself to a parliamentary campaign for the setting up of a government sponsored institute.²¹

19. Bernard Dixon, "Anti-vivisection - Constructive Moves", New Scientist, 69 (1976), 691.

20. Chapter IV, Section 7.

21. See Animals' Defender, the bi-monthly journal of the N.A.V.S., from late 1971 onwards, esp. Nov./Dec. 1973. Motions and bills were put forward on behalf of the N.A.V.S. by the All-Party Humane Research Group, formed in 1972 under the Chairmanship of Richard Body, M.P.

In the opinion of the N.A.V.S. this would facilitate the promotion of alternatives, now seriously under-exploited, and the function of the Institute would be to study and develop new techniques and also to collate relevant information from all over the world. The A.B.A.-V.S. did not actively support this campaign, largely because it felt that it was a waste of time and energy to attempt to persuade the government to make such a move. Though the B.U.A.V. had originally intended to set up its own research institute for Hadwen Trust grant holders, it shelved this idea, partly because of the overriding expense, and partly because it heeded the opinions of its own sponsored scientists on this matter,²² which was that alternatives could not be developed in isolation from other methods and that an artificial attempt to create such isolation, and to search for alternatives, rather than allowing them to develop in the course of research generally, would not hasten their development.²³

F.R.A.M.E. supported the A.B.A.-V.S. view that it would be a misdirection of funds to erect a costly institute, and was of the opinion that quicker progress would be made through direction of more funds for such research in existing establishments, and by collation of information through an information centre such as the F.R.A.M.E. Centre itself. F.R.A.M.E., the S.S.P.V. and the B.U.A.V. were all in agreement that the government should be persuaded to direct at least a small proportion of its research funds into the specific development of alternatives.

22. See A.V. Times, Mar. 1973, 1-2

23. See Chapter IV, Section 7.

The criticism levelled at the N.A.V.S. in the pages of the A V Times for supporting this "albatross of a campaign"²⁴ was, perhaps, unjustifiably pungent; it resulted in a hot debate between editor John Pitt, who was deeply frustrated by the division in the movement²⁵ and Kenneth Lomas M.P., which raged in the pages of the A V Times for several months.²⁶

In the A V Times John Pitt has, more than anyone else, frequently called for unity, though he now wonders if even his own well-intentioned tactics divided the movement still further. As he stated with regard to the R.D.S.

True, some may say that there is little
need for them to attack us while we so
obligingly fight among ourselves. 27

This above example is an excellent illustration of a needless division over an issue upon which all parties fundamentally agree. F.R.A.M.E., the B.U.A.V. and the N.A.V.S. are all of the opinion that much greater support should be given to alternatives. Had they been able to resolve their personal differences and to collaborate in formulating a coherent campaign as to how this might best be effected, they would have been able to make a much stronger stand.

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24. A V Times, Aug. and Oct. 1972. It should be noted that the A.B.A.-V.S. did not support the B.U.A.V. in this criticism of Lomas and that Lomas himself called for unity over this issue at an A.B.A.-V.S. meeting held at the House of Commons on 16 June 1971 - minutes of meeting in B.U.A.V. Archives.
25. The A.B.A.-V.S. had suggested meetings between the N.A.V.S., F.R.A.M.E. and their own organisation in order to resolve the best course of action for the All Party Humane Research Group to take in Parliament. Kenneth Lomas, however, declined the offer, on the grounds that unless other bodies were willing to wholeheartedly support the campaign for an institute, there would be little point in such a meeting, personal letters between Lomas and A.B.A.-V.S. Council, in B.U.A.V. Archives.
26. A V Times, Aug., Oct., Sep., and Nov./Dec. 1972
27. A V Times, Oct. 1972, 3.

Current Antivivisectionist Literature

1. Content and Policy

The A V societies in the twentieth century are not nearly so prolific in the publication and distribution of propoganda as were the Victorian societies. In addition to the publication of a journal by each of the major societies,²⁸ there is available on request a fairly wide selection of leaflets which reflect a strange mixture both of nineteenth-century arguments and of a progressive twentieth-century attitude. Some of this literature is still directed towards exposing the 'cruelties' of vivisection, and is abundantly illustrated with 'horror' photographs²⁹ usually (of necessity) obtained in foreign laboratories.³⁰

Most of this leaflet propoganda is several years old, though it is still a concerted policy of the A V societies to draw attention to such 'cruelties' in order to obtain public support, as evidenced by their journals. The following statement in Animals' Defender leaves the reader in no doubt:

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28. The S.S.P.V. publishes an Annual Pictorial Review while the N.A.V.S. and B.U.A.V. both produce bi-monthly journals, Animals' Defender and Animal Welfare, repectively.
29. Leaflets include the Ziegler Monkey Chair, Merely a Pin Prick, Two Heads Worse than One, Experiments on the Brain of Conscious Living Rabbits, and 10,000 Shakes of a Rat's Leg, all with commentaries by M. Beddow Bayly, M.R.C.S., L.R.C.P.; N.A.V.S. and S.S.P.V. archives.
30. Though it is not illegal to take photographs in British laboratories, most heads of laboratories have adopted a policy of keeping information away from public scrutiny and have forbidden them to be taken. The Home Office has encouraged this policy. See Chapter IV, Section 10.

When a specific cruel experiment becomes known to the Association, a press release issued from the London-based secretariat condemning the test often appears in a number of the world's newspapers and can arouse strong public anger against a blatantly cruel research study. The weight of public opinion can cause more than embarrassment to the researchers who embark on pitiless and painful experiments; sometimes officialdom will intervene and order an enquiry into the validity of the procedures. 31

The movement would perhaps, in the long run, gain wider support if it relied less upon sensationalism and more upon rational and productive arguments, a trend which is now emerging. While it is understandable that A V societies should seek to bring what they believe to be cases of unjustifiable cruelty to the attention of their members, deliberate attempts to "cause more than embarrassment to the researchers" can serve only to alienate the scientific community whose support the movement must seek to gain if real advances are to be made.

It is with some justification that antivivisectionist tactics are criticised when the genuine attempt to expose abuses is either exaggerated out of proportion or inaccurately reported as a result either of an improper understanding of the scientific facts, or of incomplete research of the available data. Such misrepresentations appear from time to time in the literature of each society. An example, which is particularly illustrative of the former, is to be found in a recent issue of Animals' Defender³², which, on the whole, seems to fall

31. Editorial, Animals' Defender, May/Jun. 1977.

32. Animals' Defender, Jul./Aug. 1977. This campaign was followed up in subsequent issues and was continuing at the time of writing.

below that magazine's usual standard. Three pages of this issue are devoted to an exposure of experiments performed on behalf of Amnesty International in an attempt to ascertain whether or not the torture of human beings by electrical shocks and burning can be effected while leaving the skin unmarked. Four headlines appear across a double page spread reading:

"Amnesty 'torture' experiments on pigs
cause international outcry"

"Do we need these torture tests?"

"Outcry over pigs' 'torture'"

"More torture tests on the pigs".

For good measure the article is illustrated with a photograph of a sow suckling its young, captioned:

Young pigs like these are tested ... with
burning hot metal rods and electric shocks

These experiments, which are described as "nothing short of barbarous", were carried out upon a small number of fully anaesthetised pigs which were killed soon after the experiment. The research scientist in charge was of the opinion that the animals experienced no pain. It might be argued that such tests could have been carried out upon human volunteers, and that the detailed structural changes could have been observed in tissue culture, and that the pigs, therefore, died unnecessarily. Further, Amnesty's proposal to carry out more experiments of this type may certainly be questioned.

However, the aims of the experiment, the results of which may be of value in elucidating cases of human torture, are surely as justifiable, if not more so, as the killing of pigs for food. The contributors to

the exposé may also disapprove of the latter practice, but the death of the pigs is not central to the issue, since the general tone is that of an exposure of cruelty. In view of the fact that the animals seem to have suffered little or no pain, the extent of the exposure (details were also released to the national press) and the general impression given that the pigs were 'tortured', would seem to be a questionable exercise in sensationalism.

It is sometimes suggested that such partial misrepresentations are the result of deliberate antivivisectionist attempts to mislead the public. A more credible explanation would seem to be that misinterpretation of the facts occurs due to an improper grasp of the nature of scientific literature.

In other cases, reports appear in which the details are not inaccurate, but the overall assessment is less than objective. This is perhaps due to an over-zealous desire to illustrate a particular point, which results in failure to report those facts which do not support it. This can be shown by two examples taken from the S.S.P.V.'s Annual Pictorial Review, which, on the whole, gives accurate reportage and has the commendable advantage of supporting the arguments with references. A report entitled "The Non-Human Primate - A Research Tool"³³ rightly points out that the growing use of primates in research and the depletion of their numbers in the wild are both causes for concern.

33. Annual Pictorial Review (1973), 17-19.

However, the article gives the impression that the trapping of primates for use in laboratories is the major reason for the decline of many species, including the great apes, now threatened with extinction. The article fails to point out that this is only a contributory factor to their depletion in numbers, and that by far the most important factor has been habitat destruction and consequent range depletion. There has also been widespread killing and trapping for other reasons. An already dangerous situation is certainly exacerbated by trade for laboratories, especially in the case of some marmosets, the Indian Rhesus monkey and the chimpanzee. It is relevant also to note that the vast majority of primate species currently under threat of extinction are not employed in research at all.³⁴

A similar failure to report all the relevant facts occurred in the description of work done by J.C. Lilly, in which he attempted to establish communication with dolphins.³⁵ The review quite correctly pointed out that Lilly "developed a method of inserting electrodes into the brain without anaesthesia",³⁶ but failed to point out that Lilly developed this technique of necessity, having discovered that dolphins cannot tolerate general anaesthesia, that he did employ local anaesthesia for the initial operation and that he further attempted to ascertain whether the initial insertion of the electrode would cause pain or distress by a simple experiment upon himself. Describing the

34. See lists of endangered species prepared by the International Union for the Conservation of Nature, I.U.C.N. Red Data Books, published annually. See also Chapter IV, 246-248.

35. Annual Pictorial Review (1974), 13-15.

36. Ibid, 13.

insertion of electrodes into the skull of the dolphin Lilly states:

The process was not too distressful for the animal. He jumped every time the hammer hit the mandrel of the sleeve guide, because this made a very loud noise inside his head. We could find no evidence that there was much, if any, pain associated with this procedure. However, for a sensitive animal this could be psychologically traumatic without being painful.

I had tried this kind of hammering on my own skull to find out whether or not it was unbearable, and discovered that even without a local anaesthetic the pain associated with the procedure is not great. However, the noise of a hammer blow on a needle, when conducted by bone to one's ears, is extremely loud and rather startling. 37

It is certainly true that Lilly, in his early work, killed a number of dolphins through ignorance, that some of his experiments were distressing to them, and that he finally concluded that the keeping of dolphins in captivity and the performance of certain experiments upon them could not be justified.

In fairness to Lilly it should perhaps also be pointed out that the knowledge he gained from his experiments and the deep respect he developed for a mammal which may possess intelligence greater than that of man himself, could be of inestimable value in protecting this animal from further abuse. Our limited knowledge about the dolphin is almost solely derived from Lilly's work, and this knowledge forms a firm basis for the arguments which Lilly is now putting forward against the deplorable military experiments currently being carried out upon dolphins.³⁸

37. J.C.Lilly, Man and Dolphin (London, 1962), 65-66.

38. See J.C. Lilly, The Mind of the Dolphin - a Non-Human Intelligence (New York, 1967).

Lilly hoped for a future in which man would be able to communicate with the dolphin as his equal. Speaking of such communication and of those who exploited dolphins purely for human gain, he stated:

The exploiters of dolphins may be spoiling our relationships to them. With or without a breakthrough [in communication] the dolphins need protection from the human exploiters.

The commercial use of dolphins needs rational ethical controls. Literally tens if not hundreds are sick, unhappy, dying or dead as a result of man's ignorance.

Dolphins are even eaten by humans (e.g. in Japan). The exploitation of dolphins for navy projects, and their commercial exploitation for circuses, motion pictures, television, and for pets, has also taken its toll of the dolphin population. 39

In his thinking Lilly was clearly approaching the position of an "anti-speciesist".⁴⁰ He concluded from his own work that dolphins, whales, and possibly other species also, should be treated according to the same ethical rules applied by man to man himself. His position was clearly not that of the exploiter, but of the empathist:

Nobody can be a real expert with dolphins until he has lived with them and continued to try to communicate with them for many years. I feel strongly that the future experts on dolphins will have certain characteristics which few if any of the present "experts" have.

The future dolphin experts will have a sensitivity, a training, a philosophy, a flexibility, a curiosity, a dedication and a personal involvement which the dolphins need. 41

39. Ibid, 32.

40. For a definition and discussion of "speciesism" see chapter VII of this thesis.

41. J.C. Lilly, op. cit., 33.

It is the work of scientists such as Lilly which holds the greatest promise of communication with other species, and which may lead to the erosion of speciesism. It is therefore unfortunate that Lilly, partly as a result of the ethical principles he developed through this work, has now left this exciting field.

Only very occasionally in current A V literature do arguments appear which are not based upon fact at all. The following may be taken as an example:

To anyone not completely tainted by scientific materialism it must be evident that to clamp a sentient creature, whether dog or rat, on to a board, open its neck or any other part of the anatomy that curiosity wishes to examine - not once, but repetitively by hordes of researchers and medical students - apply electrodes to the nerves and stand back, idly watching the victim writhe in agony, can only be a diabolic perversion. ⁴²

Such an inaccurate and emotive statement, totally unsupported by any facts whatever, is truly reminiscent of the inflammatory statements of the nineteenth century. The fact that such an article achieved publication in a magazine which is essentially forward-looking and practical in tone, perhaps indicates that while the forefront of the A V movement has launched itself fully into the twentieth century, a proportion of its supporters has not.

General disparagement of particular scientists - again a trait reminiscent of the Victorian era - has also occurred on occasions. Animals' Defender⁴³ referred to the attempt made by Professor Christian Barnard to save the life of a patient by implantation of a baboon's

42. Margaret Heard, "What's the Real Motive?", Animal Welfare, May 1976, 18.

43. Animals' Defender, Jul./Aug. 1977, 55.

heart as a 'surgical stunt '. Barnard's work has also been roundly condemned by other anti-vivisection societies. From the viewpoint of the campaigner for animal rights or of the conservationist, such a procedure is certainly highly questionable, though a personal attack against the surgeon would hardly seem to be the most constructive form of criticism. It is at such a juncture, when the strong ethical convictions of anti-vivisectionists preclude the sacrifice of animals in direct attempts at saving human life, that they and the medical scientists must truly part company.

The credibility of anti-vivisectionist literature in the scientific world is diminished on occasions by inaccurate reportage of the facts. Such inaccuracies may occur in the form of partial misrepresentation, the citing of examples and quotations out of context. Some are the result of incorrect interpretation of the facts and they occur when attempts are made to use specific examples in the illustration of antivivisectionist viewpoints without first thoroughly and objectively assessing all the relevant information. An excellent example is the case of the thalidomide tragedy, which is reiterated time and time again throughout the literature as a straightforward example of the misleading nature of animal experiments. In some instances it has even been put forward as a proof that animal experimentation in general is useless, and it has been used to reinforce the ethical argument.

This issue is a complex one, and it is understandable that mistakes should be made, especially since the drug companies involved deliberately fostered misapprehension and made untrue

claims about the nature of drug testing in their defence. Nonetheless it is somewhat reprehensible that the example should be continually misrepresented when there has been, for many years, extensive literature showing that the disaster was largely⁴⁴ due to inadequate animal testing.

Partial representation of the facts seems to be the most serious charge which can be laid against twentieth century antivivisectionists. The scale and extent of such inaccuracies is tending to decrease. In turn, the emergence of more rational arguments and practical tactics, and in particular the positive work in promoting alternatives, has gained considerable support for the movement within the general media and within the scientific community in recent years. The effectiveness of the movement cannot, in any case, be judged by the quality of its literature.

2. Arguments and Tactics

A significant departure into well reasoned and objective arguments, more relevant to the twentieth-century campaign, is to be seen in a number of pamphlets written by Richard D. Ryder for the S.S.P.V.⁴⁵ and in the increasing volume of A.V. literature concerning the promotion of alternatives.⁴⁶ The current policies and

44. See for example H. Sjöström and R. Nilsson, Thalidomide and the Power of the Drug Companies (London, 1972).

E. Lesser, "Thalidomide and the Pharmacologists", New Scientist, 62 (1974), 472-473 and Sunday Times reports, 27 Jun. 1976, "Thalidomide - the Story They Suppressed", and 31 Jul. 1977, "The Story Nine Judges Banned".

45. Richard D. Ryder, A Scientist Speaks on the Extensive Use of Animals in Non-Medical Research (S.S.P.V., 1974), Scientific Cruelty for Commercial Profit (S.S.P.V., 1976), and Speciesism: The Ethics of Vivisection (S.S.P.V., 1974).

46. See for example the S.S.P.V.'s excellent pamphlet, A Summary of Replacement Techniques; N.A.V.S.' literature publicising the Lord Dowding Fund (e.g. Lord Dowding Fund Annual Bulletins) and B.U.A.V. literature relating to the Hadwen trust. The N.A.V.S. also publishes proceedings of symposia on humane techniques held in conjunction with the I.A.A.P.E.A. (see p. 381 of this chapter)

activities of the chief antivivisection societies are perhaps best judged from their regular journals. These vary in quality from issue to issue but general trends can be perceived.

The A.V. Times,⁴⁷ official organ of the B.U.A.V. from January 1969 to December, 1975, was the only tabloid newspaper to be produced by a British antivivisection society. As such it was a useful vehicle for the presentation of current news and views, and it provided a forum for open discussion. It was well spiced with rhetoric, cynicism, 'shock stories', attacks upon the Home Office, the R.D.S., and even fellow antivivisectionists, and pervaded throughout with the sardonic humour of its editor. Numerous pleas that the movement should unite in its general aims were also in evidence. Articles written by supporters both inside and outside the B.U.A.V., expressed a wide variety of viewpoints and varied immensely in journalistic quality.

The movement of the Union towards the practical promotion of alternatives was reflected in some of the editorials and in articles by Hadwen Trust⁴⁸ grant holders describing their research. However, the official policy of the Union of opposing all live animal experimentation in principle, and of striving step by step towards total abolition, was clearly expressed. The most avid expression of those ideals and policies are to be found in the A.G.M. Presidential Addresses of the Union's President, Mrs. Betty Earp, in which the same standpoint was strongly reiterated each

47. This replaced the Antivivisectionist, which the Society felt was outdated both in title and approach.

48. The Dr. Walter Hadwen Trust for Humane Research, founded by the B.U.A.V. (See pp., 374-376).

year. In her message for 1974 she restated the Union's position:

Our view is that if something is morally wrong it must be abolished. A moral wrong cannot be legislated against by compromise.

To those with any Christian conscience there is only one answer, and that is to abolish this crime against creation for that is just what vivisection is.

On the abolitionist principle that no experiment upon an animal can ever be justified by utilitarian motives, all the anti-vivisection societies have continued to agree.⁴⁹ If the policy has not changed since the nineteenth century, neither, it seems has the dogmatism of some of the arguments. The total commitment

To advocate total prohibition of the performance on living animals of all such experiments as are calculated to cause suffering or distress to the animals and, pending the achievement of this fundamental aim, to support, sponsor, and promote partial measures of reform as steps toward the total abolition of vivisection. ⁵⁰

is constantly reiterated in the pages of Animals' Defender which is, on the whole, a useful and well presented magazine. The content is largely devoted to publicising the work of N.A.V.S. and the I.A.A.P.E.A.⁵¹ in promotion of alternatives the campaign for legal reform, and each issue contains a parliamentary diary. The magazine has included interviews with eminent personalities who support the movement, and articles by scientists and parliamentarians.

49. See Betty Earp's Presidential Address to the E.U.A.V., 1977, Animal Welfare, Dec. 1977, which may be compared with the N.A.V.S.' viewpoint, as expressed by General Secretary Colin Smith in "Changing Attitudes", Animals Defender, Nov./Dec. 1977, 85-86.

50. From the N.A.V.S. 101st Annual Report, 1975-1976.

51. The International Association Against Painful Experiments upon Animals, seeks to facilitate the co-operation of A V societies in different countries. It was instigated by the N.A.V.S. in 1969 and has its central office in London. The Association has been responsible for the setting up of a humane trust, similar to the Lord Dowding, in the U.S.A. The organisation is much concerned with pressing for legal reforms and has consultative status in the United Nations.

The tremendous activity and positive results of the Society's work are more than evident.

The replacement of the A V Times in 1976 by Animal Welfare is significant since it reflects the B.U.A.V.'s commendable attempt both to change its image and to produce a journal covering a much broader spectrum of animal welfare. This journal is now the official organ of the B.U.A.V., Hadwen, and Animal Welfare Trusts:⁵²

Its purpose is to present the facts and to expose faults and to create the basis of an effective argument that can be supported by its readership.... Animal Welfare would like to be regarded as a source of information and practical guidance: it does not intend to set itself up as an agitprop bureau and does not see itself as a potential agent provocateur. It is in the communications business - it is not anxious to become the focal point for hothead fanatics and the impractical, ineffectual lunatic fringe of the animal welfare movement. 53

The journal is making a very serious attempt to fulfill these aims, and its success in doing so may be judged by the gradual widening in scope and improvement in journalistic quality throughout the first year of its publication. The earliest issues contained the usual, somewhat naïve, appraisals of the value of animal experiments,⁵⁴ a number of scientific inaccuracies⁵⁵ and some instances of totally unreasoned and unrealistic ethical arguments.⁵⁶ These possibly

52. The Animal Welfare Trust is concerned with general animal welfare and operates an animal rescue service.

53. These aim were set out in the second issue of Animal Welfare Mar.1976,2.

54. See for example Jean Shapiro, "Are Experiments Really Necessary?", (reprinted from Good Housekeeping, Feb.1976), Animal Welfare, Mar.1976, 7.

55. See for example pp. 340-342 and Jean Shapiro, op cit.

56. See for example Margaret Heard "What's the Real Motive?", and Freda Boys, "Are We Really Making Progress?", Animal Welfare, May 1976,18,19. Both of these articles are distinctly reminiscent of the subjective, ill-reasoned and inaccurate arguments of the nineteenth century. Articles of this quality have not appeared subsequently.

appeared as a result of the magazine's policy to accept articles from outside writers and to publish them without editing. While such a policy has its drawbacks, it is in general to be commended, since it results in the publication of a wide diversity of viewpoints and does not simply reflect the policies and attitudes of the B.U.A.V. It results in more interesting reading and provides an open forum for discussion.

Later issues have been well-balanced, presenting accurate reportage of moves towards reform of the 1876 Act, important work towards promotion of general animal welfare in which the B.U.A.V. has been involved, including the activities of the Greenpeace Foundation⁵⁷ and two supplementary issues on Animal Welfare Year.⁵⁸

The Scottish Society for the Prevention of Vivisection publishes literature of a somewhat different nature to that of the other major societies, in the form of an Annual Pictorial Review. This beautifully-produced magazine presents rather an odd combination of approaches. On the face of it, it appears very much like an animal lover's magazine, well furnished with colour photographs of domestic animals and wildlife; but it also contains its fair share of more sinister pictures of animals under experiment, again usually in foreign laboratories, and critical descriptions of experiments the society believes to be cruel or unjustified. The magazine

57. This organisation is concerned with practical opposition to whaling and sealing. The B.U.A.V. has helped with publicity and has provided office space for the Foundation.

58. See pp. 360-362.

has several very commendable aspects. It is divided into clear sections on separate subjects, each with references. The subjects covered relate mostly to animal experiments, but space is also devoted to the promotion of general animal welfare.

The structure of the journal makes it easily readable and the overall impression is that it reflects a good deal of activity and positive thinking on the part of the Society. Ethical arguments are not simply reiterations of the antivivisectionist standpoint, but are placed in the context of an effort being made to reduce the level of experimentation much of which is considered to be unnecessary or carried out for trivial ends. Wherever possible such statements are substantiated by quotations from persons outside the antivivisection movement, often scientists themselves, for example, this statement from Dr. Donald Gould:

I have worked with animals myself and in laboratories where animals are used, and I know that although animal experiments have been, and still are, essential to the progress of medical science - too many are ill-conceived and ill-performed for trivial ends. 59

The journal reflects the Society's support for the development of "alternatives" and reform of the 1876 Act and its administration.

59. Donald Gould, quoted from "Medical Monkey Business", a critique on the brain transplantation experiments carried out by Robert White at the Cleveland Metropolitan General Hospital, U.S.A., New Statesman, 86(1973), 970 in Annual Pictorial Review (1974), 22.

The effectiveness of this work can perhaps be judged by the inclusion in each issue of a centre page pull-out brief with the following note:

This 'Brief' has been included at the request of Members of Parliament and is designed to provide brief details of the salient points discussed in this Review, questions which require answering and action needed.

The section and page number of the relevant paragraphs in the text are noted against each subject heading and it is hoped that this 'brief' will prove useful for M.P., editors and our members.

3. A New Propaganda Medium

A truly twentieth-century innovation in antivivisectionist propaganda has been the making of antivivisectionist films. The S.S.P.V. and the N.A.V.S. have been involved with making and distributing a number of these. Trapped (1973), first shown at the 1973 Edinburgh Film Festival, is a fictional film sponsored by the S.S.P.V. which points to the cruelties involved in the cosmetics industry. Earlier films (also of a fictional nature) sponsored by the S.S.P.V. - Like Unto You and All Living Things, are still available for hire through worldwide distributors. The aim of these is to make the facts about animal experimentation known to a much wider audience and to promote interest among persons who have never really considered the subject.

The films sponsored by the N.A.V.S. are of a documentary nature, and are intended to depict the routine use of animals especially for commercial purposes. Early films were Did You Ever See Such A Thing In Your Life?, produced in co-operation with the S.S.P.V., and The Argument, both of which are available through British Films Limited. A number of industrial firms and

research establishments co-operated in their making. The greatest success in this field has been the N.A.V.S. latest film, The Curiosity that Killed the Cat (British Films, 1974), a documentary which received the British Academy of Film and TV Arts Premier Award, - "Best Specialised Film Award", 1975. It has already been shown in full on television networks throughout the world, but attempts to get the complete film screened on British television have, so far, proved unsuccessful. The film was made in co-operation with two Dutch Antivivisection societies linked together through the I.A.A.P.E.A. Jon Evans, editor of Animals' Defender, has described it as "the most revealing and conscience-stirring documentary ever produced on animal experimentation".⁶⁰ The film questions the moral issues involved in experimentation and the laboratory animal-breeding industry which is now a multi-million pound business. It is also intended to lift the veil of secrecy surrounding experiments and to convey an optimistic message - pointing to alternatives already developed and pleading for more research in this field. A number of critics and scientists have commended the quality of the film; Bernard Dixon has commented:

Filmed in laboratories and animal houses in various parts of Europe (None of which are identifiable), the film is technically superb, far ahead of the usual standard of anti-vivisectionist propaganda.

but he is not so charitable concerning the content:

Like Dr. Richard Ryder's book Victims of Science, the film is an infuriating mixture of sanity and sensationalism. ⁶¹

Rather less objectively, Dennis Barker of The Guardian described the work as "a new horror film" which, when shown at the International

60. Editorial, Animals' Defender, May/Jun, 1977

61. Bernard Dixon, "Anti-vivisection -- Constructive Moves", New Scientist, 69 (1976), 690-691.

Women's Institute in Amsterdam "caused several ladies to faint and drove others trembling from the hall!"⁶²

Bernard Dixon concluded that the emotional elements in the film, and the commentary (which tended to give the impression that scientists were particularly callous individuals) would doubtless fail to impress those hardcore scientists at whom the film was partially directed. However, even the R.D.S. has, with reservations, commended it. One member, whose critique was published in the R.D.S. newsletter, May 1976, makes the following assessment:

This is a very good film and should be seen by all licensed persons actively involved in animal experimentation under the 1876 Act. Apart from one or two irrelevancies the film gives a good account of standard procedures required by other legislation for ensuring safety of medical products (which include substances that may be incorporated in preparations for external application both curative and cosmetic).

The final conclusion that "on the whole it is not a bad idea to remind licensees that animals are sentient creatures and not pieces of animated apparatus" must, coming as it does from the R.D.S., be received as encouragement indeed by the makers of the film.

Notwithstanding its emotional appeal, the chief function of the film is to draw attention to the escalation of animal usage in recent years and to promote a full scale government inquiry into the scope for replacement of much routine testing (particularly by the drug industry) by alternatives.

62. "Rats Tale", Guardian, 27 Sep. 1975.

Antivivisectionism in the Twentieth Century

1. Reponse of the R.D.S. and Popular Media

The response of the public and the scientific community to nineteenth century antivivisectionism illustrated the ineffectiveness of tactics which sought to denigrate the scientific method and appealed to emotionalism. Such tactics serve only to alienate the scientific community and it is questionable whether much useful purpose is served by constantly subjecting the movement's own supporters to harrowing photographs and descriptions.

However, public attention must be drawn to the nature of animal experimentation somehow, and the facts must be objectively assessed if rational proposals for reform are to be drawn up and implemented. Unfortunately, the interested layman could not form a truly balanced impression of the whole subject of animal experimentation simply from surveying antivivisectionist literature; neither could such a balanced view be formed solely from perusal of the literature put out by the R.D.S. A critical examination of both together might be expected to yield sufficient information for a layman to form an opinion about the nature and justification of animal experiments, though no individual is likely to invest the necessary time and effort. It is for this reason that the reformist movement has repeatedly called for greater dissemination of useful information over the last few years.

The R.D.S. has a brief only to defend research. Its official policy is:

To make known the facts about experimental research involving the use of animals and the conditions and regulations under which animal experiments are conducted in the United Kingdom;

to emphasis the importance of such experiments to the welfare of mankind and animals and the great saving of human and animal life and health and the prevention of suffering already due to them; to defend research workers in the medical, veterinary and biological sciences against attacks by anti-vivisectionists; and to help workers in drawing up their applications to the Home Secretary for licence and certificates needed for the proper conduct of experiments on animals. 63

Its policy is to inform the public of the value of animal experimentation and to take whatever legitimate action may be necessary to prevent the institution of legislative or administrative reforms which may be ill-conceived, unworkable, or detrimental to research. The Society has worked earnestly and single mindedly in the fulfillment of its aims, and its general policy, which is simply to carry out its brief, does not warrant criticism.

The valuable results of animal experimentation in certain fields are made known in a number of pamphlets available from the Society and in lectures given each year at the Stephen Paget Memorial Lectures and published in Conquest. The R.D.S. has rightly criticised antivivisectionist writings for diminishing the value of experimental results by citing statements taken out of context and generalising from the particular (for example, concluding from a series of experiments in cancer research, which yielded little valuable information, that all animal experimentation in cancer research is useless). 64 Some of the historical examples cited by the R.D.S. are themselves controversial, and this Society, too, is guilty of presenting information with considerable bias.

63. These aims were outlined in a number of R.D.S. Conquest Pamphlets produced in the 1950s. A briefer statement to the same effect appears in each issue of the annual journal Conquest.

64. Lord Cohen of Birkenhead, "Some Reflections on Animal Experiments", Paget Memorial Lecture 1957, published in Conquest Pamphlet No. 4.

While there is some justification for criticism of the emotive descriptions once common in antivivisectionist literature (though becoming less so),

Vaccination is described at 'injecting filth', excision of the eye becomes 'tearing the eyes out', procedures are always 'revolting, terrifying' and the rest, 65

there is equal justification for the antivivisectionist contention that the writings of the scientists present a picture which is no more accurate. Antivivisectionists have, for example, criticised terms such as "excessive vocalisation" used to describe screaming in scientific papers. A typical antivivisectionist rejoinder, criticising scientific terminology complains that sentient creatures:

are often referred to as animal "models" or "preparations"; when they squeal they are said to "vocalise", textbooks describe their pain as discomfort. 66

Antivivisectionists maintain that scientists can only adopt such an attitude because they have become hardened. Describing those persons who are distressed by animal experiments the N.A.V.S. has pointed out:

They are not cranks or sentimentalists, they are human beings. 67

If the tendency of antivivisectionist literature has been to give the impression that animals suffer hideously in a very large proportion of experiments, the tendency of R.D.S. literature has been

65. Ibid, 12.

66. This is Vivisection, N.A.V.S. pamphlet, undated.

67. Ibid.

to give the impression that there is hardly any suffering at all; that the majority of experiments produce no pain whatsoever, and that suffering which can be described as "protracted agony" and "torture" never occurs. R.D.S. statements, calculated to counteract the excesses of antivivisectionists, overstep the mark on the side of complacency. For example,

The word "vivisection" has really no relevance to modern scientific practice. It is used by the enemies of science to insinuate that animals are cut up alive by scientists without anaesthetic...

...The Act of 1876 which controls the use of animals for experiments lays down stringent conditions to protect animals from suffering ...

...The great majority of the experiments of today involve no suffering whatever and are directed to the better treatment of disease and the relief of human suffering. 68

Somewhere between the two suggestions must lie the truth, and it is hardly possible for the layman, unarmed with scientific knowledge, and unable to obtain general access to laboratories, to ascertain it. The confusion is exacerbated by this profusion of contradictory literature, the production of which would seem to be a self-perpetuating process. The R.D.S. seeks to defuse the emotionalism generated by antivivisectionist excesses by constantly assuring the public that all is well. The antivivisectionists respond by continually exposing experiments in which suffering has obviously occurred, in order to counteract the complacency fostered by the utterances of the R.D.S. The sterility of such arguments has been succinctly summed up by Major Walter Scott, President of U.F.A.W.:

Repeatedly, when controversial issues arise, we see representatives of the Anti-vivisection Societies matched up against representatives of

68. These statements were extracted from The Biologist and the Experimental Animal, R.D.S. pamphlet 1965. They did not appear in this order in the original.

the Research Defence Society. Sometimes words are exchanged, tempers run high and all the rest of it - the animals do not gain any benefit from this. All that happens is that the anti-vivisectionist societies and the R.D.S. get some publicity.

Quite so. Describing the more moderate and practical approach taken by U.F.A.W., Major Scott continued:

We in U.F.A.W. occupy a rather ambivalent position between the extremists on both sides, but we are happy to serve either side, both or everybody to improve the welfare of laboratory animals in any way possible. 69

Notwithstanding the Society's general complacency, the R.D.S. has provided a useful counterbalance to the profusion of antivivisectionist literature by drawing attention to the utility of animal experimentation and to the general validity of the experimental method. In addition, it has sought to demonstrate to parliamentarians the unworkability of some of the reform measures which have been put forward, and it has aided the administration of the 1876 Act by issuing guidance notes and other information to licencees.⁷⁰

The R.D.S. shares, in principle at least, one of the aims of the antivivisectionists, that is to reduce the level of suffering in laboratories. Such a desire is fostered by economic, scientific and humane factors and is perhaps evidenced by the Society's close co-operation with U.F.A.W. The Society has also given weight to the promotion of alternatives. In 1975 it asked all its members to put forward suggestions on the subject of alternatives, pointing out:

69. Policy statement of U.F.A.W., U.F.A.W. Symposium Report 1977, 97.

70. See Chapter III, footnote 38.

A new approach to the problem of animal experiments has been made in the last few years by the proposal that methods should be developed to replace the use of animals in medical research, and that public funds should be made available to develop these methods. While a great deal of information exists in the scientific literature about methods not involving the use of animals, a critical analysis is required to try to establish how far the development of these methods has gone, to foresee what new developments are likely in the immediate future, and to predict how far it is going to be possible to do without the use of animals in medical research. 71

and it has sponsored Professor D.H. Smyth of the M.R.C. Unit, Middlewood Hospital to undertake an objective assessment into the scope for non-animal experimental techniques.⁷² The R.D.S. is in agreement with the aims of F.R.A.M.E.⁷³ — which exists purely to promote "alternatives", though the two disagree concerning the potential which they might have as replacements of the experimental animal. Moreover, the R.D.S. is rather complacent about the need to promote them, stressing that scientists already adopt alternative techniques wherever they are feasible.⁷⁴ This is a rather simplistic view of a complex situation which is discussed in more detail in Chapter VII.

71. Conquest, No. 166 (1975), 1.

72. D.H. Smyth, Alternatives to Animal Experiments (London, 1978). Smyth has also considered the work of various scientific and humanitarian bodies and has made an assessment of current legislation, see Atla Abstracts, 5 (1977), 8. (see also my note after preface).

73. See W. Paton, "Call to Defuse the Antivivisection Argument", R.D.S. Press Release Oct. 1976.

74. The subject of alternatives has been discussed in some detail by the R.D.S., see Conquest, No. 164(1973), 165 (1974) and 166 (1975).

The R.D.S. is not an irresponsible society and the anti-vivisection movement will gain little by attacking it indiscriminately, though criticism of some of the Society's obstructive tactics may well be warranted. More credence could be given to the general assurances of the R.D.S. if it would only admit that unnecessary suffering does occur in laboratories, or provide suggestions for legitimate reforms to the 1876 Act which could be implemented with benefit to experimental animals without impeding valuable research.⁷⁵ Louis Goldman, who has given guarded and limited support to the A V movement, has criticised both the abolitionists and the R.D.S. for their lack of objectivity. He has commended the laudable aims of the R.D.S. but feels that they should stop bristling at the first suggestion of criticism and have the courage to state, openly and unequivocally, that many experiments conducted under the 1876 Act are indeed difficult to justify.⁷⁶ The Society's reticence in this is obviously due to its brief to protect its members, and to the fact that it draws much of its financial support from researchers in industry, the area now most heavily criticised by antivivisectionists.⁷⁷

However, as long as the R.D.S. remains obstructive to moderate animal welfare proposals, and as long as the A V movement as a whole fails to understand or accept the nature and validity of experimental research, a very fruitful avenue of co-operative progress for humanity and for science will remain unexplored.

75. See Chapter III, 149-150.

76. Louis Goldman, "Experiments on Animals - Another Look", World Medicine 7 (1971), 52-61.

77. See Chapter IV, esp; Section 1.

If each side of the case is to be viewed in its proper perspective, the public must be given an accurate representation of the facts. It is for this reason that accurate and informed reportage in the general media is of paramount importance. Difficulties arise here from a conflict of interest between journalists wishing simply to present information, and an industry simply concerned with selling more magazines and newspapers. The latter interest has again resulted in a good deal of unnecessary sensationalism in the media and, far more reprehensible, inaccurate presentation of the facts. An excellent example is the article which appeared in Woman magazine, 11 June 1977. Having originally agreed to accept an article about alternatives and the work of F.R.A.M.E., the magazine went to press, without permission from the original contributor, and printed an article which amounted (notwithstanding some consideration given to the extent of unnecessary experimentation and the scope for alternatives) to a perpetration of the century-old controversy over the utility of animal experimentation in general.⁷⁸ Another example is the recent B.B.C.2 Horizon programme⁷⁹ which again, by attempting to present a balance of both sides of the argument, succeeded in doing little more than adding to the confusion in the public mind. The spokesmen interviewed for the Home Office and R.D.S. stated that experiments were carried out in the public interest and that the 1876 Act was working well; while Dr. Kit Pedlar disputed the medical nature of a large proportion of routine testing and Janet Fookes, M.P. stressed that

78. The original article, "Do You Care About Animal Experiments?", was drafted by me; the matter is in the hands of a solicitor. The final article, entitled "When the Law Seems Wrong", was written by a freelance writer, Gay Search.

79. Horizon, B.B.C.2, 18 Jan. 1977. Research by Jenny Hughes, written and produced by Stuart Harris.

though breaches of the Act had often occurred, no action in the courts was ever taken regarding them. The greatest criticism which can be levelled against the programme was that it touched upon the questions of "alternatives", but it did not consider the subject in nearly enough depth to give any meaningful assessment - rather, it tended to give the impression that there was little scope for them, which prompted Dr Andrew Rowen, the Scientific Administrator of F.R.A.M.E., to write a long letter to the Listener giving several examples of areas where he considered that alternatives had enormous potential, and concluding:

Horizon was provided with a great deal of information on the topic of 'alternatives' and we were, therefore, most surprised that they should in the end, have been so dismissive of the future prospects for reducing the demand for laboratory animals. F.R.A.M.E.'s extensive experience in this area leads us to quite the opposite conclusion. 80

The programme was also roundly criticised by antivivisectionists.⁸¹

No useful purpose can be served by perpetrating this century-old controversy concerning the utility of animal experiments at a time when many antivivisectionists and other reformists no longer dispute it. The central issue, and one on which the popular media have largely failed to grasp⁸² must surely be consideration of the extent to which animal experimentation can be reduced. It is this practical approach which is

80. The Listener, 97 (1977), 243.

81. e.g. see John Pitt, "The Guinea Pig and the Law", Animal Welfare Mar./Apr. 1977, 16-18 and Colin Smith, "No Compassion On The Horizon", Animals' Defender, Mar./Apr. 1977, 29-30; Smith noted that no antivivisectionist was invited to speak on the programme.

82. There have been some exceptions; for example see Ena Kendall, "Should these Animals Die?", Observer, 13 Jun. 1976. This well-researched report presented a reasoned and balanced argument, though there were some inaccuracies - for example in assessment of figures.

most likely to generate public support. The effects of the campaign for restriction of animal experiments has already been seen from the public response to the issue of cosmetics testing and to the "smoking beagles" controversy considered in Chapters III and IV. Since the intensive campaigning surrounding these issues began in 1975, events have moved rapidly and the reportage has been extensive. The formation of C.R.A.E. as a result of the expression of interest in the Houghton-Platt Memorandum has already been described⁸³ and it has been noted that this Committee proved to be an influential body, generating considerable interest in the Home Office. It has been instrumental in uniting the various animal welfare societies, giving them a common goal for which they have all been able to campaign together despite their differences. Lord Houghton, Chairman of C.R.A.E., believes that this unification is in fact the reason that the Houghton-Platt Group, and subsequently C.R.A.E., has been able to achieve what no antivivisection society has achieved since World War II, namely a meeting with the Home Secretary, the reason being that if he had agreed to see one private society he would have had to see several, all presenting different suggestions.⁸⁴

Unity has indeed become the keyword of the A V movement. This trend became apparent in 1976 with the setting up of Animal Welfare Year to mark the centenary of the 1876 Act, and the presentation of the Houghton-Platt Memorandum to the Home Office. The "Year", which was

83. Chapter III, 165.

84. See Houghton's address to the B.U.A.V. AGM, 1977, Animal Welfare, Dec. 1977.

presided over by Lord Houghton and chaired by Clive Hollands, Director of the S.S.P.V., brought together more than sixty animal welfare organisations in order to focus attention of the public and the government upon the need for legislative reforms in various fields of animal welfare, including animal experimentation. Its objects were:

To prevent cruelty to animal life by the promotion of humane behaviour so as to reduce pain, fear and stress inflicted upon animals by mankind whether relating to pet animals, wild animals, animals used in laboratory experiments, farm animals, performing animals or any other form of animal life. 85

After 1976 the "Year" was incorporated as a company and became a registered charity. Perhaps the greatest achievement of this campaign was the unification of animal welfare societies, though it must be pointed out that the N.A.V.S. declined to participate, feeling that the proposals of the "Year" did not go far enough. This Society takes the view that strength can lie in unity unless the uniting parties hold exactly the same views, otherwise each one must compromise, weakening both.⁸⁶

This may be true, but it is obvious that if any moderate reforms are to be made at all there must be compromises, not only on the part of the antivivisection societies, but between them, various scientific and commercial interests and the government. Commending the successes reaped by Animal Welfare Year in terms of publicity and unification, Clive Hollands has stressed the need for animal welfare societies to present a united front to the government. Animal Welfare Year, says Hollands, must be seen not as an end in itself, but as a beginning. Though he, as an

85. See S.S.P.V. Annual Pictorial Review (1976 and 1977). Also two supplements on Animal Welfare Year produced by Animal Welfare (1976)

86. Colin Smith, "Changing Attitudes", Animals' Defender, Nov./Dec. 1977, 85-86.

abolitionist, does not compromise his own ethical views, he accepts that the much needed moderate and reasonable reforms in animal welfare legislation can be attained in the near future if some compromises are made.⁸⁷ For almost a century the hard-core of the antivivisectionist movement has sought the unattainable and in so doing has achieved virtually nothing in practical terms as regards diminishing the sufferings of laboratory animals. The Year 1976 brought about a change in tactics in the campaign for legislative reform. Analysis of the long-term results awaits some future historian.

2. Promotion of Alternatives

The most significant step taken by the A V movement in recent years, and one which has had greatest impact, has been work to promote the development and acceptance of alternatives. On this common ground scientists and antivivisectionists can at last meet for fruitful exchange of positive ideas. An avenue for co-operation not available to the Victorian antivivisectionists has thus opened up in the twentieth century.

This opportunity was firmly seized by Dorothy Hegarty, formerly associated with the N.A.V.S., who has, perhaps more than anyone else, repeatedly stressed the need for positive co-operation between scientists and the interested layman. In 1965 Mrs Hegarty decided to found a society to be concerned with animal welfare generally, entitled Promoters of Animal Welfare. However, after becoming involved in this work she became convinced that the most pressing need for positive action

87. Clive Hollands speaking at the R.S.P.C.A. Symposium on Animal Rights, Cambridge 1977 (proceedings in press).

was in the field of animal experimentation, and that if anything was to be achieved in this area, she would have to dedicate herself totally to this work. In 1969 F.R.A.M.E.⁸⁸ was co-founded by Mrs Hegarty and Dr. Charles Foister, a leading plant pathologist, whose assistance Mrs Hegarty had enlisted some years previously.⁸⁹ Considerable support was also forthcoming from Mrs. Hegarty's son, Terence, a plant physiologist.⁹⁰ F.R.A.M.E. first established itself at the Hegarty home in Wimbledon. The organisation became a registered charity in 1969 and was able to open an independent office in Wimbledon in 1971, largely due to the help of the Dowager Countess of Kinnoull, who has continued to provide very considerable support for the Fund. The central theme of F.R.A.M.E.'s work is information and communication:

F.R.A.M.E. was set up to promote and publicise more exact methods of biological research which benefit the safety of the human race and which at the same time eliminate or reduce the need for laboratory animals. Their use is not opposed, and the subject is treated from a scientific and not an emotional viewpoint. In this way close co-operation with scientists involved in such work is achieved.⁹¹

The Society has a single goal: to speed up the development and adoption of alternatives to the use of animals and to achieve a consequent reduction in the number of animals used. Workers at F.R.A.M.E. believe

88. F.R.A.M.E. is now affiliated with the International Society for the Protection of Animals. Dr. Andrew Rowan, its scientific administrator, has joined both the Tissue Culture Association and the Laboratory Animal Science Association in the hope of promoting effective dialogue with the scientific community. F.R.A.M.E.'s literature is displayed in the entrance hall of the M.R.C. Laboratory Animals Centre. As noted in Chapter IV Section 7. The M.R.C. is in tune with F.R.A.M.E.'s intention of promoting alternatives and is itself actively encouraging their development, particularly in toxicity and carcinogenicity screening.
89. Dr Foister had recently retired from the directorship of the Scottish Agricultural Scientific Services.
90. Dr Terence Hegarty is currently working on the problems of seed germination for the Agricultural Research Service in Dundee.
91. From Some Facts About F.R.A.M.E., an undated information sheet.

that no radical change in animal usage will be forthcoming until a reliable and extensive bank of data is built up. It was originally intended that the Wimbledon office would become a world bibliographic centre, housing scientific papers relevant to the promotion of alternatives. A collection of papers was compiled in the F.R.A.M.E. Bibliography, April 1971. However, the idea proved to be impracticable, partly due to lack of office space and partly due to lack of response from the scientific community. The follow-up was F.R.A.M.E.'s own journal, Atla Abstracts,⁹² first published in June 1973, which has since appeared twice yearly.

Atla is a collection of papers abstracted from more than two hundred international journals, which is compiled by professional scientific abstractors. The journal is now edited by Dr. Andrew Rowan⁹³ who became F.R.A.M.E.'s scientific administrator in 1976. Since this time it has incorporated news items and review articles, in addition to the abstracts and the index has been improved.

F.R.A.M.E. recognised from the outset that in selecting a broad concept rather than a research subject as the basis of retrieval, it was embarking upon a completely novel venture in abstracting. It therefore made it clear that suggestions and constructive criticisms would be welcomed. The R.D.S. quickly produced its assessment of the first volume of Atla in its May Newsletter, 1974. The Society had noted that many of the papers in Atla reported experiments in which animals had been used. On contacting the authors involved, it was ascertained that in those papers where laboratory animals were used, and relating only to those papers by authors from whom the R.D.S. had received replies, 2,600 animals had been sacrificed.

92. Alternatives To Laboratory Animals Abstracts

93. Dr A.N. Rowan, Oxford graduate in biochemistry, previous editor of International Abstracts of Biological Sciences (London).

The R.D.S. concluded that the journal, at least in the sections on biochemistry, pharmacology and physiology, could not be recommended as a guide to alternatives to laboratory animals. This conclusion was surely based on a rather naïve assumption of what Atla was trying to achieve, as exemplified by the R.D.S. pointing out that two abstracts dealt with experiments on slaughter house material obtained from a total of 3,500 animals, which is totally irrelevant to the central issue of reducing both animal expenditure and suffering.

In F.R.A.M.E.'s reply, published by the R.D.S. in the Newsletter for November 1974, Terence Hegarty, then Scientific Adviser, pointed out that F.R.A.M.E. did not overestimate the potential for alternatives or envisage them as complete replacements for laboratory animals. As steps towards such replacement F.R.A.M.E. welcomed any method which would involve a reduction in the numbers of animals used or the use of tissues which involved only the humane killing of the animal and no experimental procedure upon it while it is alive.⁹⁴ F.R.A.M.E. could not have been more open and honest about its objectives, or more ready to accept valid criticism and to co-operate with scientists in achieving a reduction in laboratory animal usage and suffering wherever possible. Dr. Hegarty concluded:

Finally we would point out that in previous correspondence we have suggested that F.R.A.M.E. and the R.D.S. could co-operate in finding solutions to the problems involved in deciding which papers relate to 'replacement' techniques, yet so far you have chosen to ignore this. 95

94. See Chapter VII, 392-396.

95. Letter to Professor Barcroft, Honorary Secretary of the R.D.S., 17 Jul. 1974 in F.R.A.M.E. Centre collection.

To this suggestion the R.D.S. simply replied:

As regards co-operation, the R.D.S. has the difficulty that it is not convinced that anything further is needed than can be found in books on methodology, annual reviews, abstracting journals and Current Contents, [Sic] they also have the advantage of giving a much wider cover. 96

This is hardly the point, since, though information may well be available, it is often not readily retrievable.⁹⁷ The aim of Atla is to categorise papers according to their potential as replacement techniques and to give research workers an easy reference guide to the latest developments in "alternatives" which may be of relevance in their field. Atla is the only journal in the World to fulfill this function.⁹⁸ It cannot provide an efficient retrieval service since it is not comprehensive. It does, however, provide leads into promising research areas and gives a sound scientific base to F.R.A.M.E.'s contention that alternatives could be more fully developed. The scientific staff at F.R.A.M.E. would like to provide editorial comment on the abstracts but the Fund does not have the resources to carry out this work. The success of Atla must be measured by the extent of its usage over a long period. The greater the co-operation received from the scientific community, the more effectively the journal can be tailored to the scientists' needs and requirements. Given this co-operation, there would seem to be considerable scope for Atla to fulfil a very useful function. Some scientists have expressed doubts

96. R.D.S. Newsletter, Nov. 1974.

97. This problem is discussed more fully in Chapter VII.

98. The Salem Institute, West Germany, affiliated with the I.A.P.E.A., produces a very large bibliography on alternatives but they relate only to tissue culture and there is no analysis of the data. See M.L.Baasch, I. Frenkel and G. Kramer (eds.), Bibliography of Selected Tissue Culture Experiments Under the Aspect of Replacing Animal Experiments (1976). The volume contains approximately 3,000 abstracts, dating back to 1949.

about the need for Atla since they believe that new development will be made known to them by colleagues. However, if Atla becomes established as an international journal the speed and effectiveness of communications would surely be enhanced. Some encouragement has already been forthcoming. An assessment of the journal in World Medicine⁹⁹ stated "Atla Abstracts seems set to become the first truly academic outlet for those bent on finding alternatives to laboratory animals," and concluded that it was:

A useful publication - even for those researchers with no special sympathy for the movement that publishes it.

In addition to Atla, F.R.A.M.E. produces an annual pamphlet which summarises the latest development in alternative techniques in the different fields of research, and it seeks to promote the subject through publicity leaflets, letters¹⁰⁰ and articles¹⁰¹ in the media outlining F.R.A.M.E.'s work and stressing the potential for alternatives. Spokesmen for F.R.A.M.E. have also appeared on a number of radio programmes.¹⁰² The Society has complained about the gloomy outlook presented by the media,

99. World Medicine, 12(1977), 37.

100. For example in the Daily Telegraph, 2 Oct.1973 and 28 Aug.1974 New Scientist, 27 Sep. 1973, 17 Jul. 1975, 24 Mar.1977 and 14 Apr. 1977. The Spectator, 8 Dec.1973 and 9 Mar. 1974, Laboratory News, 12 Mar. 1974, the Times, 16 Feb.1977, the Listener, 24 Feb. 1977.

101. For example Sheana MacDougall "Beasts of Burden", She Aug.10 44-45; Andrew Rowan "Are there Feasible Alternatives to Laboratory Animals?" School Science Review, 58 (1976) 210-216; Lorraine Bacchus, "Animal Pain - Should it go on?", Here's Health, Dec. 1977, 92-97. See also T.W. Hegarty, "Alternatives", in Godlovitch and Harris (eds.) Animals, Men and Morals, (London 1974), 83-93.

102. For example Woman's Hour, 15 Jun. 1974. F.R.A.M.E. was originally invited to appear in the programme but was excluded from the broadcast due to lack of time. It has participated in "phone-ins" on the London stations, Capital Radio and L.B.C.

for example in the recent Horizon Programme "The Guinea-Pig and The Law,"¹⁰³ F.R.A.M.E. also provided much information for the Tomorrow's World programme in February, 1973 which gave a fair assessment of the potential for alternatives though no credit was given to F.R.A.M.E. Articles of a more technical nature outlining suggested programmes for reduction or replacement of laboratory animals are written by F.R.A.M.E.'s scientific staff.¹⁰⁴ F.R.A.M.E. also produced a bi-annual progress report outlining its work over the previous six months and an assessment of its achievements. Some of these reports have been supplemented by a Technical Report written by the scientific staff which outlines current scientific developments.

A very valuable recent innovation has been the production of "Fact Sheets" relating to specialised topics,¹⁰⁵ which are distributed

103. See footnote 79.

104. For example, T.W.Hegarty and A.N.Rowan, "Comments on the Paper "The Ethics of Animal Experimentation" by W.Lane-Petter", J.Med.Ethics 2(1976)118-122.

A.N. Rowan and J.E. Hampson, "Alternatives to the Use of Animals in Toxicity Testing", Scrip Pharmaceutical News, April 30(1977),20-21.

A.N. Rowan, "Alternatives to Animals in Biological Programmes", Animal Regulation Studies, 1 (1977), 103-128. A number of journals have commented upon the work of F.R.A.M.E. see for example: Laboratory Equipment Digest Oct.1974 and Geoff Watts "Programming Out the Guinea Pig", World Medicine 8 (1973),17-24, a lengthy feature which also commented upon work of other charities promoting alternatives.

105. Fact Sheet No.1, Carcinogen Testing, 1976.

Fact Sheet No.2, Notes on the LD₅₀ Test, 1977 (as presented to the H.O. Advisory Committee, (see chapter VII, ~~414-427~~).

Fact Sheet No.3. Cosmetic Production -- Animal Testing and the Potential for Developing Alternatives, 1977.

to research scientists and other interested persons. In these, both current approaches and possible alternatives are assessed and rational suggestions are made for the reduction of animal usage in the particular field.

By means of this extensive literature F.R.A.M.E. is beginning to make an impact. Atla Abstracts already has a world wide subscription including leading pharmaceutical firms, research centres, universities, government departments and libraries and the Home Office. The eventual aim is to have the journal housed in all institutions where animals are used,¹⁰⁶ and particularly to encourage the use of Atla by students. One of F.R.A.M.E.'s major tactics is to promote the concept of alternatives among students destined to become the country's future research scientists.¹⁰⁷ F.R.A.M.E. has sought to publicise its work in universities and schools. It has recently sponsored the use of a Xenopus Tissue Kit for teaching in a number of schools. The aim is to introduce young biologists to a new technique while at the same time fostering discussion of alternatives in general.¹⁰⁸

Owing to shortage of funds, F.R.A.M.E. has been unable to employ a public relations officer, though a considerable degree of success has been achieved by Dr. Rowan through visits to many

106. The F.R.A.M.E. Progress Report No.11 lists a number of the medical institutes and libraries in Great Britain, Europe, the U.S.A., U.S.S.R. and Japan now subscribing to Atla.

107. See A.N.Rowan, School Science Review, 58(1976), 210-216 and J.E.Hampson, King's Magus (King's College London, Student magazine), 20 June 1977 (copy in Thesis sleeve).

108. F.R.A.M.E. Progress Report No. 15, May 1977.

research scientists, especially in commercial organisations.¹⁰⁹

He has recently participated in a meeting of the Fison's Ethical Review Committee appointed to assess the justification of experiments carried out by this organisation.¹¹⁰

F.R.A.M.E.'s approach is essentially pragmatic. It does not expect to see a simple replacement of experimental animals by "alternatives", but feels that the numbers used are likely to be reduced by a combination of different methods and approaches; hence the need for a centre such as F.R.A.M.E., set up purely to collate and disseminate information and to provide sound advocacy in the technical area. As a registered charity the organization cannot become involved in extensive parliamentary campaigning, although F.R.A.M.E. has taken steps directed towards accelerating the development of alternatives by writing letters to ministers and by having motions put down in Parliament on its behalf.

F.R.A.M.E. was neither the first nor the only organisation to grasp the significance of "alternatives;" nor is it the only organisation to concentrate its efforts entirely upon them. In 1961, at a time when the leading AV societies were working more closely together, the Lawson Tait Medical and Scientific Trust¹¹¹ was set up by the B.U.A.V., S.S.P.V. and N.A.V.S. for the purpose of promoting humane medical research. This was the first attempt

109. For example, the Imperial Tobacco Group has commended the work of F.R.A.M.E. and donated a covenant of £250 annually for several years. Imperial Chemical Industries Limited has made a donation of £500; F.R.A.M.E. is also receiving an increasing number of anonymous donations. Also, largely as a result of personal communications made by Dr. Rowan, the proposals of F.R.A.M.E. have been considered by the D.E.S., the W.H.O., the R.D.S. the R.S.P.C.A., the Ministry of Defence, the Hunter Committee on Smoking and Health and other relevant bodies.

110. Personal communication with A.N. Rowan.

111. This Trust commemorates the surgeon Robert Lawson Tait (see Chapter 11, footnote 147). It originally occupied premises in Harley Street but subsequently moved to Bramhall, Cheshire, now the headquarters.

made by the antivivisectionists to co-operate with scientists in the furtherance of their aims; thus the founding of the Trust marked the beginning of a new era in antivivisectionism. It was decided at the outset that it would operate independently of any society. This resolve resulted from the realisation that confrontation between A V societies and the scientific community had been destructive and that co-operation might prove more fruitful. The Trust has received no financial support from the antivivisection societies for many years. During its first fifteen years the Trust awarded a total of almost £150,000 to medical scientists to finance research in many fields not involving the use of animals. A condition of every grant was that the applicant should not hold a licence under the 1876 Act.

Over the years it became apparent that the whole nature of research was changing and that on the one hand, the demand for experiments upon animals was growing, while on the other, the scope for alternatives was also developing. It was therefore decided by the Trustees that greater progress could be made if it were possible to give grants to scientists working under the 1876 Act, since it was obvious that alternatives had to be validated against animal experiments. Therefore a sister trust to the Lawson Tait, - the Humane Research Trust, was set up in 1974.¹¹² Awards to licensees can be made through this Trust, provided that they are seeking to substantially reduce (or better still, to replace) animal experiments in their own field.

¹¹². See The First Fifteen Years, 1971-1976, - A Review of Advances in Scientific Research and Replacement of Animals (Lawson Tait and Humane Research Trusts, 1977).

The N.A.V.S. did not feel that it could support this policy and consequently resigned from the board of Trustees.¹¹³ The other A V Societies eventually followed suit and both Trusts have continued to operate independently. Grants have been received not only from individuals but from scientific societies and from industry. Both trusts now make substantial awards to scientists. The work supported has included many aspects of medical research and has resulted in the publication of a large number of medical and scientific papers. The Trust has achieved wide acclaim from the scientific community.¹¹⁴

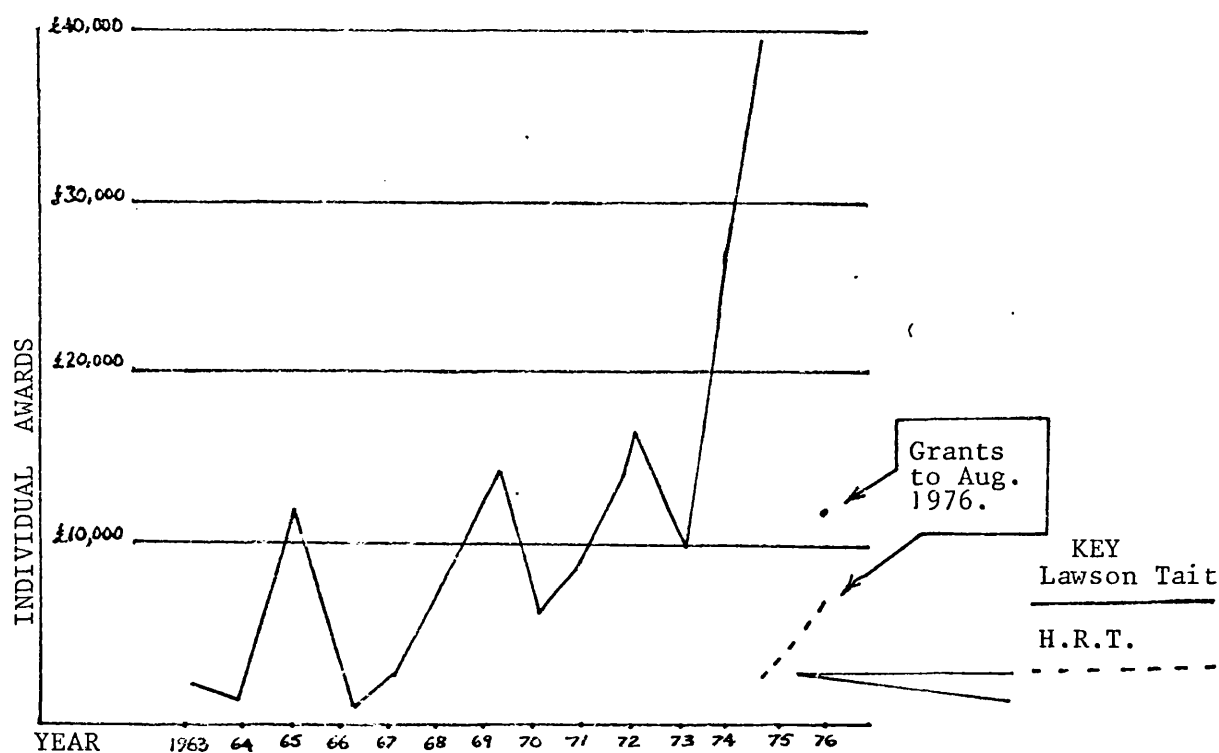
The extent and diversity of support given by both the Humane and Tait Trusts is indicated in the following graphs, reproduced by permission of the Lawson Tait and Humane Research Trusts.¹¹⁵

113. See N.A.V.S. statement in Animals' Defender, Mar./Apr.1973

114. I am indebted to Nora Turnbull, Chairman of the Lawson-Tait and a trustee of the H.R.T. for much of the information given above.

115. These graphs, first appeared in The First Fifteen Years (footnote 112 above); I am indebted to the trustees for allowing me to reproduce them.

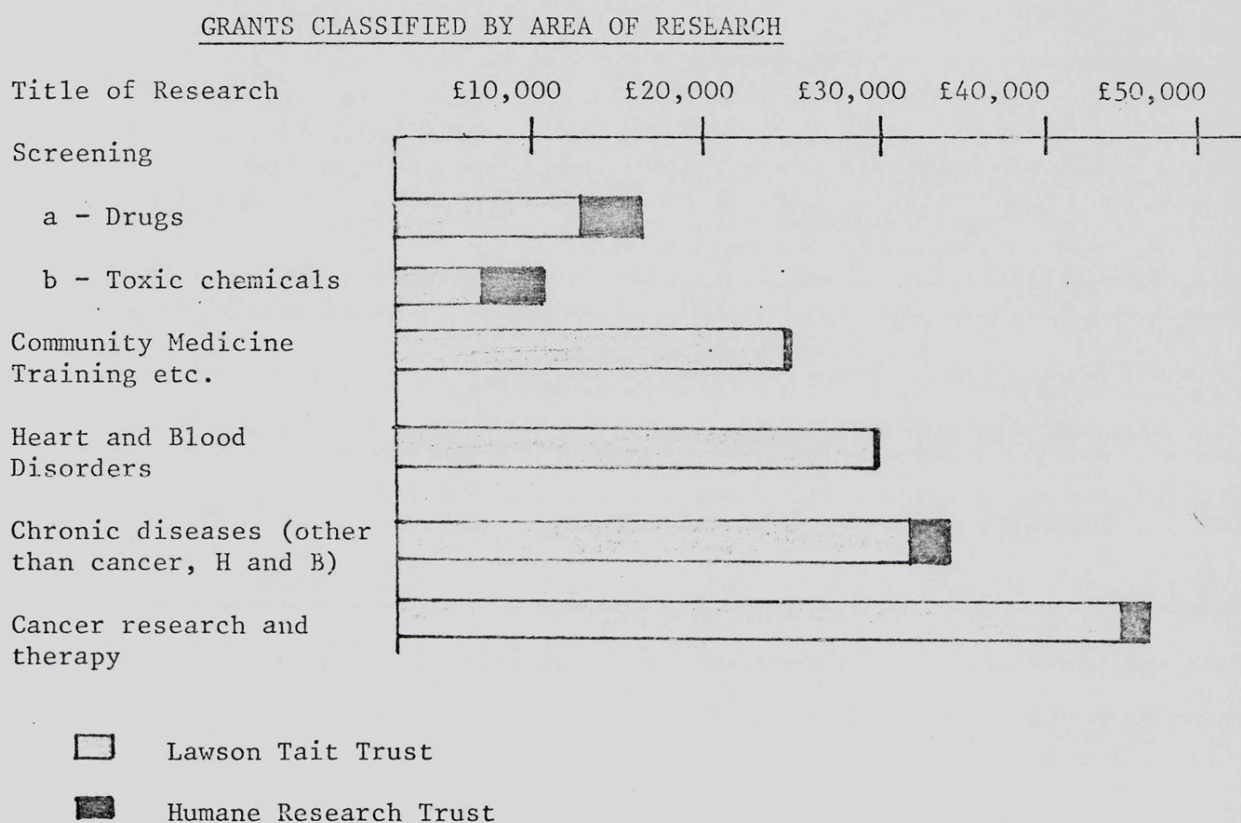
Figure 1

Annual Distribution of Grants

This graph shows the grants awarded annually, representing a total sum of almost £150,000. The graph illustrates a three year cycle in the affairs of the Trust during each of which the total value of awards given has increased. This increase reflects both the increasing numbers of successful applicants and the rising costs of research. The cyclic fall is due to the necessity of periodically scaling down the activities of the trust in order to enable more funds to flow in.

Figure 2

An analysis of all grants awarded since the beginning, arranged into selected area of research.



It is worthy of note that the figure of £45,000 for cancer research includes £17,400 allocated to the screening of therapeutic drugs.

Recognising the need to make its own commitment to this important field, the B.U.A.V. founded the Dr. Walter Hadwen Trust for Humane Research, in April 1970¹¹⁶ Its object, like the Tait Trust, is to promote medical research carried out without the use of animals. It was decided that priority should be given to cancer and arthritis-research; but the trustees are willing to consider any application for work which they feel will be of value both to the furtherance of medical science and to the overall

116. This move was instigated by the B.U.A.V.'s former General Secretary, Sidney Hicks. The Trust commemorates Dr. Walter Hadwen, who was for many years president of the B.U.A.V. (see footnote 9).

objective of replacing animals in research. The trustees have recognised that in science each new method must be evaluated against existing ones, and that alternatives will emerge gradually from the mainstream of research. For this reason it is not a condition of a grant that the applicant must not possess a licence under the 1876 Act, though it is understood that the actual work sponsored will not involve the use of animals. The chief objective of the Trust was originally to set up an institute in which the Hadwen's own scientists would pursue alternatives. However, since it soon became apparent that such an institute would not be a practical proposition, it was decided that instead the money would be given to scientists for individual research projects, particular interest being afforded to postgraduates wishing to read for doctorates in important medical fields. It was felt that it would be most fruitful in the long term to give encouragement to young scientists who were wishing to pursue their careers without recourse to animal experimentation, many of whom had been unable to obtain support elsewhere. In the first six years the Hadwen donated over £80,000 to the promotion of alternatives. Among the projects supported, grants have been awarded to two graduates reading for Ph.D.s at King's College London, using cell culture methods to study nervous transmission between brain cells, with relevance to malignancy; to a graduate reading for a doctorate at Bristol Royal Infirmary studying differences between normal and arthritic cartilage in human organ cultures; to a scientist using the yeast cell as a model for the study of drug action; to scientists at the London School of Hygiene and Tropical Medicine for the study of parasitic organisms in culture; to H.A. Kordan (also supported by the Lord Dowding Trust) who has considered the lemon fruit and rice seedlings as possible models

to study the action of carcinostatic drugs, and to J.D. Jessop, consultant physician at the Department of Rheumatology, University Hospital, Wales, for the study of anti-inflammatory drugs upon human arthritic joints in culture. Partial support has also been given to aid medical work (for example, the study of heart disease and culture models as screens for chemical carcinogens). A number of grants for 1978 have been proposed which will further the Trust's interest in arthritis research.¹¹⁷

The Trust has also donated substantial funds for the furtherance of special projects which it felt were worthy of support. The sum of £1,000 has been given to the Mauritius Centre for Humane Education, to enable the founding of a Humane Research Trust similar to the Hadwen.¹¹⁸ Considerable support has been given to Dr. J. Robson of St. George's Hospital to enable him to design and build an impedance cardiograph machine with which the patient's condition can be monitored by non-invasive techniques.¹¹⁹ Donations have also been made to the Ernst Hutzenlaub and Felix Wankell research awards which are given to scientists looking into "alternative" techniques and the Trust has sponsored the production of this thesis.

In spring 1973, the N.A.V.S. launched its own Air Chief Marshal The Lord Dowding Trust for Humane Research with an initial grant of £10,000. It commemorates the late Lord Dowding and his

117. Personal communication with Sidney Hicks.

118. See Animal Welfare, Nov./Dec. 1976, 13-14.

119. See report by J.E. Hampson, A.V. Times, Jan. 1974, 4.

ardent work as an advocate of humane reform; the Fund is directed by Bernard Conyers.¹²⁰ The Trust is specifically concerned with the development and promotion of new replacement techniques, and in line with N.A.V.S.' stringent ethical policies, grants are not given to holders of licences under the 1876 Act. The Trust may be seen as a practical supplement to the N.A.V.S.' campaign for a government-sponsored humane research institute in which alternative techniques might be developed.¹²¹ The underlying rationale of the N.A.V.S. approach would seem to be that, like F.R.A.M.E., the Society has recognised the need for co-operation across the scientific disciplines, and since replacements are likely to be effected through a combination of techniques (culture methods, computer modelling, statistical analyses, etc.), it would seem logical that a nucleus of workers from different scientific backgrounds, working together in a single establishment with the single aim of developing alternative techniques, might speed up their development. While it might be argued that such isolation would not, in reality, be practicable, nor even desirable in the long term, credit must be given to the productive work already carried out by N.A.V.S. in this field. The fund has, to date, given over £100,000 to research scientists. The programmes sponsored included the use of "wounded" human living fibroblast cultures for the assessment of possible wound-healing agents, the assay of human tumour malignancy in an

120. For Conyers's own assessment of the role of the Fund see "The Contribution of the Lord Dowding Fund to Modern Humane Research", the text of a speech delivered to the N.A.V.S./I.A.A.P.E.A. Conference 1976, in The Moral, Scientific and Economic Aspects of Research Techniques Not Involving the Use of Living Animals (N.A.V.S.1976), 31-38.

121. See pp; 330-332 of this Chapter and Chapter IV, Section 7.

in vitro embryonic (hens' eggs) system (this method is cheap, rapid and shows great promise as a replacement technique), for work in the assessment of organ cultures as a model for assessing potency, pyrogenicity, toxicity and tumourigenicity of vaccines, for research into the theoretical design of new drugs and the use of tissue cultures in their assessment (both of which could drastically reduce the number of animals used in formulation and initial testing of new drugs), for studies into drug absorption and for study of intermediate metabolites outside the body.¹²²

The largest and most recent award was a grant of £22,000, awarded in 1977 to Peter Knox for research projects to be conducted at the Medical School of St George's Hospital. This grant is to be used by Knox and his colleagues to expand the scope and usage of tissue culture in Knox's own department and to fund a specific project designed to clarify the role played by serum in the growth of cells in vitro, to determine the serum components necessary for growth and to investigate the manner in which cells generate adhesive forces. It will also benefit those working in the biochemistry and dental departments at St George's Hospital. Other projects which will benefit include investigation of certain brain tumours, the mechanism of action of the viral substance 'interferon', and studies on the surface membranes of cells and their elaboration during growth and development. With a view to the future, Knox, when presented with the award, concluded:

Animal experimentation is often unsatisfactory on both humane and scientific grounds, and as science and technology continue to advance at a rapid rate, I personally hope the laboratory animal can be replaced by a more suitable alternative. This

122. See Annual Bulletins of the Lord Dowling Fund published by the N.A.V.S.

change will, of course, only come about as a result of more research into alternative methods and I very much hope that the grant awarded to me today and similar awards to other scientists will bring the reality of these alternatives a little nearer. 123

The S.S.P.V. has been less directly involved with the promotion of alternatives, being heavily committed to work in other fields, especially legislative reform. However, it is fully in tune with the aims of the other societies. The S.S.P.V. has supported F.R.A.M.E.'s Atla Abstracts and helped with its distribution and has also set up, in 1969, a registered charity, the St. Andrew Animal Fund, "to promote humane attitudes towards animal life and the development of a proper understanding and appreciation of all living things". Though this fund was set up to deal with animal welfare generally, one of its objects is:

To advance and encourage humane methods of study and research for the advancement of knowledge in the natural and medical sciences. 124

To this end the Fund has made awards of £3,000 in 1970 and 1971 for research into humane methods of experimentation; in 1974 £6,800 was given to support cancer research employing 'alternatives' at the University of Edinburgh, £600 was donated to F.R.A.M.E. for publicity and £500 went to production costs of developing biological models to replace dissection in schools. The fund makes substantial donations to other organisations for the furtherance of work which the S.S.P.V. is unable to pursue itself.

123. Peter Knox, Animals' Defender, Nov./Dec. 1977, 89.

124. These objectives are set out in an undated S.S.P.V. pamphlet entitled The St. Andrews Animal Fund.

3. The Impact of the New Approach

It is perhaps to the detriment of the humane movement as a whole that the societies involved are not co-operating more closely, at least in the field of promoting alternatives. Despite recent moves towards unification, the movement is still hampered by personality clashes, and by the more concrete differences in policy as to how the alternatives should be promoted.

However, those at the forefront of the movement are the first to recognise the need for unity as exemplified in the following statement:

I am pleased to see you have mentioned that there is no time to argue amongst ourselves, which has been the bugbear of the A V movement for so many years. 125

Notwithstanding the difficulties, there now exists a friendly and co-operative spirit between the various A V societies, while each society is doing positive work and making its own very valuable contribution to the promotion of humane research.

The antivivisection movement has at last accepted the urgent need for positive thinking and for practical action in promoting its cause; as Bernard Conyers, director of the Lord Dowling Trust has stated:

The moral issue will not be satisfactorily resolved until further substantial advances have been made in the development of truly viable alternative methods of research. 126

125. Quoted from a private letter from Sidney Hicks, former General Secretary of the B.U.A.V. to myself, April 1973 with reference to my article in A V Times, Mar. 1973.

126. Bernard Conyers, opening address at the conference sponsored by the Lord Dowling Fund, 24 Jan. 1977, see Animals' Defender, Mar./Apr. 1977, 24.

The importance which the movement itself attaches to this new approach is evidenced by the extensive coverage of "alternatives" in current antivivisectionist literature. The editorials and articles of the major A V magazines have, for a number of years, indicated a growing understanding of scientific problems in research and a willingness to co-operate with the scientists in overcoming such problems to the benefit of science and humanity.

The B.U.A.V. has, with some justified pride, published from time to time articles written by the Hadwen Trust's own grantholders outlining the nature and importance of their research.¹²⁷

The S.S.P.V. has devoted sections of its Annual Pictorial Review to the subject of alternatives, repeatedly urging greater government support for their development in order to speed up realisation of the already significant potential.¹²⁸

A great deal of attention has been focused upon the campaign to promote alternatives as a result of the policy of the N.A.V.S. and I.A.A.P.E.A. to organise conferences relating to the subject. In

127. For example see R.K. Jacoby "Arthritis and Rheumatism", A V Times Mar. 1973, 3-4 and Apr. 1973, 3-4. Animal Welfare, Jul./Aug. 1976 carried four such reports; J.E. Hampson, "Future Attitudes", 10; F.C. Madden, "Nerve Cancer Research", 11; C.R. Howell, "Study of Collagen", 12-13; A.G. Barrat, "Ganglioside Patterns", 13. In the same issue Sidney Hicks, Secretary of the Trust, outlined its role, stressing the need for financial support of alternatives which was not forthcoming from the government and of the importance of supporting young scientists who did not always receive adequate encouragement or support from their older colleagues. See also John Newall, "Human Tissue for Research", Animal Welfare, Jul./Aug. 1977, 16; and H.A. Kordan, "Light into Energy", ibid. 21.

128. See Annual Pictorial Review (1973), Section E; 55-59; (1974), Section E, 48-50 and (1976), Section D, 31-32.

addition, through films, radio and television broadcasts, the I.A.A.P.E.A. has, largely as a result of the determined efforts of its President, Jon Evans, brought the A V campaign to the attention of the public throughout the world and has helped to unite societies in different countries. The conferences¹²⁹ have served the invaluable function of bringing together scientists and antivivisectionists in a spirit of friendly co-operation, resulting in a greatly increased respect for the A V movement on the part of the scientific community, as shown by the dramatic increase of consideration given to the A V movement by reputable scientific journals during recent years.¹³⁰ As Colin Smith, General Secretary of the N.A.V.S. has put it:

The antivivisection movement has adopted a more positive image. It has moderated its propaganda and tends to 'understate' rather than 'overstate' its case; a useful strategem and particularly effective when dealing with such sensitive controversies as animal experimentation. Perhaps most important of all, however, in the 'revolution', has been the positive work undertaken by the movement in actively sponsoring the development of research techniques not involving the use of animals. 131

129. For further detail on the work of the I.A.A.P.E.A. see Progress Without Pain (N.A.V.S.1973) being the text of the first N.A.V.S./I.A.A.P.E.A. Conference held on 14-15 Mar. 1973 and Moral, Scientific and Economic Aspects of Research Techniques Not Involving the Use of Animals (N.A.V.S.1976), being the text of speeches given at the second conference, May/Jun 1976. See also Animals' Defender, May/Jun. 1976., and reports on these conferences and other work of the I.A.A.P.E.A. which have appeared regularly in Animals' Defender.

130. See for example Donald Gould, "Animal Experiments - the Search for Understanding", World Medicine, 11 (1976), 17-24; Bernard Dixon, "Anti-vivisection--Constructive Moves", New Scientist, 69(1976), 690; Louis Goldman, "Animal Guinea Pigs--the Permissive Society", World Medicine 6(1970), 17-22 and "Experiments on Animals--Another Look", World Medicine 7 (1971), 52-61; and Geoff Watts, "Programming out the Guinea Pig", World Medicine 8 (1973) 17-24.

131. Animals' Defender, Jan./Feb. 1977, 11.

The attempt of the movement to change an image deeply rooted in the public mind, and still perpetrated by a considerable proportion of its following, has not been easy one, and the transition is not yet complete. Reporting on the first I.A.A.P.E.A. conference on humane alternatives staged in 1976, Bernard Dixon described the event as:

a coming together of scientists orthodox and heterodox, immaculately turned out, animal-loving elderly ladies wearing colourful hats; members of Parliament; self-styled cranks; and a smattering of journalists.

He continued:

The proceedings, ranging from the competent to the comic, reflected the heterogeneous attendance. But the fact that the occasion happened at all is a sign of a surprising and welcome shift of tactics by what used to be called the antivivisection movement. 132

The article went on to describe the positive work of the N.A.V.S. and B.U.A.V. in the promotion of alternatives and commended the moderate approach of F.R.A.M.E. which Dixon noted had omitted all mention of "vivisection" and "antivivisection" from its approach.

Already the more moderate and practical approach is gaining wider public support. In 1971 Bernard Conyers noted that less than twenty per cent of donations to the Lord Dowding Fund came from individuals who were not members of the N.A.V.S. and presumably many were not antivivisectionists at all.¹³³ As shown by the discussion in chapter III, the reformist campaigns conducted outside the antivivisection movement have been

132. Bernard Dixon, op.cit.,

133. Animals' Defender, May/Jun. 1977, 38.

instrumental in gaining this wider public support. The case of the "smoking beagles" illustrated this point. These experiments were "exposed" as a result of the infiltration of Sunday People reporters into the laboratories of LCL at Alderly Park, Cheshire. The tactic was suggested by Richard Ryder in 1973 after he had been approached by the paper concerning a possible story about animal experimentation. A short article in the News of the World, 19 January 1975 concerning the campaign of the R.S.P.C.A.'s A.E.A.C. against "non-medical" experiments precipitated the Sunday People to print its findings and the first sensational "smoking beagle" exposure appeared on 26 January 1975. The paper carried similar reports for the next four weeks. The antivivisection societies then became involved.

Within days of the first publication, a massive campaign had been launched -- involving public interest of an extent unprecedented in twentieth century antivivisectionism. The BUAV's campaign to collect signatures from the public as part of its parliamentary protest resulted in over 130,000 signatures. Other organisations including the R.S.P.C.A. were also involved. Within a month of the first Sunday People exposure more than 1,000 petitions signed by over 300,000 people had reached the newspaper. Individual members of the public also launched campaigns. They collected signatures, protested to the public, complained to I.C.I. to Imperial Tobacco at their A.G.M. (this was a most effective tactic), demonstrated outside the homes of chief executives of these companies and supported the press campaigns. Some even offered themselves as substitutes for the smoking dogs. Very prominent in this movement were Joan Latto and Clementina Narborough. Lady Parker of Waddington, widow of the Lord Chief Justice, was also a great asset to the campaign, she

took the matter as far as an interview with Dr. Alfred Spinks of I.C.I.¹³⁴ F.R.A.M.E. also took an interest in the campaign, expressing its disapproval of the experiments, on both humane and scientific grounds, to I.C.I. A meeting took place between Mrs. D. Hegarty and Dr. H.R. Bentley, Research Director of Imperial Tobacco in which the possibility of employing alternatives in smoking tests was discussed. Mrs. Hegarty concluded that the interview had been profitable.¹³⁵

The campaign was also supported by the N.A.V.S. on whose behalf a survey was conducted to ascertain the percentage of the British populace who felt the experiments to be justified: 66 per cent of those questioned issued an emphatic 'no', and as a result of the survey the N.A.V.S. concluded that the campaign had done far more to bring the issue of laboratory animal suffering into the public mind than did general discussions on vivisection. This view is supported by the vast press coverage which was given to the subject,¹³⁶ and by the number of questions and motions put down in Parliament calling for government action.¹³⁷ The Parliamentary campaign was instigated by the N.A.V.S. and by the R.S.P.C.A.'s A.E.A.C.,

134. See A.V. Times, Mar. 1975, 6-7. Much of the information on this campaign was provided by Richard D. Ryder.

135. See F.R.A.M.E. Progress Report No. 11, May 1975.

136. A selection of letters and reports was printed by the N.A.V.S. in Animals' Defender, May/Jun. 1975.

137. Motions were put down by K. Lomas, F.A. Burden and Janet Fookes. The barrage of questions put by Houghton in the Lords was prepared by Ryder on behalf of the R.S.P.C.A.'s A.E.A.C.. See for example H.L. Deb. [358], c. 1097-1099; H.L. Deb. [359], c. 1149. There were also numerous questions in the Commons, see for example, H.C. Deb. [888], c. 531-532.

representatives of which also had an interview with directors of I.C.I.

As seen in chapter IV, this massive campaign resulted in the Home Office placing the matter before its Advisory Committee, which considered not only those experiments carried out by I.C.I. but also some similar ones involving rodents and primates, conducted at Inveresk Research International, Midlothian, which had also proposed some trials involving the use of beagles. The S.S.P.V. had been involved in its own campaign concerning these experiments,¹³⁸ as well as in the original Sunday People "exposure".

Following the recommendations of its Advisory Committee¹³⁹ the Home Office concluded that, in view of the investment of time, money and research facilities made by I.C.I., those experiments already in progress should be allowed to continue, but that authority to begin similar experiments elsewhere should be refused.

This example clearly illustrates the effectiveness of a concerted campaign to generate public interest and pressure. Indeed, as seen in chapter III, 1975 was a turning point for the reformist movement. The publication of Richard Ryder's book Victims of Science¹⁴⁰ in 1975 served

138. See S.S.P.V. Annual Pictorial Review (1976), 49-52.

139. See Chapter IV, footnote 233.

140. For a selection of reviews of this book see: Bernard Dixon, "In the Name of Humanity", New Scientist, 65(1975), 465; and Ryder's reply, "Animal Experiments", New Scientist 66(1975), 44-46; Douglas Houghton, "Without Pity", Spectator, 234(1975), 241-242; Brigid Brophy, "The Silent Victims", New Statesman, 89(1975), 278; Maureen Duffy, "Go, Poor Fly", New Society, 31(1975), 535-536; Alan Cowey, "The Fate of the Guinea Pig", Times Literary Supplement, 16 May 1975, 539; and Ryder's reply, 18 Apr. 1975, 410.

as another major catalyst, which added fuel to the growing public concern. Ryder, who has been a very effective force outside the mainstream A.V. movement¹⁴¹ has himself made a concerted effort to keep the controversy alive and during a lull in publicity in the latter half of 1975 he wrote a long article to the Times¹⁴² stressing the extensive use of animals in non-medical experiments. During 1976, Animal Welfare Year, the subject again began to receive widespread coverage and since that time the movement as a whole has continued to gain momentum.

Against this background of growing public interest, the newly emerging and more respectable antivivisectionist image has enabled scientists, politicians and journalists to enter into serious discussion with those at the forefront of the A V movement without any longer having to fear that they will lose their respectability by so doing. This perhaps explains, in part, the growing interest in the subject taken by many scientists in recent years and the adoption of a sympathetic attitude, at least towards some of the aims of the movement. There could perhaps be no more significant indication of the changing climate than the presence of a member of the R.D.S. at a conference sponsored by the N.A.V.S.

Reporting on the January 1977, one-day Lord Dowding Symposium,

Donald Gould noted:

Monday's meeting was called to hear reports from beneficiaries of the fund, and it drew together in one place and in harmony dedicated anti-vivisectionists and medical scientists, including at least one senior member of the Research Defence Society - two varieties of mankind who would hardly have been seen dead in one another's company 20 or 30 years ago. 143

141. Even the R.D.S. is of the opinion that Ryder must be taken seriously, see Col.H.M.Walton, "Vivisection and the Press", Conquest No.167 (1976), 15-17.

142. "Animal Experiments: Realism must Replace Red Tape" Times, 14 Aug.1975.

143. D.Gould, "In Place of Lab. Animals", New Scientist, 73(1977), 210.

The growing recognition by the movement of the need to enlist the support of the scientific community has been the most significant change which has occurred in the twentieth century. Indeed, it is with the experimentalists themselves that the greatest hope for the future of laboratory animals must lie in the long term.¹⁴⁴ The widespread publicity which the A V and reformist movements have succeeded in attain over the last years is making its impact upon the scientific community, it has perhaps served to magnify the disquiet which already exists in the minds of many researchers. Bernard Dixon has stated:

Twice in recent months, when 'vivisection' has never been far from the headlines in Britain, humane and sensitive research workers have told me that - without changing their intellectual view of the matter in any way - they have found themselves assessing their animal work in an entirely new light and feeling uneasy about it".¹⁴⁵

Perhaps a large proportion of Britain's scientists, most of whom are not members of the R.D.S.,¹⁴⁶ would not share this Society's view that the scientific community ought not to be required to make itself more accountable to the public.

The writings of Bernard Dixon, who has been instrumental in publicising the A.V. movement, have shown a change in attitude which perhaps reflects a general change occurring in the scientific community at large. In 1968, referring to the R.S.P.C.A. campaign then being conducted to urge the government to implement the Littlewood recommendations,

144. See Chapter IV, esp. Section 9, Chapter VII, ~~446-458~~; Also J.E.Hampson "Changing Trends in the A.V.Movement", a paper given at the R.S.P.C.A. Symposium on Animal Rights, Cambridge, 1977, copy in thesis sleeve.

145. Bernard Dixon, (personal communication - my italics).

146. In a pilot study conducted by the R.D.S. among licence holders in British Physiological Departments and Medical Schools it was discovered that less than five per cent of such persons belonged to the R.D.S., May News-letter 1976.

he wrote:

If successful this could seriously impede necessary research work and antagonise research workers without bringing tangible results.¹⁴⁷

While intimating that some minor reforms of the 1876 Act would be welcome, he was at that time of the opinion that the Littlewood Report should remain on the shelf. Dixon's support for the reform movement and for those societies supporting alternatives has gradually strengthened. Indeed, some of his articles in New Scientist and addresses before N.A.V.S./I.A.A.P.E.A conferences have drawn criticism from the more conservative of his scientific colleagues. In 1977 Dixon became a patron of F.R.A.M.E. In his address to the R.S.P.C.A. Animal Rights Symposium in August of that year he reiterated his support for the more moderate reforms currently being sought and for the promotion of alternatives. Very recently, in response to a massive campaign organised by the N.A.V.S. to ascertain public opinion¹⁴⁸ regarding animal experiments Dixon has summarised the situation:

What the figures now being brandished by the N.A.V.S. do amount to is political ammunition for a case it has already argued persuasively on other grounds: the need for a comprehensive inquiry into the uses of animals in laboratories. Despite disagreements of the sort ventilated recently in New Scientist (Vol.77,p.80 and 83) - and indeed, to some degree because of them - the climate has never been more favourable for such a study, by a Royal Commission, Select Committee, or otherwise. Thanks largely to work by the better informed of the "anti-vivisection" societies, but with rather more constructive noises coming these days from the Research Defence Society (which claims to represent the scientific community), an inquiry that would have had to struggle through bitterness and impatience a few years back could now occur in a more generous, positive spirit. Publication later this year of the new-style Home Office Return containing the most detailed figures yet available on different categories of experimentation, will provide hard data, much needed by both sides, that could aid discussion yet further.

147. "Leave Littlewood on the Shelf", New Scientist, 40(1968), 552-553.

148. See Animals' Defender, Mar/Apr. 1978

With the relevant legislation over one hundred years old (during which time the number of experiments conducted annually has risen from around 300 to over 5 million) a thorough review of the subject is long overdue. 149

The scientific community no longer dismisses the A V movement as a collection of eccentric cranks and morbid zoophilists. When rational arguments are put forward scientists are prepared to listen to them, to correct where necessary (where antivivisectionists, in their zeal to reduce experimentation, have attributed potential alternatives in areas where it cannot be realised), but also on occasions to concede that they have a point. This change in attitude on the part of the scientific community must surely herald more than a glimmer of hope to the A.W. movement and one for which the antivivisectionists may allow themselves a proportion of the credit.

In a B.M.J. editorial which reminded experimentalists of their responsibilities:

"To try to reduce the volume of animal experimentation or its severity...which should surely be an obligation placed squarely on the shoulders of those who use animals,"

it was acknowledged that too many experiments (including smoking experiments) are carried out for trivial ends. The article categorically denied any allegation that the scientists were not keeping their house in order, though it did acknowledge a responsibility to anticipate abuse and to take steps to avoid it. An explanation was also given for the reticence

scientists have often shown to publicly agree with antivivisectionists, even when their points are valid:

Scientists are never slow to criticise one another, and if occasion ever arose they might be more willing to anticipate questionable experiments more openly were it not for their fear that their criticisms would be taken up too enthusiastically by antivivisectionists and used, not as a corrective in detail, but as a condemnation in general. It is this fear which is itself the greatest condemnation of the antivivisection movement. 150

The movement should take serious heed of this statement.

As described in this chapter, very positive advances have been made in the twentieth century with regard to practical tactics and the quality of A V literature, resulting in a dialogue between antivivisectionists and the scientific community of a kind which could hardly have been envisaged in the nineteenth century. However, the examples discussed here have also shown that the movement has still some distance to travel if it wishes to completely dispel the deeply rooted mistrust which the scientist holds for the antivivisectionist, and to establish a truly fruitful relationship. Should this happen, it is reasonable to assume that the scientific community would be willing to lift the veil of secrecy surrounding experiments, and that many researchers would join forces with the animal welfare movement in condemning experiments of questionable justification. As William Paton, Chairman of the R.D.S. Council, has stated:

Above all, people should realise that we are all on the same side in our concern for animal welfare and our desire to reduce the number of experiments. 151

That reduction ought to be the A.V. movement's immediate and single-minded goal; and co-operation with the scientific community in realising it could be its greatest achievement.

150. B.M.J. I (1974), 528.

151. W.Paton, "Call to Defuse the Antivivisection Argument", R.D.S. Press Release, Oct. 1976.

CHAPTER VII

ALTERNATIVES: THEIR SCOPE IN THE REDUCTION OF ANIMAL EXPERIMENTS.

Scientists who regularly expend millions of animals in their experiments every year, do this in the cause of a sacred and honourable aim of protecting human health and saving life. In the balance of their conscience the side which contains the human life always weighs more heavily, unless a hundred per cent reliable alternative, or in other words an experimental element to be used in place of animals, is found, no call of conscience nor the power of any law can avoid this practice. This is a problem which can only be solved by the discovery of a different alternative of equal or greater value.

Professor S.T.Aygün.

In 1976 5.5 million animals were experimented upon under licence in Great Britain.² There has been a phenomenal increase in biomedical research programmes, with the corresponding development of a "publish

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1. Professor S. T. Aygün, Scientific Director to the I.A.A.P.E.A. at Istanbul, text of speech delivered to that society in Turkey on 13 Apr. 1976, published in Animals' Defender May/Jun. 1976, 50-51.
 2. For breakdown of animal usage in various fields see Appendix II.

or perish ethic".³ The increasingly stringent standards imposed by governments upon the marketing of pharmaceuticals, cosmetics, household and other environmental chemicals, can only, it would appear, lead to an even further escalation of animal usage in routine testing.

It seems unlikely that the number of animals used will ever be substantially reduced by legislative reform or on the strength of ethical arguments, unless alternative means of achieving the same results as those obtained from animal experiments are sought and employed. Most scientists, and a large proportion of the public, accept animal experimentation as a regrettable necessity, but the scope for employing "alternative" techniques is often underestimated and usually underexploited. For this reason, as already discussed, the more rational antivivisectionists and animal welfare workers have directed their energies towards developing and promoting alternatives.

F.R.A.M.E., the most active organisation in this field, defined an "alternative" as any experimental method which will replace live animals, or which will lead to a reduction of the number required by any research or testing programme, while providing information of comparable quantity or quality. This definition broadly follows that set out by Russell and Burch as long ago as 1959⁴, though greater emphasis is now placed upon attempts to reduce the number of animals used in experiments whereas Russell and Burch concentrated primarily upon the reduction of suffering. The scheme outlined by these authors is commonly referred to as the three "R"s:

- 1) Replacement, i.e., the use of any materials other than sentient in research and teaching;

3. See A. N. Rowan, "Are There Feasible Alternatives to Laboratory Animals?", School Science Review, 58 (1976), 210-216.

4. M. S. Russell and R. L. Burch, The Principles of Humane Experimental Technique (London, 1959), hereafter cited as Russell and Burch. The book was produced on behalf of U.F.A.W.

- 2) Reduction, i.e., a reduction in number of animals used, achieved by employing techniques which allow greater precision and accuracy;
- 3) Refinement, a term they employed rather loosely to describe any decrease in the incidence of severity in those animal experiments which still must be considered necessary.

Throughout this chapter the word "alternative" will be used according to this definition and a more modern interpretation of the concept will be given in the conclusion.

Though a substantial reduction in animal experimentation could be effected, and though the scientific community is turning more and more towards alternatives, some scientists have been reluctant to accept the concept and have insisted that "alternatives" could not be applied to their own particular field, while others have maintained that they are already used to their full potential. However, the underlying premise that animal experiments are usually necessary and are the surest way to achieve the desired results, fails to take account of a number of salient points which are vital to any assessment of "alternatives". The most important of these is the fact that, in any experimental situation designed to provide information relevant to man, the researcher is utilising a model for the human system which is necessarily inferior in many ways to the use of man himself. We know a great deal about cancers of the laboratory mouse, in which we are not primarily interested, but we are uncertain as to how relevant this information is to the human situation. Russell and Burch pointed out that a "high-fidelity fallacy" is commonly associated with the use of animal models. The overall fidelity of the model refers to the extent

to which it mimics man or the particular human system under investigation. It is still commonly assumed that the closer the phylogenetic relationships, the better the model. While it is undoubtedly true that other mammals resemble man more closely than amphibians, there may be situations where an amphibian model is better. The "high-fidelity fallacy" leads one always to expect better results from a chimpanzee than from a mouse. However, Russell and Burch noted that in experimental research one was often concerned not so much with the overall system as with a specific part of it (a certain organ or a certain function) and that a model of high discrimination for the function under study would yield more valuable information than would a general model with high fidelity which did not mimic that function particularly well. The argument that experiments must take account of overall body interactions is one which has often been posed in favour of animal experiments, but as Russell and Burch argued, if the human organism were not reducible to systems, the science of experimental biology could never have come into being.

The thesis outlined above clearly suggests two contrary positions. On the one hand, it contradicts the assertion, often made by antivivisectionists, that differences between species invalidate animal experiments. As long as the scientist chooses the right species to mimic closely the human function he is looking at, the model will produce valuable information. On the other hand, since any model, by definition, is imperfect, there is no logical or scientific reason why new models (other than animal) may not yield information just as valuable and appropriate (if not more so) to the particular system under study. For example, Bruce Ames has developed a test employing a bacterial screen which gives possible indication of carcinogenetic activity

in man.⁵ Numerous other examples of tissue cultures and invertebrate systems cited in this chapter will illustrate this point. This is perhaps the strongest scientific argument in favour of "alternatives" and yet, though postulated over twenty years ago, it is still not generally accepted. Supported by outdated bureaucratic regulations, the entrenched adherence to animal experiments and the fallacies associated with this attitude still obtain. The examples discussed in this chapter should bear out the validity of the "alternatives" concept and the scientifically sound basis of those which are discussed.

Alternatives and Their Application

The following is a brief list of some "alternative" techniques which are available, with an indication of some of the fields to which they have been applied.

<u>Techniques</u>	<u>Some Examples of Fields of Application</u>
Cell, tissue and organ cultures of mammalian material.	1. Experimental medicine. Such methods have been applied to: study and diagnosis of inherited disorders study of infectious and non-infectious diseases immunology radiobiology testing of prosthetics parasitology study of wound healing virology - study of viral disorders, viral oncogenesis vaccine production

5. See Section 2(iii) of this Chapter.

TechniquesSome Examples of
Fields of Application

2. Experimental Physiology

study of embryology (organ culture was first developed in this field)
genetics, e.g. cell differentiation and chromosome mapping and many processes, such as aging, growth, cell metabolism and cell differentiation.

3. Chemotherapy

study of drug action at cell and organ level
screening of drugs and measurement of activity against viruses, bacteria, protozoal and helminth parasites in culture.

4. Endocrinology

production of biologically important substances
study of their action on target cells.

5. Oncology

study of basic cancer processes at cellular level
screening of anti-cancer drugs
evaluation of cell response to radiotherapy
prognosis
carcinogenicity testing.

6. Toxicology

toxicity testing of drugs, cosmetics, household and environmental chemicals, etc.

Protozoal Culture Systems

have been used in nutritional studies, e.g. assay of protein and vitamin content of foods; also in pharmacology, toxicology and genetic studies.

Fungal Systems

models have been described for:
study of gene interactions in development of neoplasms and testing of potential anticancer drugs

Bacterial Systems

pharmacology (e.g. study of potency of anaesthetics) diagnostic tests
toxicological and carcinogenicity screening
screening of carcinostatic agents.

<u>Techniques</u>	<u>Some Examples of Fields of Application</u>
Other Non-Mammalian Culture Systems - Mesozoa	echinoderm eggs have been used in toxicity and teratogenicity testing a sponge has been used to stimulate tumour morphology.
Limulus (Horseshoe Crab)	blood lysate of limulus has been used for pyrogenicity test.
Chick embryo	assessment of malignancy in cells of cancer patients, genetic and other studies.
Drosophila	carcinogenicity screening.
Plant Tissue Cultures	production of medically useful products biotransformation of medically important compounds such as steroids lemon fruits have been used to study cellular activities possibly relevant to tumour formation and wound healing, this work has been continued using rice seedlings.
Physico-Chemical Techniques	assessment of biological materials, e.g. vitamins pregnancy tests gas chromatography and mass spectroscopy have enabled some pharmacological and toxicological tests to be performed upon man with less inherent risk phase-contrast microscopy with time-lapse photography in analysis of critical cell functions.
Bioassays	radio-immune assays have been used for detection of biological substances (e.g. insulin) in disease.
Epidemiology and Clinical Studies	Collation of clinical and epidemiological data can reduce the numbers of animals used in the study of disease.
Theoretical Studies	these can be applied, e.g. in drug design, to reduce animal usage.
Modelling and Bioengineering	A number of mathematical and computer systems have been devised but to date have been given only trivial application. This field may hold great potential for the very long term. ⁶

6. Most of the papers studied during the compilation of this (very incomplete) list were cited in the F.R.A.M.E. Bibliography (1969) and are housed at the F.R.A.M.E. Information Centre. More recent papers, together with discussion and assessment of new techniques will be found in Atla Abstracts.

It is not possible to discuss all of these applications in a work of this kind,⁷ however, selected examples have been taken for detailed discussion, namely:

- (1) vaccine production,
- (2) toxicology, and
- (3) bioengineering, computers and mathematical models.

The first of these is an area in which a great reduction in animal usage has already been effected by employment of alternatives: the second is an area in which great potential for reduction currently exists but has yet to be effected, and the third is an area which may hold potential for the long term. The discussion of this last field is, as yet, highly speculative. The detailed treatment of these three areas gives some indication of the present and future potential for alternatives in the reduction of animal expenditure.

(1) Vaccine Production

A very great reduction in animal usage has resulted from the application of culture techniques to vaccine production. Since viruses will grow only in healthy cells, most of the early studies were conducted in live animals as tissue culture was then a complex and extremely difficult technique. Viruses were first grown in vitro in the 1930s. Most of the early successes were achieved in organ culture preparations. A major breakthrough (philosophical as much as technical) occurred in 1949 when Enders, Weller and Robbins maintained viable cultures of

7. A number of valuable general assessments have already appeared. See the excellent summary by A. N. Rowan "Alternatives to Laboratory Animals in Biomedical Programmes", Animal Regulation Studies, 1 (1977), 103-128, and also the short assessment by Michael Balls, Department of Human Morphology, University of Nottingham Medical School, "Alternatives to Living Animals in Medical Experiments: Towards a Rational View of Current Status and Future Prospects", Atla Abstracts, 5(1) (1977) 10-19 (this work was supported by the Humane Research Trust).

poliomyelitis virus in human embryonic cell cultures,⁸ for which they received the Nobel Prize. This provided a tremendous impetus to the development and acceptance of cell culture, particularly because of the emotive nature of the discovery - polio being the dreaded disease of the time (developing ironically from improvements in general hygiene).

The first cell cultures in which the virus was successfully grown employed primary cells, that is, cells taken straight from the body and not subcultured. This was a conceptual breakthrough, since it was the first time that a virus had been grown in cells other than the putative in vitro target cell. It was subsequently discovered that polio is, in fact, usually a low level intestinal disease and so viral growth in primary monkey kidney cells would have fitted in with the accepted dogma. However, at the time it created a tremendous surge of interest in the use of cell culture techniques.⁹

The first successful vaccine was produced in the primary monkey kidney cell. Subsequent commercial vaccine manufacture entailed a tremendous sacrifice of animals trapped in the wild (1.5 million in the six years from 1954 - 1960) presenting grave humanitarian and ecological problems. The pressures upon the countries of origin became so great that some species were seriously threatened and a number of governments began to impose export bans or restrictions.¹¹ It has been estimated that between 1956 and 1960 more than 800,000

8. J. F. Enders, T. H. Weller and F. C. Robbins, "Cultivation of the Lansing Strain of Poliomyelitis Virus in Cultures of Human Embryonic Tissues", Science, 109 (1949), 85-87.

9. Information from A. N. Rowan.

10. This was the killed Salk vaccine. See J. E. Salk "Formaldehyde Treatment and Safety Testing of Experimental Poliomyelitis Vaccines", Amer. J. Publ. Health, 44 (1954), 994-1009 and R. Dulbecco and J. Vogt, "Plaque Formation and Isolation of Pure Lines with Poliomyelitis Viruses", J. Exptl. Med., 99 (1954), 167-182.

11. See Chapter IV, esp. Section 8, 246-248.

primates (mostly Indian Rhesus monkeys) were used in the development of polio vaccine in the U.S.A. alone.¹² In addition to these problems, handling of primate material (particularly from animals trapped in the wild) is highly dangerous to research workers. In 1967 seven German workers died from green monkey disease, caused by a hitherto unknown virus. More than sixty viruses possibly hazardous to man have now been isolated from primates and their cell cultures.¹³ Time consuming and costly tests must therefore be carried out upon the material to ensure its safety for vaccine production. Contaminated and unusable material on average constitutes 50% but it can be as high as 80%. A common contaminant of primate tissues is the oncogenic agent S V 40, which was incorporated into millions of doses of polio vaccine used throughout the world before its tumour-inducing capabilities were known. The virus has not been shown to be oncogenic in man but the long term effects of its introduction via polio vaccine are yet to be determined and a worrying feature is that most oncogenic viruses only cause cancer in heterologous species.

There were clearly very strong incentives to search for alternatives to primate material for the manufacture of the polio vaccine. A cleaner, safer and more readily available substitute was developed from human embryonic lung during the early 1960s, (diploid WI-38 cell strain) at

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12. Cited by A. N. Rowan (Personal Communication) quoting B. M. Mitruka, H. M. Rawnsley and D. V. Vadehra, Animals for Medical Research: Models for the Study of Human Diseases (New York, 1976).
 13. A. M. Whittaker, "Applications of Cell Culture Methods to Virology", a paper given at the U.F.A.W. Symposium, The Pharmaceutical Applications of Cell Techniques, 1977 (proceedings in press). It is ironic that human cells were not used for polio vaccine manufacture at first because of fear of hepatitis developing from contaminated material.

the Wistar Institute, Philadelphia by Leonard Hayflick.¹⁴ It has been exhaustively investigated for many years and has now been described as one of the cleanest cell substrates known. Since it is a cell line¹⁵ rather than a primary cell culture, it can be used to produce enormous quantities of material. Original stocks are now beginning to run out but several new human diploid cells are now available.

Notwithstanding the obvious advantages of the system over the primary monkey kidney cell, the inertia of official bodies was clearly illustrated by their unwillingness to licence production of polio vaccine in WI-38 cell strains for many years. Despite the absence of any demonstrable untoward effects in human volunteers, regulatory bodies were suspicious of possible unknown contaminants. Suspicion was largely based on the fact that before 1960 most culture cells were derived from cancers, therefore Hayflick had to demonstrate that his cells did not contain some carcinogenic agent or activity, a very difficult task. The system was licenced in the U.S.A. ten years after its development, and even later in the U.K. (1972). It is now used for the production of a number of vaccines - which are, as a result, cleaner (and safer). For example, WI-38 is used for production of

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14. L. Hayflick, A. Plotkin, T. W. Norton and H. Koprowski, "Preparation of Polio Virus Vaccines in a Human Foetal Diploid Cell Strain", Amer. J. Hyg., 75 (1962), 240-258.

L. Hayflick, "A Comparison of Primary Monkey Kidney, Heterophoid Cell Lines, and Human Diploid Cell Strains for Human Virus Production", Amer. Rev. Resp. Dis., 88(2) (1963), 387-393.

L. Hayflick, "End of Mass Monkey Shipments in Sight", Animal Welfare Institute (New York) Information Report Mar./Apr. 1964.

J. P. Jacobs, "Human Cells for Making Human Vaccines", New Scientist, 41 (1969), 558-559.

15. A cell line is a culture of one particular type of cell, a cell strain is such a culture which has developed characteristic and established properties which can be defined. Such cultures may have an infinite lifespan, they can usually be subcultured for many divisions.

a rubella vaccine ('Almevax') - produced by Burroughs Wellcome.¹⁶ This was the first vaccine produced from human diploid cells to be released for sale in the U.K. Vaccine against foot and mouth disease, originally produced on cattle tongue epithelium, is now produced in Baby Hamster Kidney Cells (B.H.K.), and a vaccine against feline enteritis, once produced in the spleens of kittens, is produced in a feline cell culture system.

Though some polio vaccine is still produced from human diploid cells most is now produced in human cell strains. The present trend in all vaccine manufacture is toward an increasing use of cell strain substitutes which can be standardised in large quantities (one of the main problems is that diploid cells will only grow when anchored on a surface, this cuts down cell density in the culture vessel, resulting in lower virus yields).

The employment of culture systems in vaccine manufacture has enormously reduced animal (and more especially, primate) expenditure. However, as pointed out in 'Chapter five', animals must still be employed in large numbers for safety and potency tests, which account for fifty per cent of the total demand for primates in the U.K. (approximately 4,500 animals per annum).¹⁷ Examples of tests which must be carried out (referring especially to polio vaccine) were recently outlined by Whittaker.¹⁸ They include potency tests of the vaccine, performed in monkey kidney cells (which still involves a high animal expenditure), tumorigenicity tests of the cell substrates in immuno-

16. J. A. Dudgeon, "Immunisation Against Rubella", Nature, 223 (1969), 674-676.

17. K.R. Hobbs and J. Bleby, Laboratory Non-Human Primates for Biomedical Research in the United Kingdom (M.R.C. L.A.C.1976).

18. A. M. Whittaker op.cit.

deficient animals (specially bred for the purpose or prepared by surgical means), and repetition of these tests upon the final batches of vaccine after blending. Certain virulence tests to check whether the vaccine has retained its attenuated properties can now be done in vitro but a final and essential test for neurovirolence involves inoculation into the brains and spinal cords of monkeys, which are then killed and subjected to histological examination.

Whittaker concluded by saying that since a total of 55 exhaustive tests are applied to each batch of polio vaccine at Burroughs-Wellcome, the virologists there are constantly seeking alternatives to animal tests, both for humanitarian and economic reasons. While animals are still required, it seems likely that their usage will continue to be reduced in the future as new techniques are developed. It has also been pointed out¹⁹ that where animal tests are essential, and especially in the case of procedures involving severe discomfort such as challenge tests, vaccine batches of maximum size should be produced so as to reduce the number of tests performed. The R.D.S. has drawn attention to an improvement in potency testing of anti-tetanus vaccine. The current assay which causes some animals to die in convulsions can now be replaced with an assay which produces much milder symptoms. The test is to be recommended in the next European Pharmacopoeia. The R.D.S. notes that while no reduction in animal usage is effected, the development is a step forward for humanity.²⁰

19. J. D. Spink, "Drug Testing", U.F.A.W. Symposium Report 1977, 44-50.

20. R.D.S. Press Release Nov. 1976.

(2) Toxicology - With special reference to the LD₅₀ Test

The Toxicological Society of the U.S.A. defines toxicity testing as:

The quantitative study of the injurious effects of chemical and physical agents as observed in the alteration of structure, function and response in living systems and includes the evaluation of safety.²¹

As already noted, such testing applies not only to experiments to discern the possible untoward effects of drugs, vaccines and other medicinal products, but also to a wide range of household, industrial and other environmental chemicals, many of which are so ubiquitous that we are almost constantly subjected to them. The enormous expenditure of experimental animals in this field was indicated in Chapter IV, where it was shown that many of the annual three million commercial experiments fall into this category and involve the safety testing of medicinal and a wide variety of non-medicinal products. An estimated 25% of the total five million experiments performed each year in the U.K. are mandatory tests, and regulations must be expected to become even more stringent as Britain is subjected to current and proposed E.E.C. directives.

The thalidomide tragedy resulted in an increased demand by the public and Government for more stringent tests to be applied to new drugs. Hence teratogenicity tests have now been added to those prescribed in mandatory testing protocols where drugs will be used in pregnancy, and other test regimens intensified. Some indication of the escalation in the number of animals used has recently been given by Spink. During the early 1950s "what was regarded as a respectable regimen for chronic toxicity studies was to dose batches of five rats at a single-dose level sensibly related

21. R. A. Scala, Introduction to Toxicology reprinted from Methods in Radioimmunoassay, Toxicology and Related Areas, (New York, undated reprint), F.R.A.M.E. Information Centre.

to the therapeutic and to the median lethal doses of the compound for a period of one month.²² Spink described how the testing regimens have been stepped up both by the drug industry itself and by regulatory bodies so that a similar test now would involve dosing batches of twenty rodents at three different dosage levels over a period of three months. In Spink's estimation there has been a 72-fold increase in the "rat months" required for toxicity testing by the drug industry over the last two decades.

Few would deny that an ever increasing level of consumer safety is desirable, not only with regard to medicinal products, but to the many potentially hazardous environmental chemicals. However, attempts to achieve this are not always wholly rational. One W.H.O. consultant toxicologist has commented:

Most experts consider the modern toxicological routine procedure a wasteful endeavour in which scientific inventiveness and common sense have been replaced by a thoughtless completion of standard protocols.²³

Obviously there is a pressing need for more rationally designed testing protocols. Quite apart from the humanitarian considerations, the ever increasing costs of animal testing are strong incentives to find ways of reducing the number of animals required. Moreover, there are good scientific reasons for such development.

Many testing protocols, both voluntary and statutorily prescribed, are out of date (in terms of the rationale behind them) and in some

22. J. D. Spink, op cit 45.

23. G. Zbinden, "A Look at the World from Inside the Toxicologist's Cage", Eur. J. Clin. Pharmacol., 9 (1976), 335.

cases scientifically unsound.

In the opinion of one American clinical pharmacologist,

Kenneth Melmon:

In most cases the animal test cannot predict what will happen when the drug is given to man. Standards for toxicology are often set by officials such as Federal regulators who are responding to the pressures of ill-advised but obviously well-intentioned legislators or consumer groups who may or may not be aware of the futility of increasing the amount of testing required when some tests often have no bearing on how man will respond to the drug.²⁴

The chief problem in the interpretation and application of data from In-vivo toxicity tests, is the difficulty of extrapolating results from other animal species to man himself. Reactions may vary enormously between species and differences may even be significant between strains of the same species. A well-known example is the case of penicillin, which has a low toxicity in both rat and man (with the exception of allergic reactions) but which causes lethal haemorrhagic enteritis in the guinea pig. Had it been screened on the latter species it might never have been passed for clinical trial.

Conversely, compounds which show little activity in the common laboratory animals, but which might be of value in man, may never reach the stage of clinical trial, thus depriving mankind of potentially useful drugs. There are instances where compounds are metabolised to a toxic form in man only, though harmless in the laboratory animal.

24. K. L. Melmon, editorial in Clin. Pharmacol. Ther., 20 (1976), 125-126 (my italics). This statement, and similar statements by a number of toxicologists, was cited by A. N. Rowan in Animal Regulation Studies, 1 (1977), 103-128. See also A. N. Rowan and J. E. Hampson (not credited) "Alternatives to the use of Animals in Toxicity Testing", S.C.R.I.P. Pharmaceutical News, 30 Apr. 1977, 20-21, copy in thesis sleeve.

Some compounds may be toxic themselves but are rapidly detoxified in the liver. Detoxifying enzymes vary greatly in type and proportion between species. In some instances the reasons for such differences may be a straightforward divergence of metabolic pathways, which can sometimes be accounted for in animal tests; in others the differences cannot be explained given the present status of pharmacological knowledge.²⁵

Certain persons show hypersensitivity in response to some chemicals. An example is the peripheral neuritis caused by thalidomide in a proportion of patients. Such effects often do not appear until the patient is put at risk during clinical trial. One example of hypersensitivity is the case of chloramphenicol, which produces two toxic effects in man. The first, and more common, is a predictable and reversible effect upon the bone marrow, the second is a much more severe aplastic anaemia which may occur several weeks after use of the drug has been discontinued and can be fatal. The case has been cited of a British woman holidaymaker who, in 1972, purchased a small quantity of this drug over the counter in Spain in order to treat a cold. She died from its effects.²⁶ Lastly, no amount of animal testing can predict allergic reactions or, of course, adverse side effects such as headache and nausea.

Two examples of unreliable and largely outdated tests in general use have been selected for detailed discussion. Both are routinely performed and accepted and are usually prescribed by statutory testing

25. For additional information see P. N. Magee, "Toxicology and Certainty", New Scientist, 46 (1970), 61-62; B. B. Brodie, "Difficulties in Extrapolating Data on Metabolism of Drugs from Animals to Man", Clin. Pharmacol. Ther., 3 (1962) 374-380;

A. C. Frazer and M. Sharrat, "Limitations of Animal Studies in the Prediction of Effects in Man", in The Use of Animals in Toxicological Studies, U.F.A.W. 1969, 4-14.

26. A. Klass, There's Gold in Them Thar Pills, (London, 1975), 119.

authorities. They have been heavily criticised on humanitarian and scientific grounds. These are the Draize Test for skin and eye irritancy and the $L D_{50}$ acute toxicity test.²⁷

(1) The Draize Tests

These tests were first developed more than thirty years ago by J. B. Draize and his co-workers using albino rabbits. They are still extensively used for assessing irritancy of medicinal, cosmetic, household, industrial or other products thought likely to come into contact with the eyes or skin by accident or design.

A) Ophthalmic Irritancy

The rabbit would seem to be a species predisposed for this test since it possesses poorly developed tear glands and a thin cornea. Six animals are employed in each test. They are restrained in "stocks" and the eyes are washed out and stained with sodium fluorescein to ensure that they are free of defects. One-tenth of a millimetre of the test substance is placed in the eyes and damage is scored after one day and seven days. Grading is carried out according to the Draize scale which was outlined as follows:

Corneal Opacity grade from 0-4 (A)

Corneal Area Involved grade from 1-4 (B)

Scored as $A \times B \times 5$: maximum = 80

Iris Appearance and Function grade from 0-2 (C)

Scored as $C \times 5$: maximum = 10

27. The material contained in the section on the Draize Test is not original. I am entirely indebted to Dr. A. N. Rowan of F.R.A.M.E. for all the information upon which this section was originally based -- it was rewritten subsequent to the publication of F.R.A.M.E. Fact Sheet No. 3, "Cosmetic Production -- Animal Testing and the Potential for Developing Alternatives", 1977, from which most of this material is taken.

Conjunctival Redness	grade from 0-3 (D)
Conjunctival Chemosis	grade from 0-4 (E)
Conjunctival Discharge	grade from 0-3 (F)

Scored as (D+E+F) x 2 : maximum = 20

Total maximum score = 110

B) Skin Irritancy

Eight restrained albino rabbits are used. A small area of skin is cleared of fur and four one-inch diameter gauze pads, to each of which half a millimetre of test substance is applied, are pressed onto the skin and secured. The sites are scored after 24 and 72 hours according to the amount of erythema (redness of the skin), oedema (swelling due to accumulation of fluid in the intercellular spaces) and necrosis (chemical destruction of tissue sufficiently severe to result in scar tissue formation).

These protocols are basically those used by Weil and Scala in a survey conducted to determine intra - and inter-laboratory variability of the tests.²⁸ This survey made use of information from 24 laboratories (including three government ones), nine contract research organisations, seven toiletry and cosmetic companies, and six food or industrial companies throughout the U.K., U.S.A. and Canada. Twelve substances were selected for opthalmic irritancy and were submitted to each laboratory to be tested according to a standard reference procedure. The results are presented in table IV.

28. C. S. Weil and R. A. Scala, "Study of Intra and Inter Laboratory Variability in the Results of Rabbit Eye and Skin Irritation Tests", Tox.Appl.Pharm., 19 (1971), 276-360.

The results diverge widely, not only between, but also within, laboratories. A similar divergence was found in the case of skin irritancy tests. The authors concluded:

the rabbit eye and skin procedures currently recommended by the Federal agencies for use in the delineation of irritancy of materials should not be recommended as standard procedures in any new regulations. Without careful re-education these tests result in unreliable tests.²⁹

It has been pointed out that (even if the results of this subjective test were more reliable), results of opthalmic toxicity in rabbits may be of little relevance to the human situation.³⁰

29. Weil and Scala op.cit., 352.

30. A. N. Rowan (personal communication) citing R. E. Davis, K. H. Harper and S. R. Kynoch, Cosmetic Chem., 23 (1972), 271-381.

TABLE IV THE DRAIZE TEST FOR OPHTHALMIC TOXICITY

24 HOUR SCORES FOR 9 REFERENCE MATERIALS FROM TWENTY-FOUR GOVERNMENT AND INDUSTRIAL LABORATORIES

(all the laboratories agreed that 3 of the original 12 were non-irritant)

TEST MATERIAL	RANGE OF SCORES FOR INDIVIDUAL LABORATORIES (Medians for 6 rabbits)			RANGE OF DIFFERENCES IN THE SCORES FOR INDIVIDUAL RABBITS (from individual laboratories)		
	Minimum	Median	Maximum	Minimum	Maximum	
95% Ethanol	2	21.2	50	4	96	
46% Aq. Triethanolamine lauryl sulphate	10	30.8	76	2	48	
20 Vol. Cream Peroxide	7	48.5	83.5	12	102	
Ethoxylated Lauryl Alcohol	7	28.2	79	4	53	
Decaethoxy Oleyl Ether	4	14.2	79	0	49	
Linoleic Diethanolamide	5.5	32.8	58	4	44	
n-Butyl Alcohol	2	30.2	77	4	83	
Methyl Ethyl Ketone	2	19.2	55	2	53	
Ethylene Glycol Monoethyl ether	1	20.8	60	2	65	

Scoring for the Draize test involves: 80 marks for the degree of corneal opacity and the area of damage,

10 marks for damage to the iris, and 20 marks for conjunctival redness, chemosis and discharge.

compiled from data published by Weil and
Serafini. Reproduced by permission of
P.R.A.E.

F.R.A.M.E. has suggested an alternative approach to these unreliable and possibly irrelevant tests, having taken note of recent suggestions that greater effort should be made to develop practical short term tests. In the case of acute irritancy tests there is only a limited (if any) requirement to take into account whole body metabolism, yet despite this, and despite the demonstrated unreliability of the Draize test, F.R.A.M.E. has noted:

Little has been done to develop alternative techniques. Instead, much time and effort has been expended on minor revisions of the mechanics of the animal protocols. As an illustration, there has been widespread debate on what concentration of the trial substance should be placed in the rabbit eye (should it be related to the likely exposure dose in use or be highly concentrated) and whether the eye should be flushed out after the test substance has been administered (and if so how much water should be used to flush the eye).³¹

F.R.A.M.E. concludes that thorough investigation of in vitro tests as possible whole or partial replacements of present animal protocols would be well worth the effort. Indeed, attention has been drawn to a study in which bovine eyes obtained from the slaughterhouse were used to investigate the effects of detergents upon ion balance and permeability.

More recently, an interesting study at Hazleton Laboratories (Europe) used cell cultures to assess the irritancy of three shampoos. These were tested on four cell types and the results were compared with toxicity evaluations previously obtained from the Draize tests. The in vitro test results correlated well with the in vivo results and correctly identified the toxicity values of each shampoo. However, it was estimated that identification of the least irritant of the test compounds (measured by total protein assessment per cell or per culture) would probably be

31. F.R.A.M.E. Fact Sheet No. 3, 1977.

sufficient for commercial purposes.³²

As long ago as 1954, Livingood and Hu³³ developed a system for assessment of skin irritancy in human epithelial cultures. The fact that the method was not validated may indicate that the technical problems were not overcome.³⁴ However, in view of the many advances made in the field of culture technique since this time, it is suggested that new investigations based on this technique might prove fruitful. At a recent F.R.A.M.E. symposium* Professor R. Nardone of Washington called attention to a new technique developed in America for maintaining human skin in culture which is a great improvement on earlier techniques. Since cosmetic firms which employ no animal tests frequently carry out skin irritancy tests upon human volunteers, there would seem to be scope for the more widespread employment of such tests also.

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- 32. A. G. Keats and P. B. Harper, "A Preliminary Study to Evaluate Methods for in vitro Cytotoxicity Testing", Hazleton Laboratories (Europe) Ltd., Pilot Project No. 231/1 - personal communication between Harper and Rowan.
 - 33. C. S. Livingood and Funan Hu, "Tissue Culture of Human Skin and Chick Spleen as a Method for Evaluating the Primary Irritant Producing Capacity of Topical Medicaments; Correlation of Results with Clinical Observations", Ann. New York Acad. Sci., 58 (1954), 1202-1209; and Funan Hu, C. S. Livingood, P. Johnson and C. M. Pomerat, "Tissue Culture Studies on Human Skin", Arch. Dermat. and Syph., 70 (1954), 1-5.
 - 34. F.R.A.M.E. Fact Sheet No. 3 1977.

* Held at the Royal Society , April 1978 (Proceedings in press).

The LD₅₀ Test

The Lethal Dose 50% Test is a measure of acute oral toxicity and is applied to a wide range of substances as required by various regulatory bodies.³⁵ The statistic is generally expressed as the number of milligrams of test substance per kilogram of bodyweight required to kill half the target population and it is a measure of the short term effects of a single dose. The dose range is chosen so as to produce a significant number of deaths in the group of animals receiving the largest dose among several test groups. Using statistical methods it is then possible to calculate the dose which will kill fifty per cent of the test population.

An entirely arbitrary classification is applied to the results according to the whims of the particular regulatory authority. For example, one scheme classifies substances with an LD₅₀ of less than 50mg/kg bodyweight as highly toxic while those with an LD₅₀ greater than 1000mg/kg are classified as hardly toxic at all. Table V³⁶ gives an illustration of ranges used by a variety of regulatory authorities.

35. The test is statutorily prescribed in the Pharmacopoeias, in product licences and in a confidential book compiled by the Medicines Division. Even where the LD50 is not enforced, as in the case of cosmetics, household and industrial products, food additives etc. it is widely employed due to custom and habit. Sometimes it is required by importing countries, it is also employed routinely by firms wishing to transport chemicals, (substances with no LD50 are assumed to belong to the most toxic category and are consequently expensive and difficult to transport). I am indebted to A. N. Rowan for this information; see also evidence submitted to the Home Office Advisory Committee by the Chemicals Industries Association.

36. From evidence of F.R.A.M.E. to the H.O. Advisory Committee.

TABLE V

Classification of Compounds according to Oral Toxicity (LD50-mg/kg)

<u>Authority</u>	<u>Category</u>			
	<u>1</u> (Powerful, highly toxic)	<u>2</u> (Toxic)	<u>3</u> (Moderately Toxic)	<u>4</u> (Safe?)
German Democratic & Federal Republics	less than 100	100-300	greater than 300	(1)
Soviet Union	less than 50	50-200	200-1000	more than (1) 1000
Council of Europe	less than 200	200-2000	2000-5000	more than (1) 5000
E.E.C.	less than 25	25-200	200-2000	more than (2) 2000

(1) Woodcock, 1972

(2) E.E.C. 1976

The test was originally devised by the Mathematician J. W. Trevan in 1927 and it grew out of the need to standardise batches of drugs prepared from biological materials (it is very important to know the strength of powerful drugs such as digitalis). Trevan demonstrated that the LD₅₀ could be determined with reasonable precision and also that it required a minimum number of animals. However, the test is now used as a general index of toxicity and there is no justification for determining a statistical figure with 95% confidence limits in such cases. The uncertainties involved in comparative toxicology and in extrapolation to man mean that only a rough indication of the toxic dose is required.

The usual excuses for determining a precise figure are as follows:³⁷

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37. Points 1 - 3 are based on J. K. Morrison, R. M. Quinton and H. Reinert, "The Purpose and Value of LD50 Determinations" in E. Boyland and R. Goulding (Eds) Modern Trends in Toxicology I (London, 1968), 1-17.
Points 4 - 5 are from personal communication with A. N. Rowan.

- 1) LD_{50} figures act as a guide for the dose levels to be used in extended toxicological studies. However, a figure derived from the LD_{50} often bears little relationship to the maximum dose tolerated over a long period. In any case, an accurate LD_{50} is not required for such studies.
- 2) The LD_{50} should be determined in several species to give a measure of variability and thus permit the pharmacologist to estimate the toxicity in man. This is unrealistic. Variation in one species - man, for example - is common, and neither variation nor uniformity of the LD_{50} helps. Of far more importance are qualitative observations coupled perhaps with a rough estimate of toxicity gained from studies using a few animals.
- 3) The accurate LD_{50} is of value in quality control. However, it provides only a relatively non-specific means of checking the uniformity of production batches against a standard and, except for some biologicals, better tests are available. The LD_{50} may also vary considerably within a laboratory with time, and between different laboratories.
- 4) The LD_{50} is required to determine the therapeutic index of a drug (the ratio of the effective dose to the lethal dose). Yet inter-specific variation invalidates the determination of more than a rough estimate of the therapeutic index. A Therapeutic Index of 2.45 in the rat reflects spurious precision, since it could be considerably different in man. At best, it is only a guide and should be regarded as such. Imbuing the figures with precision may lead to a false sense of security.
- 5) The LD_{50} does give an indication of clinical overdosage, but no more than a rough figure is required. In textbooks of clinical toxicology the tables estimate the lethal dose of a compound, not the amount which will kill 50% of those who take it. This introduces even greater uncertainties in the extrapolation from animal data to man. Hence an LD_{50} with 95% confidence limits is merely another example of pseudo-science.

Current Debate on the LD₅₀

Because of the controversy surrounding the nature and application of the test, largely as a result of the efforts of Richard Ryder and the reformist movement,³⁸ the Home Secretary, Merlyn Rees, has asked the Advisory Committee to the Home Office on the administration of the 1876 Act to review the subject. In 1977 it was given the following terms of reference:

To enquire into the experimental procedure involving living animals which is known as the LD₅₀ test and to take such written and oral evidence for this purpose as may seem appropriate; to consider

- a) the extent of its use in accordance with Statutory requirements and otherwise,

and

- b) the scientific necessity and justification of the test in its various applications;

and to make any recommendations to the Secretary of State they may consider appropriate about the exercise of his powers under the Cruelty to Animals Act (1876) in relation to this test.

The Committee, which has invited various organisations to submit written evidence, is expected to report in 1978. Much of the data presented in this section was obtained from evidence put before the Committee by C.R.A.E., F.R.A.M.E., and U.F.A.W. The general conclusion drawn in this evidence, which presents the views of a number of practising toxicologists, is that the LD₅₀ is of very little value in many of the applications for which it is used and that the usual reasons for determining it are to satisfy bureaucratic regulations rather than to fulfil scientific criteria.

R. Heywood, Veterinary Director of a large contract organisation has stated that 98% of the LD₅₀s carried out by his firm were done purely to satisfy legislative requirements and he maintains:

38. See Chapters III and IV.

The Scientists involved in carrying out these tests often do not deem it necessary to be performed, and do not want to perform the tests, but are obliged to, so as to provide legislative figures.³⁹

Again, J. D. Spink of Burroughs-Wellcome Laboratories, has stated:

Nearly all this work is done with a view to the building up of registration dossiers for the licensing of new products. We know the requirements and conventions of the U.K. and other Governments and without obligatory testing no applications would be considered by them. The determining factor is a legal rather than a scientific one.⁴⁰

The figure is extremely inaccurate for compounds of low toxicity and is needlessly determined in these cases. In order to kill the animal with a non-toxic compound it is often necessary to force-feed the substance in large quantities probably causing death by physical rupture rather than poisoning. Thus the test has been criticised by humanitarians and scientists alike. Lord Halsbury, President of the R.D.S. has stated:

I quite agree about the unnecessary provision of the LD50s on things like cold cream and so on. I believe this to be quite unnecessary.⁴¹

William Paton, past Chairman of the Society seems to be in agreement:

I wouldn't approve when the dose required is enormously different from that likely to be incurred in practice.⁴²

Where the test is prescribed by U.K. Statutes or other codes and safety schemes, a limit test is often applied in the case of low-toxicity substances. If no adverse reaction is noted in response to a

39. From evidence of C.R.A.E. to H.O. Advisory Committee.

40. J. D. Spink in discussion at the 1976 U.F.A.W. Symposium, U.F.A.W. Symposium Report 1977, 110.

41. H. L. Deb. [361], c. 750.

42. Sunday Times, 30 Nov. 1975.

dosage of 10 gm/kg body weight no LD₅₀ is determined. Even this is a large quantity and might have to be administered by force-feeding. However, the Limit Test does reduce the numbers of animals used and the duration of suffering. Full LD₅₀ protocols are still required by many Governments importing British products despite the inaccuracy of the figure for compounds of low toxicity.

There are many factors which can affect the value of the LD₅₀. Inter-specific variation can be as much as 200-fold while intra-specific variation can be up to 300-fold; the age and sex of the animals being factors of obvious relevance. Nutritional factors can cause variations up to ten-fold, microbiological condition of the animals, social factors and ambient temperatures (very small changes can be significant) can result in variations up to twenty-fold and humidity, light, circadian and circennial rhythms, and the presence of insecticides are among other factors which also exert an effect.⁴³

Reappraisal of the LD₅₀ Test

The LD₅₀ is thought to account for more animal lives than any other single procedure conducted under the 1876 Act.⁴⁴

In order to obtain statistically valid results, large samples of animals are often employed, usually several groups of 5-10 rodents and totalling at least 50 animals. In some cases more than one species might be used. In drug testing, the World Health Organisation has recommended the use of at least two rodents and one non-rodent species, though a statistically sound figure need not be generated for the

43. See Morrison et.al, op.cit.

44. Evidence of C.R.A.E. to H.O. Advisory Committee.

latter.⁴⁵ It has already been noted that the E.E.C. is constantly prescribing more detailed and rigorous testing protocols for a wide variety of products.⁴⁶ Where commercial products contain several active compounds each ingredient must be tested separately, and also in conjunction with each of the others.⁴⁷ Figures for the test are not at present returned separately and so the exact numbers are not known. C.R.A.E. estimates that approximately one million animals are employed per year, mostly rodents but some rabbits, dogs and monkeys are also used.

Not only is the animal expenditure great, but the procedure clearly involves a tremendous degree of suffering. Factors to be observed as the animals die include gasping, vomiting, anorexia and excessive defaecation. U.F.A.W. has noted that under the present Pain Condition (unless the Inspector is present and orders painless destruction) the animal is allowed to remain alive, even though suffering, until the statutory period of observation required by the LD₅₀ as prescribed by other Acts (24 hours, 7 or 14 days) has elapsed.⁴⁸

In the case of non-essential products, infliction of this level of suffering cannot be justified. The suffering inflicted should be balanced against the importance and value of the product. U.F.A.W. has urged that the "pain condition" should be amended as suggested by the Federation to the Littlewood Committ, and endorsed by it.⁴⁹ This would result in a statutory obligation to kill any animal suffering severe pain whether or

45. "Guidelines for Evaluation of Drugs for Use of Man", W.H.O. Tech. Report Series, 563 (1975), 21, quoted by F.R.A.M.E. in its evidence to H.O. Advisory Committee.

46. For further detail see G. E. Paget, "Toxicity Tests on New Drugs", The Pharmaceutical Journal, Jan. 26 1963, 67-69.

47. LD50 Classification proposals are published in the Official Journal of the E.E.C. (O.J., E.E.C. No. 260, 5 Nov. 1976). English Translation from H.M.S.O.

48. For U.F.A.W.'s recommended modification of the pain condition see Chapter IV, 208.

49. Littlewood, para. 298.

not the object had been obtained, and the results assessed by post mortem examination.

A number of suggestions have been put forward for reduction in the number of animals used in the LD₅₀ test. F.P.A.M.E. suggests that a rough indication of toxicity could be obtained employing a much smaller number of animals, as is currently accepted in the case of larger and more expensive laboratory animals. Such methods could equally well be applied to rodents. As early as 1943, Deichman and Leblanc reported a technique for determining the approximate lethal dose using about six animals.⁵⁰ More recently an "up and down method" has been described whereby one dose at a time is administered and the dosage moved up or down according to the result. Results are as reliable using only four animals as for a large sample, but the method takes much longer.⁵¹

Similarly, it is suggested that information regarding mode of death, number and nature of organs at risk, and details of metabolic and pharmacological properties of a chemical could be determined using a much smaller number of animals and without necessarily determining the LD₅₀. A pyramid test, in which increasing dosages are administered on successive days, can provide more information about the metabolic and pharmacological properties of the chemical than the LD₅₀. F.R.A.M.E. has concluded:

It is therefore suggested that the number of animals used in acute studies could be substantially reduced without jeopardising the quality or quantity of information obtained or its predictive value for the human situation.⁵²

U.F.A.W. concurs in this view.

50. W. B. Deichman and T. J. Leblanc, J. Ind. Hyg. and Toxicol 25 (1943), 415-417 (Reference from A. N. Rowan).

51. Described by a Veterinary Surgeon during discussion at the U.F.A.W. Symposium, 1976.

52. Evidence of F.R.A.M.E. to H.O. Advisory Committee.

In addition to humanitarian and scientific arguments, there are strong financial incentives for the adoption of a more rational approach. In the U.S.A., where specified toxicity testing protocols are even more rigid and extensive than is currently the case in the U.K., it has been estimated that the toxicity evaluation for human health alone (excluding any assessment of effects upon wildlife or domestic animals) is \$500,000 per compound. This, of course, is inclusive of toxicity tests other than the LD₅₀.⁵³ Cost is a serious consideration for the manufacturer, who would, no doubt, be happy to employ alternatives. On the other hand, laboratory animal breeders have a vested interest in the proliferation of animal tests.

F.R.A.M.E. maintains that while it is not possible to develop an "alternative" which would provide exactly the same data as produced by the LD₅₀, it ought to be possible to establish one or more cell culture systems which could provide suitable and relevant information, especially if employed in conjunction with a minimal amount of in vivo work.⁵⁴ A number of in vitro toxicity screens which have been compared to LD₅₀ test data have yielded results which are substantially in agreement. F.R.A.M.E. has drawn attention to tests performed for alcohols and salts upon various culture systems, including primary human kidney cells, liver cell lines, human embryo fibroblasts and He La cells.⁵⁵ In vivo and in vitro toxicities of a series of batches of mannide mono-oleate (an emulsifying agent for vaccines) have been compared, with the conclusion that the cell culture method used was at least as sensitive as the in vivo test, if not more so.⁵⁶

53. T. Muul, A. F. Hegyeli and J. C. Dacre, "Toxicological Testing Dilemma", Science, 193 (1976), 834.

54. Evidence of F.R.A.M.E. to H.O. Advisory Committee.

55. G. N. Krasovskii and A. P. Il'nitskii, Gig.Sanit. 32 (1967), 66-70. (Russian).

56. M. F. Barile and M. Hardegree, "A Cell Culture Assay to Evaluate the Toxicity of Arlacel A", Proc.Soc.Exp.Biol.Med., 133 (1970), 222-228.

The advantages of using human material might appear to be obvious, though it has already been explained that models with high fidelity for a particular function need not necessarily be closely related to the human system. A test employing Paramecium caudatum which has been used as an indicator of toxicity for both insecticides and food dyes with promising results illustrates this point.⁵⁷ F.R.A.M.E. appreciates that such systems require much greater evaluation and elaboration before they could be introduced as feasible alternatives and it is not suggested that they could ever completely replace the animal model. U.F.A.W. states:

For computing the probable lethal dose of a substance in man there is no substitute for a live animal. For other aspects of safety-testing there is now a range of supplementary aids, including dead (e.g. decerebrate) animals, cultures of bacteria, cells, organs and tissues and chemical tests, and these are coming into greater use. Most of them require greater skill than a dead-or-alive test but these skills are being developed (Dawson 1971)⁵⁸. It is rarely necessary now to use the LD₅₀ as a test of pharmacological activity.⁵⁹

With regard to prescription of the LD₅₀ by regulatory bodies it has been suggested that such prescription should be made after prior consultation with the Home Office, so as to ensure that the number of animals used are not excessive, and that such tests are scientifically valid, F.R.A.M.E. suggests a comprehensive re-assessment of the test involving all government departments.

F.R.A.M.E. stresses that in tests where the aim is to establish the safety of a product rather than its toxicity, an LD₅₀ test is not necessary at all. It should not, therefore, be regarded as a standard procedure in safety testing. Where the value does need to be determined,

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- 57. F. Sako, N. Taniguchi, N. Kobayashi and E. Takakuwa, "Effects of Food Dyes on Paramecium Caudatum: Toxicity and Inhibitory Effects of Leucine Aminopeptidase and Acid Phosphatase Activity", Tox. and Appl. Pharm., 39 (1977), 111-117.
 - 58. Mary Dawson, "The Rational Use of Tissue Cultures for Drug Testing", in The Rational Use of Living Systems in Bio-medical Research, (U.F.A.W. 1972), 5-17.
 - 59. Evidence of U.F.A.W. to H.O. Advisory Committees. U.F.A.W. Annual Report 1977, 19.

i.e., in the establishment of the toxicity of hazardous substances, a limit test employing only a few animals could usually be imposed; and in every case:

the Secretary of State should recommend that, given the low level of precision required, toxicology laboratories should not use more than ten animals for routine LD₅₀ determinations.⁶⁰

Given the irrelevancy of the LD₅₀ test in the case of compounds of low toxicity, U.F.A.W. recommends that no LD₅₀ should be determined for any product where more than 1500 mg/kg bodyweight need be administered to determine the value. F.R.A.M.E. concurs in this view and both societies urge that this recommendation be built into relevant statutes.

For pharmacological purposes U.F.A.W. believes that a far more meaningful parameter than the lethal dose is the dose-response relationship on a species which closely mimics man (or other target animal). This species should be chosen after administration of a small dose to man himself (or the target species) followed by analysis of body samples to study absorption, distribution and metabolic modification of the substance. Larger doses would be given to the most appropriate species in order to determine toxic level, in this way a reduction in animal usage might be effected.

C.R.A.E. suggests that pooling of toxicity data would be useful in helping to make predictions about the toxicity of compounds closely related to those already tested and could reduce the number of new tests required.

60. Evidence of F.R.A.M.E. to H.O. Advisory Committee.

C.R.A.E. has questioned the qualification of the various Advisory Committees prescribing the LD₅₀ to assess its scientific value and has called for more information as to exactly when, why, and by whom the test is employed. Particularly disturbing to C.R.A.E. was the publication, in June 1977, of the Health and Safety Commission Discussion Document, Proposed Scheme for the Notification of the Toxic Properties of Substances, which outlines a scheme requiring all manufacturers to notify the Health and Safety Executive of toxicological tests upon all new chemicals designed for industry (some 500 new substances are introduced each year). The scheme would take up to two years to come into operation and would result in a considerable escalation of the use of animals in a wide variety of toxicity tests including the LD₅₀. The scheme would also add substantially to manufacturers costs.⁶¹ This committee is currently seeking legal advice as to how the Secretary of State should properly exercise his powers in relation to the 1876 Act. When this advice is obtained, C.R.A.E. will offer suggestions to the Home Secretary regarding the way in which his powers could be exercised in relation to LD₅₀ and other statutory tests.

In the meantime C.R.A.E. proposes that the test should be phased out immediately where it is not valid and more gradually and in all other cases where other methods can be adopted instead. Any change of this kind, to be effective, would have to be adopted internationally and F.R.A.M.E. is pressing bodies such as the W.H.O. to consider new proposals for toxicity testing protocols.

61. See "This Week", New Scientist, 74 (1977), 627 and L. McGinty, "Keeping Toxic Chemicals off the Factory Floor", New Scientist, 74 (1977), 724.

Finally, all three bodies urge the Government to give more encouragement to fundamental studies of toxicology and the development of new techniques for studying it. Government resources and research data should be made available for this purpose.

C.R.A.E. concludes:

Cruelty which is given exceptional statutory protection under the 1876 Act should surely impose upon the State a clear duty to pursue alternatives to the use of living animals. It is therefore regrettable that so little appears to have been done in this direction and we would hope that the Committee will regard the search for alternatives as a major part of its enquiry.⁶²

Much of the assessment given in this section has been based upon evidence collected by societies whose prime motivation is a humanitarian one. A more detailed assessment will be possible if all the evidence presented to the Advisory Committee is published. It has not, for example, been possible to consider the evidence of the Research Defence Society, since this has not been generally released. While some persons may be suspicious of the opinions of C.R.A.E., F.R.A.M.E. and U.F.A.W., it must be acknowledged that much of the evidence they have presented is based on the comments and criticisms of practising toxicologists and should be regarded as a fair assessment of the current situation.

It seems clear that there is a pressing need on a purely practical level, as more new compounds come onto the market each year, to effect some statutory control over the marketing of non-essential chemicals and to develop more efficient, more economic and more humane methods of testing those which are essential. There is currently no machinery

62. Evidence of C.R.A.E. to H.O. Advisory Committee.

available which could effect such control.

(iii) Carcinogenicity Screening

It is estimated that approximately 80% of human cancer is produced by environmental agents of natural and artificial origin and that, consequently, a large proportion of this cancer may theoretically be preventable. The public are becoming increasingly aware of the hazards of new chemicals with which we are perpetually bombarded. The urgent need to lessen these risks is underlined by recent legislative measures such as the Health and Safety at Work Act (1974) and by the many (actual and proposed) E.E.C. directives. The need to adopt and develop rapid, inexpensive and reliable carcinogenicity screens is paramount and it is perhaps in this field that in vitro testing systems hold the greatest potential.

To date few substances have been identified as positively carcinogenic in man (it is impossible to demonstrate the converse) because definitive epidemiological evidence is almost impossible to obtain. Most hazardous chemicals have been identified as a result of long term animal tests. However, there are a number of reasons why it is not possible to submit all new chemicals to such tests. Not only is the cost becoming prohibitive⁶³ but the tests are so time consuming that the public are often subjected to considerable risks before the dangerous indications are revealed. In addition, most animal tests are

63. See Appendix III of this thesis.

relatively insensitive. It has been estimated that a total of 1-2,000 compounds need to be tested per annum in order adequately to assess the hazards of substances already in the environment. The full carcinogenicity testing protocol recommended by the National Cancer Institute of the U.S.A. employs a minimum of 500 animals for each bioassay, takes approximately 40 months to complete and costs between \$100,000 - \$150,000 at 1975 prices.⁶⁴ Some 500 - 1,000 new chemicals are introduced into the environment each year.⁶⁵ Moreover, animal experiments in this field are often poor predictors for man.

The problem of inter-specific variation occurs since many compounds are not in themselves carcinogenic, while their metabolites are. In such cases the danger (or safety) depends entirely upon the metabolic pathway of the species concerned. For example, 2 - acetylaminofluorine is carcinogenic in the rat and not in the guinea - pig.⁶⁶ Many compounds not carcinogenic in laboratory animals may cause cancer in man and vice versa. An intensive study carried out by Sir Richard Doll on diabetics recently indicated that saccharine carried no detectable carcinogenic risk in man, yet it has been shown to induce bladder cancer in rats, (though not in hamsters or mice).⁶⁷ Animal tests are further complicated by the high proportion of tumours spontaneously arising in some species and in particular strains of certain species. Large numbers of animals need to be employed in order to determine the significance of tumour incidence between control and treated groups.⁶⁸

64. J. Sontag, N. P. Page and U. Saffioti, "Guidelines for Carcinogen Bioassay", in N.C.I. Tech. Report Series No. 1 (1975).

65. U. Saffioti, "Validation of Short Term Bioassays as Predictive Screens for Chemical Carcinogens", in R. Montesano, H. Bartsch and L. Tomatis (Eds), Screening Tests in Chemical Carcinogenesis, (International Agency for Research on Cancer, Lyons 1976), 3-13. (Hereafter referred to as Montesano, Bartsch and Tomatis).

66. F. J. De Serres, "Long Range Planning for Effective in vitro tests for Carcinogens", in Montesano, Bartsch and Tomatis, 29-40.

67. See articles in New Scientist, 73 (1977), 626 and 627.

68. B. J. Leonard, "Predictive Value of Carcinogenic Tests on I.C.I. Mice", in A. Spiegel (Ed.) The Laboratory Animal in Drug Testing (Basle, 1973), 249-261.

It has been pointed out that carcinogenicity tests employed in the past have often been both inadequately designed and insufficiently specific to demonstrate carcinogenicity (even in the test species) conclusively. In a recent review, the National Cancer Institute (U.S.A.) estimated that about 6000 substances (up to the end of 1972) had been reported in the literature as having been tested for carcinogenicity. In many cases, (particularly the older tests) test protocols were used which would now be considered quite inadequate. They included use of impure test substances, use of small groups of animals without adequate controls, discontinuation of tests before sufficient time had elapsed for adequate assessment and insufficient pathological investigation. By these criteria about fifty per cent of the six thousand tests could be judged as inadequate. Rowan has made a somewhat blunter assessment

therefore 3000 studies could now be judged as a waste of time, money and animals.⁷⁰

Non-Animal Screening Systems

A number of non-animal systems have great potential as cheap, rapid and highly predictive carcinogen screens and these models of low overall fidelity to the human system can carry a high level of predictiveness for the mechanism under study, which is, quite simply, the ability of the test substance to induce malignant characteristics in the cell. These systems have been extensively researched and categorised for example by A. N. Rowan of F.R.A.M.E.⁷¹ and by B. A. Bridges of the M.R.C.⁷². The following

69. U. Saffioti op.cit.

70. A. N. Rowan, (personal communication). Of the remaining 3,000 chemicals, 500 were shown to be carcinogenic.

71. "Carcinogen Testing", F.R.A.M.E. Fact Sheet No. 1 (1977).

72. B. A. Bridges, "Screening for Environmental Agents Causing Genetic Damage", Lab. Pract., 21 (1972) and "Short Term Screening Tests for Carcinogens", Nature, 261 (1976) 195-200.

summary is based upon these classifications.

(i) Mutagenicity Systems

There is now strong evidence of a relationship between DNA damaging ability and carcinogenicity.⁷³ It is therefore becoming increasingly accepted that tests which assess mutagenicity will give a reasonable indication of possible carcinogenicity of substances (with the exception of non-mutagenic cancer "promoters" such as the phorbol esters and caffeine. The most well documented of these tests is that devised by Bruce Ames employing various strains of Salmonella typhimurium. He uses a mutant which requires Histidine for growth, and the test measures the ability of chemicals to cause it to revert to a form which can grow in the absence of histidine. Permeability problems have been overcome by using strains which have defective cell walls. A further modification (inclusion of a plasmid) has greatly increased the sensitivity of the test strains to DNA damage. Some account of mammalian biotransformation can be taken by inclusion of a crude microsomal extract from the liver, which mimics metabolic conversions occurring in vivo to a certain extent, though this does not provide a perfect solution.

In his own validation of the test, Ames, using approximately 300 chemicals, found that 90% of the known carcinogens were also mutagenic and that 87% of the non-carcinogens were non-mutagens. This success rate has been confirmed in both the U.K. and Japan. The false - negatives and false - positives occurring among the original 300 chemicals may be due to the insensitivity of the animal tests to which they were compared which fail to detect weak carcinogens, or to the inadequacies of the metabolic

73. Five pages on this subject were given at a meeting of the Royal Society on "The Biology of Carcinogenesis", 1976.

activation system, and have been discussed at some length.⁷⁴

The test has the following drawbacks:

- 1) Substances generally toxic to bacteria could not be assessed except at very low doses.
- 2) The microsomal activation system is not an accurate mimic of the in vivo situation.
- 3) Some carcinogens require an intact DNA repair system.
A suitable strain is being prepared at present.
- 4) The minimal growth medium makes it unlikely that metal carcinogens would be detected in this particular bacterium, (other systems may then be used).
- 5) Hormones and other chemicals (such as griseofulvin which acts upon the mitotic spindle) effect systems unique to animal cells and therefore cannot be detected.
- 6) False positives may be produced both by the detection of impurities in the test compound by the sensitive bacteria, or by the activation of the compound by bacterial enzymes not present in mammals.

74. The test was discussed at length by Ames and McCann at the Cold Spring Harbour Symposium on Quantitative Biology 1978 (in press, Eds. J. D. Watson and H. Hyatt).

See also J. McCann and B. N. Ames, "The Salmonella Microsome - Mutagenicity Test: Predictive Value for Animal Carcinogenicity", Proc. Nat. Acad. Sci., 73 (1976), 950-954.

Notwithstanding these difficulties, the Ames Test, having a high degree of predictability, is certainly a valuable adjunct to animal experiments. Its general adoption could result in a reduction in the number of animals needlessly expended, and in a greater level of public safety, since it would enable the screening of many more chemicals than is possible by animal tests. Suspicious chemicals which were non-essential could be discarded at this stage. The test may be run in less than one week at a cost of approximately £200 whereas a full animal trial in the U.K. costs between £30 - 60,000 and takes up to two years.⁷⁵ The M.R.C. is currently evaluating the Ames Test along with other in vitro screens.⁷⁶

Other bacterial screens, perhaps less well evaluated than the Ames Test, show considerable promise.⁷⁷ Cell mutagenesis has also been studied in mammalian culture⁷⁸ but these have not proved to be as sensitive as bacterial tests.

An invertebrate short-term screen (which takes some account of systematic metabolism though not mammalian) employs the fruit fly Drosophila melanogaster⁷⁹ in which a wide spectrum of genetic effects induced by chemicals may be studied.

75. For further cost comparisons see Appendix III.

76. A. N. Rowan, "Are there Feasible Alternatives to Laboratory Animals?", School Science Review 58 (1976), 210-216.

77. It has been suggested that drug-induced carcinogenesis is the result of an alteration in DNA structure and a number of bacteria deficient in DNA polymerase, and therefore more sensitive, may be employed as screens. A number of these are referred to by E. E. Slater, M. D. Anderson and H. S. Rosenkranz, "Rapid Detection of Mutagens and Carcinogens", Cancer Res. 31 (1971) 970-973.

See also T. Sugimura et.al, "The Validity of Mutagenicity Tests using Microbes", in Montesano, Bartsch and Tomatis, op.cit., 81 - 104.

78. E. Huberman, "Cell-mediated Mutagenicity of Different Genetic Loci in Mammalian Cells by Carcinogenic Polycyclic Hydrocarbons", in Montesano, Bartsch and Tomatis, 521-535; P. Parry and H. J. Evans "Cytological Detection of Mutagen - Carcinogen Exposure by Sister Chromatid Exchange", Nature 258 (1975), 121-125.

79. E. Vogel, "The Relation between Mutational Pattern and Concentration by Chemical Mutagens in Drosophila", in Montesano, Bartsch and Tomatis, 117-132.

(ii) DNA Repair and Metabolism

DNA damage may be assessed by assay of DNA repair in the cell after challenge with the test chemical. A human fibroblast system has been employed with good correlation between carcinogenic activity and DNA repair,⁸⁰ but further evaluation is needed. A more sensitive test which measures host cell reactivation of viral genomes is less suitable for routine monitoring.⁸¹ An acellular in vitro system based upon the accuracy of D.N.A. replication with a known template has also been described.⁸²

(iii) Cell Transformation Systems

In vitro systems which measure the transformation of "normal" cells to tumourigenic after a single exposure to the test substance are perhaps the most relevant of the short term screens. They carry the advantage of being able to employ human material. There are, however, a number of disadvantages. The tests have usually been carried out upon fibroblastic cultures, but 85% of human cancers are known to arise from epithelial rather than fibroblastic tissues.⁸³ Unfortunately, attempts to develop a suitable epithelial cell transformation system have proved

80. R. H. S. San and H. F. Stich, "D.N.A. Repair Synthesis of Cultured Human Cells as Rapid Bioassay for Chemical Carcinogens", Int. J. Cancer, 16 (1975), 282-291; and,

"D.N.A. Fragmentation and D.N.A. Repair as an in vitro and in vivo Assay for Chemical Pro-Carcinogens, Carcinogens and Carcinogenic Nitrostatin Products", in Montesano, Bartsch and Tomatis, 617-637.

81. F.R.A.M.E. Fact Sheet No. 1, 1977.

82. Ibid.

83. J. Cairns, "Mutation, Selection and the Natural History of Cancer", Nature, 255 (1975), 197-200.

difficult due to the low incidence of transformation and the long time-lag. In contrast, fibroblast cells transform rapidly (1-6 weeks) and with high efficiency (1-20%) when exposed to carcinogen.⁸⁴ Some degree of success is now being achieved with transformation of epithelial cells though work with fibroblasts looks more promising.⁸⁵

Another difficulty is presented by the variety of meanings ascribed to the term "transformation" by different workers. This term is usually taken to mean establishment of a cell line which not only no longer has a finite life span but which is also highly tumourigenic. The cells have an abnormal chromosome number. Established cell lines which display similar characteristics do not possess the tumourigenic qualities of "transformed" cells. Fibroblastic transformation also results in changes of a different nature to those seen in epithelial "transformation".

Such screening mechanisms have not in any case resulted in a decrease of animal expenditure since the only reliable assessment of malignancy has hitherto been to inject the "transformed" cells into laboratory animals.⁸⁶ However, it has been suggested that there is a great scope for the development of reliable in vitro tests for malignant transformation using cell invasive

84. I.B. Weinstein et al "Analysis of the Mechanism of Chemical Carcinogenesis in Epithelial Cell Cultures", in Montesano, Bartsch and Tomatis, 355-387.

85. FRAME Fact Sheet No. 1. (1977).

86. A. N. Roawn, personal communication.

systems.⁸⁷ Secondary criteria for "transformation" which may be used as endpoints have been evaluated, and include the loss of anchorage dependence as exemplified by the ability of cells to grow in soft agar and, in the case of fibroblasts, the production of clones of piled-up cells when growing on a solid surface. Since only transformed cells possess this capability, loss of anchorage dependence is probably the most suitable criterion studied so far. I.C.I. has recently compared six in vitro systems including a cell transformation model using this parameter, for 58 known carcinogens and 62 non-carcinogens. The cell test identified 91% of the carcinogens and 97% of the non-carcinogens, which is an even better level of predictability than given by the Ames test. Other feasible criteria include a lower serum requirement in the growth medium, increased agglutination ability of the cells by plant lectins and changes in cell morphology. It is considered that in vitro screens of fibroblast cells hold great promise for the future.⁸⁸ They have proved to be equally as effective as bacterial mutagenicity tests for predicting carcinogenicity and there is scope for further improvements. All these systems require further evaluation.⁸⁹

(iv) Miscellaneous

A variety of other test systems for carcinogens have been devised. F.R.A.M.E. has cited two of these as showing promise. One is a test employing membrane-polysome association. Williams and Rabin⁹⁰ have found that some carcinogens resulted in degranulation of rough

87. G.V. Sherbert and H.S. Lakshmi; "Tumour grading by Implantation in Embryos I, Grading of Minimum - Deviation Hepatomas", J. Nat. Cancer Inst. 52 (1974), 681-685; II, Grading of Some Human Astrocytomas", ibid, 687-692.

88. A number of these are cited in the Frame Fact Sheet No. 1 (1977)

89. See U. Safiotti (footnote 65)

90. See J.F.M. Furchase et al "Evaluation of Six Short Term Screening Tests For Detecting Organic Chemical Carcinogens and Recommendations for their Use", Nature, 264 (1976), 624-627.

endoplasmic reticulum from male rat liver. The test measures loss of radioactive R N A from the membrane, it was shown to predict carcinogenic activity of aryl amines well (85%) but to be less successful with polycyclic hydrocarbons and alkylating agents.⁹¹

Another test relies on the enhancement of biphenyl-2-hydroxylation, known to occur rapidly in vivo after exposure to many carcinogens. This enhancement may be observed in vitro using freshly prepared liver microsomes. Parke and Bridges (University of Surrey) have screened approximately 60 compounds using the system and report a 90% success rate in prediction of carcinogenicity. The strong carcinogens seem to give the greatest enzyme activity increase. F.R.A.M.E reports that the system is still in its early stages and that work to validate and improve it is currently being carried out.⁹²

Some of the tests described would seem to be of considerable potential value. If adopted as pre-screens they could result in a rapid elimination of suspicious chemicals at an early stage, with a consequent reduction in animal, testing and real benefit to public safety. Further validation against animal tests is needed for most of them, and a serious drawback to any culture system is the degree of solubility, pH stability range and temperature stability of the test compound. However it is noteworthy that some American firms have already made considerable financial savings

91. See Ames and McCann (footnote 74)

92. A.N. Rowan cites personal communication in with D.V. Parke of Surrey University.

by employing such tests. Most authorities have agreed that no single test will provide a reliable screen and that several methods, including animal experiments, should be employed. The value of the short-term inexpensive screens is to divide compounds as to the likelihood of their carcinogenic effect in man, to eliminate those with high risk and low benefit from the environment, while submitting those with moderate risk and higher benefit to in vivo testing. In cases where benefits outweigh the risk, the substances might not be altogether eliminated but used with suitable caution. The situation is more acute in the case of widely used chemicals such as food additives than it is for those whose use is very limited. It has recently been reported that a powerful American chemical industrial lobby is now playing down the Ames Test⁹³, presumably because they are concerned that too many chemicals are turning out to be mutagenic.

(3) Modelling and Bioengineering - the use of physical and mathematical models and computer simulations

Of all the "alternative" systems available, culture techniques certainly hold the greatest potential for reduction of animal usage in the foreseeable future. Mathematical and computer modelling may hold considerable promise for the long-term but this field is very poorly developed at present. In addition, there are considerable educational problems. Most biologists have little knowledge of computer techniques while few computer scientists have any knowledge of biological systems.⁹⁴

93. A.N. Rowan, personal communication.

94. See also pp. 455-456 of this chapter.

Computer models in Research

A number of mathematical and computer models have been applied to biological systems⁹⁵ but I have not yet seen an application which has led to generation of non-trivial data. Mathematical modelling, coupled with modern computers, allows analysis of complex living systems but it should be pointed out that a considerable body of knowledge must be built up from physiological research before such models can be constructed. On the negative side, a computer model, being a simplified version of the in vivo situation, may omit vital parameters.

Complex systems which have been modelled to date include simulation of vertebrate limb bud development, certain nervous functions (using electrochemical "wet models"), and functions of the heart, circulatory system, lungs and kidneys and the steady state behaviour of the cell.

Computers, though extremely expensive to develop and install, may be used to carry out biological and physiological analysis cheaply and quickly. It may be possible in the future, using such models, to predict the effects of various treatments upon a patient; thus they could prove very valuable in diagnosis and surgery. Mathematical and computer models have been successfully applied in the field of drug design. Indeed, digital computers and mathematical techniques can greatly improve opportunities for accurately defining pharmacokinetic parameters. Prediction of optimal drug regimens using these systems lies in the future. Highly sophisticated analytical techniques employing computers would not eliminate the use of animals in the early stages of drug development and testing, but

95. An excellent reference to the current state of development is C.M. Newton in The Future of Animals, Cells, Models and Systems in Research, Development, Education and Testing (N.A.S. Washington, 1977), 152-164

could reduce their usage by effecting a reduction in wasteful hit and miss screening techniques.

Computers in Teaching

One interesting application, has been the use of computer models in medical education. This carries the double advantage of obviating the need to use animals while at the same time introducing young students to computer techniques. An excellent example is Myrna, a digital computer used for the teaching of medical students at McMaster University, Canada. Myrna was devised both to aid the efficiency of medical training and to eliminate the need for killing animals. It can be programmed to simulate four systems; MacMan which models the heart and circulatory system, MacPuff the lungs and respiratory system, MacDope, which tests the action and interaction of drugs and MacPee, which models kidney function.

The system provides a practical extension of what the student learns in theory, he is able for example, actually to "treat" the "patient" for a heart attack, and to make a fatal mistake without dire consequences. The computer will even make comments which would be typical of a patient in the given situation. The value of such a system is that the student is working with real values which are found in humans, and the experiment is always successful in that even if the student makes mistakes he will learn something from it. So far this system has only been employed in Canada, where it is becoming more widely used, and at St. Bartholemew's Hospital where one of it's originators now works. It is probable that the lack of enthusiasm towards adopting such schemes is largely due to conservatism and to lack of appropriate knowledge and facilities.

There have been a number of other instances where the employment of computers as teaching aids have been described. For example at Pittsburgh University the use of dogs and cats for instructing students in drug administration has been replaced by a computer which can simulate disease symptoms. When fed with information relating to the drug parameters the machine plots out the patients reaction and also gives some indication how long toxic build-ups would take. Parameters such as extrasensitivity can also be put in. A much simpler, and yet an extremely valuable teaching aid is a neurophysical wave form generator which simulates with reasonable accuracy the six main classes of nerve effect studied in second year physiology courses. The inexpensive device (it costs less than £5) prevents the unnecessary killing of animals while eliminating unpredictability in results.

Dummies, Models and Manikins

Some of the most distressing and arguably unjustifiable experiments which have been carried out are those involving the mutilation of conscious animals, for example in the testing of weapons and the effects of car crashes and fire. The public outcry against such experiments has been heightened by the fact that it has usually been considered necessary to employ those species most closely resembling man (physically) in such tests. Large primates and sometimes bears have been popular in car crash tests. One of the arguments put forward in favour of using live animals is that a dummy is "floppy" and does not take characteristic avoidance action. However, the animals used are usually drugged so that their response is abnormal, in addition their shape and structure is significantly different from that of man. Animals have not been used in crash tests in Britain but they have been used extensively in the U.S.A. and it is here that the first dummies for use in such tests were developed. The structure and capabilities

of these models is extremely complex. In some, anatomical structures such as a fractured skull in addition to "flesh" and "muscle" which will indicate lacerative damage have been simulated. Dummies based upon the human structure can provide the most valuable information in crash tests; enabling the study of whole-body kinematics, effects of restraining belts and impacts with various parts of the car interior. Work has also been underway for a number of years on improving physical models of the human head which will provide information on various types of head injury and will be useful in such projects as effective crash helmet design.

Computers have been used for the simulation of car crashes. In some cases this has been integrated with the employment of dummies. In contrast to the enormous cost and time expenditure involved in actually producing a car crash, the accident can be rapidly and accurately simulated on a computer for as little as \$20. The method can be used to interpret and correlate results from a limited number of actual tests. Such programmes are playing an increasingly important part in highway safety research in the U.S.A. Graphic displays may be added to the system so that researchers are able to see what is happening during the crash. In the instances where information from dummies is fed into the program the workers can discern what will happen to the occupants as well as to the vehicles.

In order to obtain information on skin damage due to burning, without mutilating living animals, the U.S. Air Force has designed a manikin - "Thermoman". This model has enabled the testing of fire repellants and fire - retarding fabrics; it also enables complete and accurate measurements to be made on short-term burn damage assessment

and long term thermal fatigue effects, and to evaluate clothing for exposure to extreme cold and heat.

Even more impressive has been the development (again in America) of the "Plastic Man". This model is the first in a series and has an instrumented head and chest which allow it to respond to various stresses imposed during surgical operations. It was developed for the instruction of students in techniques of anaesthetisation. If it can be further modified and elaborated to resemble the human being more nearly, then the scope in future teaching and research would seem to be very great.

The use of mathematical and computer modelling is one technique which may not only alter the scientist's daily routine and improve the accuracy of his results, it may also change his fundamental approach to research. Biology is an imprecise science producing imprecise data, but the application of mathematical techniques to this data does provide the scientist with a precise means of dealing with it.

The change in approach which may be effected has been illustrated by the following example.⁹⁶ The traditional biologist wishing to measure

96. Geoff Watts, "Programming out the Guinea Pig", World Medicine 8 (1973), 17-24.

the rate of transport of an isotope-labelled drug into the brain, and its subsequent leakage, would probably anaesthetise the animal, open it, cannulate the arteries to and from the brain and then monitor the quantities of drug entering and leaving it. A biologist who first constructed a mathematical model might simply monitor the drug's build-up in the brain using a scintillation counter held against the animal's head. The curve of radioactivity plotted as a function of time would show him the drug's characteristic accumulation pattern. He would then refer to his original mathematical model which would be in the form of a differential equation relating the rate of change of drug concentration in the blood to the original dose and the various transport constants. The computer would be used to juggle the values of these constants until the curve they described correlated with that drawn from the experimental results. Those values yielding the best fitting curve would correspond to rates of entry and leakage of drug from the brain. If the computer could not generate a matching curve it would mean that the original hypothesis was wrong and other factors would have to be brought into the equation. Both experiments involve the use of an animal, the second would not involve it's death.

Once models are established they can be built upon and used both to reduce the number of experiments carried out and to increase the efficiency of those remaining. The classical approach to a problem presenting a number of variables, following the methodology of Bernard,⁹⁷ is to examine them one by one with a series of experiments for each variable. A computer enables the researcher to change all the variables at once, thus

97. See Chapter V, 289-291.

reducing the number of experiments while also saving himself time and increasing the efficiency of his results.

The integration of mathematical description and computer simulations into experimental work would not, however, replace the use of animals. Animal experiments are still needed to determine variables and inter-relations needed initially to construct the model. In addition, life processes are so complex that even the most powerful computer must simplify them in order to make predictions. One critical experiment (as opposed to a whole series if a computer had not been used) may then be needed to verify that the predictions are correct for the overall system. Moreover, the very act of modelling points the way to new research. A model which is only a crude approximation to reality will provide a well-defined basepoint from which to build new hypotheses and to design new experiments.

In addition to the economic problems, one of the greatest obstacles to the adoption of computer techniques in biomedicine is that biologists are simply not equipped with the necessary mathematical skills to employ them. It has been noted, however, that the convergence of mathematics, physics and engineering upon the study of living systems is a historic necessity stemming from general advances in scientific knowledge. Dow has pointed out⁹⁸ that three epochal achievements - demonstration of biological coding in the physical structure of D N A (Watson and Crick, 1953), mathematical formalisation of homeostasis by cybernetics (Weiner, 1948) and

98. J.W. Dow, "Training in Bioengineering and Biomathematics", in the Forth Annual Symposium on Biomathematics and Computer Science in the Life Sciences, Houston 1966. (Offprint, Frame Information Centre).

the enunciation of a set of principles of organization for general purpose digital computers including a stored program concept, which enabled them to operate by logical deduction (Newman, 1945) - have together effected a unification of biology, physics, and chemistry at the molecular level. This having been achieved, it seems likely that engineers and computer scientists will be better armed than the biologist to make future breakthroughs in the most fundamental studies of life processes. Indeed, it is likely that many of the remaining problems in biology and medicine will not be solved without the aid of mathematical techniques and bioengineering. In any case, as science moves into the computer age, it will be essential for scientists in every discipline to be conversant with these powerful techniques. When that occurs their full potential might be realised.⁹⁹

99. Since this section is entirely speculative, references have been largely omitted. Most of the background information used for this section was taken from papers housed at the F.R.A.M.E. Information Centre.

Conclusion - "Refinement, Reduction and Replacement" -

Present and Future Prospects.

When Russell and Burch introduced the concept of the "3-R's" in 1959, they envisaged a reduction in animal suffering which could be brought about by refinement of laboratory techniques, adoption of more humane methods and the total replacement of animals by non-sentient material where this was feasible. Prospects for replacement are certainly greater now than in 1959, but the full potential for reduction of suffering, even as envisaged by Russell and Burch, has yet to be realised. A brief contemporary interpretation of present and future potential is given here.

Refinement.

Russell and Burch concluded that both contingent and direct inhumanity occurred in laboratories; the latter when an experimental procedure necessarily involved suffering, the former as a result of carelessness or inadequate skill on the part of technicians and experimenters.

There is scope for still greater refinement of techniques by which direct inhumanity can be reduced. It has already been shown that the practical guidance made available by U.F.A.W. and the ethical guidelines set down by bodies such as the M.R.C. and the Royal Society of Surgeons has enabled some progress in this direction. There is room for considerable improvement in the field of laboratory animal husbandry.¹⁰⁰

100. See Chapter IV, Section 4.

Contingent inhumanity can certainly be reduced by better training of laboratory technicians and research workers. A more enlightened attitude towards the needs and care of laboratory animals should be fostered at an early stage, beginning in the schools. Licensees should be required to undergo some specialised practical and ethical training and this should possibly be brought about through a government training scheme. Such a suggestion would, no doubt, meet with resistance inside the scientific community. One major scientific publisher recently circulated all of its life science journals suggesting that they include a section in their "instructions to the author" about humane care and treatment of animals. The response was overwhelmingly negative with some editors virtually telling the publisher to mind its own affairs.¹⁰¹ A number of such stories have convinced F.R.A.M.E. that there is less enthusiasm concerning animal care and "alternatives" than many scientific spokesmen would have everyone believe.

However, one College has recently made an attempt to offer a short training course, with considerable success. In March 1977 a one week course was provided by the Biology Department of the North East Surrey College of Technology. Lectures were given by specialists including representatives of the College, the Home Office, the M.R.C. and F.R.A.M.E. Topics covered included, general husbandry, legal and ethical aspects and the use of "alternatives".

The course was repeated in December 1977 and April 1978.¹⁰² One

101. Personal communication with A.N. Rowan of F.R.A.M.E.

102. See Atla Abstracts, 5(2)(1977), 6.

major obstacle to the provision of Government training schemes and refresher courses might be the cost of instituting them. This could possibly be offset by charging a small fee for the basic licence and by directing a proportion of government funding for research.

Reduction.

Reduction in animal usage may be effected both by decreasing the number of animals used in research programmes (as will be effected by refinement and replacement) and, perhaps more significantly, by actually reducing the level of animal experimentation and research.

It has already been shown that large numbers of animals are expended unnecessarily in poorly designed and outdated toxicity tests. A more rational approach was recently discussed by A.N. Rowan and myself¹⁰³ when we drew attention to a scheme put forward by one group of authors¹⁰⁴ proposing that a team of experts (including toxicologists, pharmacologists and scientists in other relevant disciplines) be established to evaluate existing technology and to identify a battery of the most predictive screening tests including in vitro systems, animal models and chemical behaviour. The original authors had estimated that such a scheme could cut costs by a factor of ten and testing time by a factor of five with little or no sacrifice in safety since most of the in vitro tests tend to err on the side of false positives. They concluded:

103. A.N. Rowan and J.E. Hampson, "Alternatives to the Use of Animals in Toxicity Testing", SCRIP Pharmaceutical News, April 30(1977), 20-21.

104. I. Muul, A.F. Hegyeli and J.C. Dacre, "Toxicology Testing Dilemma", Science 193(1977), 834.

given this fact, it should be possible to regulate the production and sale of 'non-essential' items on the basis of results from the battery of in vitro screens alone.

In view of the encouraging results so far obtained in the field of carcinogenicity screening there would appear to be no reason why specific in vitro models could not be developed for a number of basic cell functions. U.F.A.W. has suggested that since carcinogenicity seems to be one of the most important parameters by which new compounds are rejected, much toxicity testing might be eliminated as a result of performing carcinogenicity screens at the outset of the testing protocol.¹⁰⁵

Reduction can be brought about in many fields by increasing the precision of experimental techniques so as to make the results statistically more meaningful.

A study¹⁰⁶ carried out on behalf of the Humane Society of the U.S.A. analysed a sample of American articles, selected from Index Medicus for 1961, with regard to the statistical design of those experiments involving animals. It attempted to determine whether better design would have produced a reduction in the number of animals employed without detracting from the validity of the results. From the selection of papers complete enough to analyse (173 in all), it was concluded that in 74.6% of cases, proper employment of statistical design could have resulted in a considerable reduction of animal expenditure with no loss of statistical significance in the results. The survey judged that in only 4% of cases had the experiments been both well-designed and the results well-analysed. The

105. Evidence of U.FAW to H.O. Advisory Committee, UFAW Annual Report, 1977.

106. "Animals in Research, - A Survey Submitted to the Humane Society of the U.S.A. by Statistical Research Analysts", (reprint 1962,) in F.R.A.M.E. Centre Collection.

overall estimate was that at least 23% of the animals employed (but no more than 40%) might have been saved by the use of better statistical methods. These conclusions may well apply to many British experiments. Indeed, the Littlewood Committee concluded that a degree (though it was not excessive) of unnecessary wastage did occur in British laboratories and it recommended that laboratory authorities should arrange for statistical advice to be made available in all laboratories.¹⁰⁷

A reduction in animal usage in most fields is effected by the employment of specially bred disease free and genetically standardised laboratory animals. The great wastage of primates which has occurred has already been discussed and it should be pointed out that, despite the Accreditation Schemes set up by the M.R.C., a number of laboratories do still attempt to cut costs by purchasing cheap animals of unknown origin, often with detrimental results to the laboratory's work.¹⁰⁸ In addition, laboratory bred animals of some species are not available in sufficient numbers. There is scope for greater Government incentive and assistance in this area.

Reduction effected by a decrease in certain types of experimental research is now vigorously sought by the reformist movement, and, as seen from the discussions in chapter IV, this would involve the exertion of some sort of ethical control which would restrict legitimate experimentation to that conducted with a view to providing real benefit to human and animal welfare. As already shown, it would be difficult to impose this

107. Littlewood, para. 259.

108. See Michael Festing, geneticist at the M.R.C. L.A.C., "Bad Animals Mean Bad Science", New Scientist 73(1977) 130-131.

control from outside the scientific community itself. It demands a fundamental change in attitude and a reappraisal of the importance of the work, set against the value of animal life. We have seen that animal experiments may be carried out for trivial reasons. Research may be conducted simply with a view to publishing more papers and thus greater recognition, it may be repetitious, resulting in an unnecessary duplication of data. Potentially valuable data may be buried in obscure journals and never applied, and thus it is a waste of effort and animals. Some of these problems can be obliterated by the development of more comprehensive and efficient methods of literature searching and analysis of data across the disciplines. F.R.A.M.E. believes that if more time and effort were devoted to scanning the available literature in this way (especially inter-disciplinary studies) new concepts might be developed and, at the very least, critical areas of research requiring further work would be better defined. At the same time the pressure to publish should be alleviated and the emphasis placed upon the quality rather than the quantity of data produced.

These comments may be applied not only to 'pure' research but also to that with direct medical applications. In the drug industry, for example, far too great a proportion of resources is directed into the development of "me too" drugs which result in no benefit to the health of the community, rather the converse, this massive investment of time, money and animals is leading to a greatly increased incidence of iatrogenic disease. Some measures should be taken to deter the endless proliferation of non-essential medicaments and to promote the development of much needed (though far less profitable) effective treatments for serious disorders. It has been suggested that a countervailing force needs to be established

to challenge the power of the multi-national drug companies.¹⁰⁹ This can perhaps only be effected by the medical profession itself. Greater Government incentive into environmental health should also be forthcoming. For example, it is ironic that so little effort is directed into combatting environmentally-induced cancer by elimination of non-essential harmful chemicals, while at the same time great resources are directed into carcinogenicity testing of still more new chemicals and most research effort is directed into looking for "cures" and new anti-cancer drugs.

A vast reduction in animal expenditure and a considerable improvement in public health could no doubt be effected if society were to adopt a more rational approach to its medical and environmental problems. The example of toxicity testing, which has now become an industry in its own right, has clearly illustrated this point. There can surely be little justification for the introduction into the environment of any new and dangerous chemical which demonstrates no clear advantage over those already in existence. The health of the community might be better served by less concentration on medical research and a greater direction of effort and resources into environmental health.

Replacement

In this chapter, most of the discussion has been directed towards consideration of alternatives which provide whole or partial replacements to experimental animals and it has been intimated that such alternatives are not validated and adopted as quickly as they might be.

109. A.Klass, There's Gold in Them Thar Pills (London 1975) and Vernon Coleman, Paper Doctors - A Critical Assessment of Medical Research (London, 1977).

Development of alternatives is hampered by a number of factors, not least the conservatism of the scientific community as a whole. There is evidence that the animal is often used not because it is the best system for the job, but because it is the easiest.¹¹⁰

In addition to innate conservatism, there are a number of practical consequences arising from the long-established use of animals in the laboratory. The research scientist is likely to have easy access to an animal house and to the necessary equipment to employ animals, while he may not have at his disposal the facilities required for in vitro work and the laboratory is almost certain to lack computer/facilities. More importantly, the overheads of the animal house are borne by the research department so that the research worker using an animal will have to pay only for the animals' production costs, while a worker employing in vitro techniques will have to pay all the costs (except the provision of a room) out of his own grant.¹¹¹ Further, because of increasing specialisation, the research worker may simply not know of an alternative technique which is applicable to his own work. It has been claimed that this is not the case, and that even if the scientist is not able to keep up with the growing volume of literature in his field, he will receive all the necessary information through colleagues and by attendance at symposia. This would seem to be an over-optimistic outlook, and it is noteworthy that in its opposition to Houghton's Cruelty to Animals (Amendment) Bill 1973¹¹² the R.D.S. made the point that one of the

110. See A.N. Rowan's review of the N.A.S.(Washington) symposium 1977, "The Future of Animals, Cells, Models and Systems in Research, Development, Education and Testing", Atla Abstracts 5(2)(1977), 6-8.

111. T.W.Hegarty and A.N. Rowan, "Comments on the Paper 'The Ethics of Animal Experimentation' by W.Lane Pettor" J.Med.Ethics 2(3)(1976), 122-124.

112. See Table III in Chapter III.

reasons that it would not be possible to enforce the employment of alternatives by law was that there would be cases:

Where an alternative method exists, but happens not to be known about by the investigator. Present scientific literature is very extensive; and it is only too likely that an investigator will not know all that is done even in a narrow field. 113

As already seen in chapter VI, F.R.A.M.E. founded Atla Abstracts partly for this reason, though at present it cannot operate fully as an information retrieval system. Neither can existing data retrieval systems provide such a service. The National lending library is able to respond only to requests dealing with known authors and titles; it cannot provide information relating to specific subjects.

Present abstracting and indexing services are designed for the particular needs of subject specialists and again rely upon the enquirer already having some knowledge of what he is searching for. They cannot draw attention to papers outside the inquirer's field which may prove useful. No computer information retrieval system has been shown to operate efficiently in this way since papers are not key-worded for "replacement" potential; nor can the Science Citation Index cope with the heading "alternatives". Scanning of papers clearly must be done across the disciplines if the full potential of alternatives is to be uncovered, and it must be done by individual abstractors. What is really needed is a clearing house for the subject of alternatives which would automatically be sent copies of papers by the authors themselves, and could file them according to replacement potential in the relevant fields. This would surely have to be done on a national scale and with Government support.

113. R.D.S. Letter circulated to all members on 4 Jun.1973. (The first italics are mine)

In order to overcome the lack of initiative and skill required for the greater employment of alternatives it is essential that future research workers be introduced to the concept and techniques at an early stage in their training. Culture techniques, like much animal work, require a high degree of precision and skill but the research worker is likely to be given much more extensive training in non-animal techniques at the present time. This problem, as already mentioned, is much more acute in the fields of biomathematics, biostatistics and computer technology. Since most biologists lack these skills there would seem to be a need for greater inter-disciplinary co-operation, perhaps involving the setting up of research teams including experts in several fields. F.R.A.M.E. would like to see bursaries awarded to trained biologists in order that they may take extra training in mathematical and computer techniques. Systems could perhaps be initiated whereby several research establishments could share a computer. Similarly, provision is needed for better access to culture materials. F.R.A.M.E. has suggested the establishment of a National Tissue Bank which could be responsible for storing rare cell strains and lines, developing and standardising new cell types, improving methods of characterisation and culture, making culture material generally and rapidly available where needed¹¹⁴ and providing much needed expertise and advice.

Obviously all of these measures could only be developed if sufficient funds were made available. It has already been pointed out that no government initiative has yet been forthcoming but that there have recently been more hopeful indications.¹¹⁵ Development and further validation of

114. A.N. Rowan "Alternatives to Laboratory Animals in Biomedical Programmes", Animal Regulation Studies, 1(1977), 103-208.

115. See Chapter IV, 238.

of alternative techniques will also require extensive financial support. It has been shown that charitable Trusts have already played a considerable role but these funds are limited. While considerable impetus has already been forthcoming from the commercial sector it is unlikely that firms will spend large amounts on the development of new techniques which are likely to benefit competitors. It is noteworthy that the Bruce Ames Carcinogenicity screen was developed in a University.

What then are the possibilities and limitations for the development and adoption of "alternatives"? A.N. Rowan has concluded:

No-one can claim that alternative concepts have received adequate support, and indeed many regulations mitigate against their development.¹¹⁶

In July, 1976, F.R.A.M.E. drew up a five point plan for speeding progress in the field of alternatives:

1. Dissemination of information, e.g. via Atla Abstracts
2. Education of biology students in the concept of alternatives and relevant techniques
3. Establishment of tissue banks and facilities for easier access to computers
4. Revision of toxicity testing protocols
5. Redirection of a proportion of research funds into projects developing in vitro methods

If all these steps were taken it is certain that alternative techniques could be more extensively developed and adopted and that a considerable saving in animal expenditure could be effected. It is necessary also to bear in mind the limitations of alternatives. As one research worker has summarised:

The rational position is that we need to exploit all possible methods in order to understand and overcome the diseases which still reduce the quality and length of human life and in order to protect our

116. For further elaboration of this see A.N. Rowan, "Alternatives to Laboratory Animals in Biomedical Programmes", Animal Regulation Studies 1 (1977), 103-128.

environment from the effects of our own activities. The most appropriate method for one purpose will be totally inappropriate, and even dangerously misleading, when applied to another. The complementary methods offer different advantages and suffer from different disadvantages, so they should all be used, together with the minimum amount of live animal experimentation, in our efforts to defeat the problems facing us. 117

Surveys conducted among practising scientists have illustrated the general view that alternative techniques must be seen as supplementary to animal experiments. In one such survey, conducted by the Crusade Against All Cruelty to Animals¹¹⁸ and commended by the R.D.S., such a conclusion was unanimous. Almost every researcher who took part agreed that claims being made (presumably by AV societies) for replacement of animals by alternatives were exaggerated. This is no doubt true, though the potential for alternatives estimated by research workers in this survey would seem to err too far in the direction of conservatism.

The attitude adopted by the Crusade's President, Michael Fryer, is commendable. Little comment was made upon the replies except to state that the sole purpose of the enquiry had been to establish:

the true position regarding replacement in relation to the current and future use of laboratory animals.

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117. Michael Balls, Department of Human Morphology, University of Nottingham Medical School, "Alternatives' to Living Animals in Medical Experiments: Towards a Rational View of Current Status and Future Prospects", Atla Abstracts, 5(1)(1977), 16.
118. The Crusade was founded by Michael Fryer in 1955 as a branch of the Humane Education Centre, with the aims of preventing all forms of cruelty to animals, advancing public education in humane treatment of animals and promoting more humane and ethical standards of behaviour in relation to the animal world. In order to ascertain the true potential of alternatives the president wrote to the directors of more than one hundred leading laboratories including M.R.C., government laboratories, public health laboratories, hospitals, university and veterinary laboratories. Extracts from the replies were published in the Crusade's journal the Living World, 1(6) 1972.

Fryer concluded:

"while I realise this clarification of the position will be a great disappointment to some, nevertheless I cannot stress too strongly that we do our cause more good - whatever the aspect under consideration - by facing the facts squarely."

Some over-optimistic antivivisectionists should perhaps take note of this realistic attitude. At the same time many scientists might show more initiative and imagination. W. Lane-Petter has suggested that before any researcher employs an animal he should ask himself the following questions:-

1. Is the animal the best experimental system for the problem?
2. Must the animal be conscious at any time throughout the experiment?
3. Can pain or discomfort associated with the experiment be lessened or eliminated?
4. Could the number of animals used be reduced?
5. Is the problem worth solving anyhow? 119

If these questions were always asked, and truthfully answered, there might be a far greater saving of laboratory animals.

119. W. Lane-Petter, "The Place and Importance of the Experimental Animal in Medicine Today", Proc. Roy. Soc. Med., 65(1972), 344.

CHAPTER VIII

CONCLUSION - THE IMPORTANCE OF

THE ANIMAL RIGHTS CONCEPT

The central tenet of this thesis has been that every effort should be made to reduce the level of animal experimentation, and the degree of suffering inflicted in laboratories, to the absolute minimum. A number of suggestions have been made of ways in which this might be effected at the present time, and it has been argued that a considerable reduction, both in numbers and suffering, could be achieved without detriment to the practice of science or medicine. This is my firm conviction; and it is also the conviction of those moderates within the reformist movement who are not antivivisectionists.

To summarise, this reduction could be achieved by exercising stricter control over purposes for which experiments are licensed, by adopting a more rational approach to the introduction of new chemicals and the establishment of their safety, by further developing, validating, and adopting "alternatives", and by fostering a deeper concern and a more questioning attitude among workers inside laboratories.

If this argument is accepted, if this reduction could be achieved, then there is one obvious question still to be answered: why is it not? I believe that the main reason is simply that animals are not regarded, either by most research workers, by government, or by society at large, as sufficiently important to merit the time, effort and financial expenditure which would be involved in effecting such a reduction. The research worker feels that his exploitation of laboratory animals is

justified, government and the public take for it: There the question rests.

I find it impossible to believe that the majority of researchers really ask themselves the searching questions suggested by Dr. Lane-Petter, with which I concluded chapter VII, before ever embarking upon a piece of experimental work. I cannot acknowledge that they do this, and at the same time accept the extensive list of experiments, in research and in the field of commercial enterprise, which moderate reformists and those scientists who are openly interested in the subject, find difficult to justify. The key to the whole issue is the value which we, as human beings, place upon the lives not only of laboratory animals but of animals in general. This being the case, this thesis cannot be concluded without some consideration of the animal rights movement.

Most people accept, often without question, that man may justifiably kill and otherwise exploit other animals, not only to satisfy his true needs but to satisfy his wants and desires. Animals are not generally considered to be possessors of moral rights, neither are human obligations towards them usually extended much further than the credo that we should not cause them "unnecessary" suffering. This last statement, which few people would disagree with, is almost meaningless as a general guideline for ethical conduct, since the term "necessary" may be defined in a multitude of ways and applied so as to justify a multitude of "sins". Meat-eaters maintain that it is "necessary" to kill animals for food, while it patently is not strictly necessary for the health and continued survival of mankind, at least in the western world; some apologists have even maintained that it is "necessary" to cruelly trap rare fur-bearing animals, putting forward

all kinds of spurious claims based, for example, on the livelihood of the trappers. It is therefore hardly surprising to find some scientists and regulatory bodies insisting that it is "necessary" to force feed-animals to death with cosmetics.

I should point out at this juncture that I do not subscribe personally to the tenet that we should simply endeavour to cause no "unnecessary" suffering to animals and that, as moral beings, this is all we need bother to do. The very basic question of animal rights merits some deeper consideration. Were we to accept that animals are possessors of moral rights then animal experimentation per se along with all other forms of animal exploitation for the fulfilment of human requirements, is indeed open to question. However, in this thesis I have not addressed myself to these ethical issues, but simply to the practical question of a reduction in usage and suffering which could, and should, be achieved immediately. This, I believe, is the first priority, and one which can be attended to without any general acceptance of a universal code of moral behaviour towards animals. Such a code is not generally accepted in our society at the present time, and I believe that confusion of the practical approach by consideration of the ethical issues, leads only to sterile controversy between two diametrically opposed viewpoints (the ethical and the utilitarian).

This will not necessarily always be the case. Ethical values are not static; they change in different climes and epochs, and some future society may well outlaw the attitude towards animals which we currently accept, in the same way that we have already outlawed slavery, and are seeking to outlaw inequality towards those groups of human beings who are presently oppressed for political or economic reasons. For the sake of historical

completeness it is therefore pertinent to note the current emergence of the animal rights movement.

The concept of animal rights is not new, neither is it easily definable. It has been postulated in almost every age by philosophers who have been out of step with the moral consensus of their time, and it has been interpreted in a wide variety of ways. The debate certainly dates back at least to Aristotle.

Some philosophers have argued that animals, possessing no rationality or self-awareness, can have no natural rights but that we, as moral beings, have moral duties, or at least obligations towards them. One such duty, owed by virtue of their sentience, is to spare them "unnecessary" suffering. This is the view upon which the legal rights of animals in Britain, dating back to Martin's Act (1882), are based.

Much of the debate which is currently raging centres around the very nature of what animals are. It certainly can no longer be accepted that no species other than man possess self-awareness, rationality or language.¹ Two species at least have even exhibited a capacity to communicate across the species barrier, with man, in a rational and meaningful way.² These studies merit much further development, but the early indications certainly cannot be ignored. If rationality and self-awareness are criteria upon which beings possess natural rights, then certainly some species other than man must possess them; conversely some members of our own species (such as mental defectives) do not. If we prefer to speak of human rights (and not all philosophers agree that acceptance of the former implies existence of the latter) it is impossible to see upon what moral criteria we can

1. See Michael Fox, Between Animal and Man (London, 1977).

2. For example see J.C. Lilly, The Mind of the Dolphin - A Non-Human Intelligence (New York, 1967) and E. Linden, Apes, Men, and Language (London 1971).

logically justify our treatment of other species while at the same time accepting duties toward weaker members of our own. The philosophical issues involved in this whole controversy of animal rights are far too complex to be considered here, and they have already been discussed in detail by a number of authors.³ It is more relevant here to consider the impetus which the animal rights movement has recently gained, and to speculate as to what impact it might eventually have upon attitudes towards animal experimentation.

Current debate of the issue seems to date back to around 1970 when Richard Ryder first coined the term "speciesism" to describe man's prejudice against other species, which he believes to have no more logical basis than the prejudices of racism or sexism. Ryder clearly is seeing the animal as an end in itself. Our treatment of it ought not be guided by consideration of the ends to be gained by any being other than it:

The boundaries of the universe for all sentient beings are surely the boundaries of our individual consciousness, and to make a hell out of one consciousness is to make one universe a hell.⁴

1971 Saw the publication of Animals, Men and Morals, a collection of essays in which various authors debated the realities supposedly justified

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3. See S. and R. Godlovitch and J. Harris, (Eds.) Animals, Men, and Morals (London, 1971); T. Regan and P. Singer, (Eds.) Animal Rights and Human Obligations, (London, 1976); P. Singer, Animal Liberation (London, 1976); A. Linzey, Animal Rights London, 1976; S. R. L. Clark The Moral Status of Animals (Oxford, 1977).
 4. R. D. Ryder, Speciesism The Ethics of Vivisection, S.S.P.V. pamphlet 1974. (His Italics).

by our "speciesist" prejudices, such as factory farming, fur and cosmetics, animal experimentation, and also the wider issues of animals' moral rights and human duties. From this point on the whole movement seems to have gained considerable ground: the years 1976 and 1977 witnessed the publication of no less than five serious works on this subject in England alone. In 1977 the R.S.P.C.A. organised a symposium on the subject of Animal Rights which was held at the University of Cambridge. This must surely be regarded as a major and very significant event in the history of the animal welfare movement. Following as it did in the aftermath of Animal Welfare Year, it provided an opportunity for reformists to assess their past achievements, reappraise tactics and call for unity. Unity of purpose and action on an international level was exemplified in the resolve, passed at the meeting that the entire British animal welfare movement would pledge itself to support the Swiss Animal Welfare lobby in its efforts to secure the banning of battery cages for laying hens. The various groups also decided to take action in Britain upon one issue about which all could agree; it was decided that every effort would be made to secure better transportation facilities for farm animals. In addition to these practical aspects, the symposium provided a forum for serious and informed philosophical debate. It also served to mark the central role which the R.S.P.C.A. is now assuming in the British animal welfare movement. This meeting was presented with a charter of animal rights, drafted by Richard Ryder, which was signed by most of the speakers and other persons present, and subsequently by Peter Singer and his colleagues in Australia and by Richard Adams, author of Watership Down and The Plague Dogs. The charter, which was the first of its kind, was afforded considerable publicity.⁵

5. See, for example, Times 20 Aug. 1977.

A Declaration Against Speciesism

Insomuch as we believe that there is ample evidence that many other species are capable of feeling, we condemn totally the infliction of suffering upon our brother animals, and the curtailment of their enjoyment, unless it be necessary for their own individual benefit.

We do not accept that a difference in species alone, any more than a difference in race, can justify wanton exploitation or oppression in the name of science or sport, or for food, commercial profit or other human gain.

We believe in the evolutionary and moral kinship of all animals and we declare our belief that all sentient creatures have a right to life, liberty and the quest for happiness.

We call for protection of these rights.

It is obvious that anyone who wholly endorses the precepts of this charter must commit themselves to veganism. Furthermore, acceptance of it as a universal and inviolable moral code could easily lead to reductio ad absurdum. It is impossible to see how domestic pets could suddenly be granted unrestricted licence to liberty and their quest for happiness without dire consequences. Nor would it be possible for the conservationist or the animal experimentalist to uphold this charter, though this is not to say that it is entirely meaningless for them. To say that I should not kill, or that I acknowledge killing to be wrong, is not to say that there can be no circumstance where necessity would not drive me (regretfully) to kill, or that in certain instances, where not to kill would result in a far greater evil than the killing itself, I might not be totally justified in performing the act. However, to accept that such instances might arise, and therefore to acknowledge that I could not always uphold this charter, is not an excuse for allowing myself unrestricted licence to kill whenever I feel like it.

What the charter provides is a simple ethical code which sets out guidelines for a reappraisal of our moral attitude towards animals. As such

it can serve as a unifying force for the animal welfare movement. It is a code which everyone deeply interested in the issues, regardless of their differences, can bear in mind and attempt to aspire to. These basic precepts have been amplified in a "Universal Declaration for the Rights of Animals" which was drawn up by the International League for Animal Rights, founded in Geneva in 1977.⁶ 1978 has been designated World Animal Rights Year.

Clearly, the battle for the recognition of animal rights, now a worldwide movement, is a driving force which should not be ignored in the consideration of any aspect of animal welfare. At this point I have to admit that I have not thoroughly formulated my standpoint on the issue of animal rights. It is a complex issue which must be considered in great depth and over a considerable time period. I am prepared to accept that animals must in general be considered as possessors of certain fundamental rights, if only because we, as moral beings must, acknowledge certain obligations towards them. I am not yet prepared to make a definitive statement as to how extensive those rights and obligations are.

This position which I am at present adopting is broadly the one taken by society as a whole. We acknowledge certain obligations but we have no universally accepted code of ethics, we have only guidelines and as individuals we differ in our interpretation of them.

As a general guideline I believe that the Schweitzarian principle of "reverence for all life" is a good one. Albert Schweitzer himself described this ethic as a "trifle unreal" but this is not to diminish its value as a guiding principle; moreover, it enables us to see the concept of animal life in its wider context. It can lead to the adoption of a code of conduct guided not only by reverence for sentient life, but for non-sentient

6. See Appendix IV.

life also ; for entire ecosystems, with which man must surely learn to live in greater harmony, not only for his own moral and physical benefit, but for the benefit of the entire planet.

Many of those who adopt rigid attitudes towards animal rights are in conflict with the concept of conservation. The individual is sacred and cannot be sacrificed for the good of the community. This, I believe, is an unrealistic view. Suffering apart, many non-sentient beings and natural structures have as much claim to our consideration and protection as do sentient creatures.⁷ The diversity of the earth is not only the heritage of our children, but of the offspring of all species. It may be true that when the last whale has been eliminated from the face of the planet the suffering of whales will have ended. Nevertheless, while it is our duty to put a stop to the infliction of suffering by man, it is also our duty to preserve species and ecosystems. It is perhaps our paramount duty, and consideration of individual rights may have to be subordinated to it.

Thus if we adopt Schweitzerian principle as a guideline, it need not preclude us from killing from necessity. However, if taken seriously, it does impose upon us a moral duty to consider very carefully our interpretation of the word "necessity" and to weigh each case upon its merits.

What is the significance of all this for animal experimentation ? I do not doubt the necessity of conducting some animal experiments if we are to further the progress of medical and veterinary science. Neither do I believe this justification to be trivial, though many experiments are justified for trivial reasons. The ethical standpoint of an animal

7. See Christopher D.Stone, Should Trees Have Standing - Toward Legal Rights for Natural Objects (W.Kaufmann, California 1974).

experimenter who eats no meat is a far stronger one than that of an antivivisectionist meat eater, and there is still a number of the latter.

As Schweitzer himself put it :

Those who test operations or drugs on animals, or who inoculate them with disease so that they may be able to help human beings by means of the results obtained, ought never to rest satisfied with the general idea that their dreadful doings are performed in pursuit of a worthy aim. It is their duty to ponder in every separate case whether it is really and truly necessary to sacrifice an animal for humanity. 8

While we continue to struggle with our ethical values we should seek practical action to eliminate as much of the unnecessary killing and sacrifice of animals as we can. The significance of the animals rights movement for the future of animal experimentation is that the movement is setting a moral standard. If anything approaching that standard becomes more generally adopted then experimentalists of the future must surely come to question their motivations and obligations to the animals they employ more closely. This, in itself, could effect a great reduction in experimentation. A deeper consideration of the welfare of animals in general might well be fostered by the setting up of a Ministry for Animals in Britain and it is noteworthy that Lord Houghton is planing to "put animals into politics" in 1978.

In, conclusion, society might always accept the "necessity" of a certain degree of animal experimentation but it should not do so lightly. No animal should be regarded as a mere experimental "tool". When we "sacrifice" it, we should do so with deep thought, with humility and always, with regret.

8. Albert Schweitzer "The Ethic of Reverence for Life" Regan and Singer (Eds) in Animal Rights and Obligations (London 1976), *my italics*.

APPENDIX I

The Cruelty to Animals
Act, 39 & 40 Victoria Chapter 77 1876

(With footnotes illustrating the most important amendments made to the Government Bill (15 May 1876) as originally presented by Lord Carnarvon).

An Act to amend the Law relating to Cruelty to Animals¹ (15th August 1876).

Northern Ireland. This Act applies.

1. Short title

This Act may be cited for all purposes as the Cruelty to Animals Act, 1876.

2. Prohibition of painful experiments on animals

A person shall not perform on a living animal any experiment calculated to give pain, except subject to the restrictions imposed by this Act. Any person performing or taking part in performing any experiment calculated to give pain, in contravention of this Act, shall be guilty of an offence against this Act, and shall, if it be the first offence, be liable to a penalty not exceeding fifty pounds, and if it be the second or subsequent offence, be liable, at the discretion of the court by which he is tried, to a penalty not exceeding one hundred pounds or to imprisonment for a period not exceeding three months.

3. General restrictions as to performance of painful experiments on animals

The following restrictions are imposed by this Act with respect to the performance on any living animal of an experiment calculated to give pain, that is to say,

- (1) The experiment must be performed with a view to the advancement by new discovery of physiological knowledge or of knowledge which will be useful for saving or prolonging life or alleviating suffering; and 2

1. Original title, An Act to Prevent Cruel Experiments - amended by Carnarvon in Lords Committee after medical objections.

2. Original clause:

- (1) The experiments must be performed with a view only to the advancement by new discovery of knowledge which will be useful for saving or prolonging human life or alleviating human suffering.

amended in Lords after medical objections.

- (2) The experiment must be performed by a person holding such licence from the Secretary of State, as is in this Act mentioned, and in the case of a person holding such conditional licence as is hereinafter mentioned, or of experiments performed for the purpose of instruction in a registered place; and 3
- (3) The animal must during the whole of the experiment be under the influence of some anaesthetic of sufficient power to prevent the animal feeling pain; and
- (4) The animal must, if the pain is likely to continue after the effect of the anaesthetic has ceased, or if any serious injury has been inflicted on the animal, be killed before it recovers from the influence of the anaesthetic which has been administered; and
- (5) The experiment shall not be performed as an illustration of lectures in medical schools, hospitals, colleges, or elsewhere; and
- (6) The experiment shall not be performed for the purpose of attaining manual skill.

Provided as follows; that is to say,

- (1) Experiments may be performed under the foregoing provisions as to the use of anaesthetics by a person giving illustrations of lectures in medical schools, hospitals, or colleges, or elsewhere, on such certificate being given as in this Act mentioned, that the proposed experiments are absolutely necessary for the due instruction of the persons to whom such lectures are given with a view to their acquiring physiological knowledge or knowledge which will be useful to them for saving or prolonging life or alleviating suffering; and
- (2) Experiments may be performed without anaesthetics on such certificate being given as in this Act mentioned, that insensibility cannot be produced without necessarily frustrating the object of such experiments; and
- (3) Experiments may be performed without the person who performed such experiments being under an obligation to cause the animal on which any experiment is performed to be killed before it recovers from the influence of the anaesthetic on such certificate being given as in this Act mentioned, that the so killing the animal would necessarily frustrate the object of the experiment, and provided that the animal be killed as soon as such object has been attained; and

-
3. The original bill envisaged that all experimentation (without exception) would be performed in a registered place and that licences would be issued by any of Her Majesty's principal Secretaries of State.

- (4) Experiments may be performed not directly for the advancement by new discovery of physiological knowledge or of knowledge which will be useful for saving or prolonging life or alleviating suffering, but for the purpose of testing a particular former discovery alleged to have been made for the advancement of such knowledge as last aforesaid, on such certificate being given as in this Act mentioned, that such testing is absolutely necessary for the effectual advancement of such knowledge.

4. Use of urari as an anaesthetic prohibited

The substance known as urari or curare shall not for the purpose of this Act be deemed an anaesthetic. 4

5. Special restrictions on painful experiments on dogs, cats, etc.

Notwithstanding anything in this Act contained, an experiment calculated to give pain shall not be performed without anaesthetics on a dog or cat, except on such certificate being given as in this Act mentioned, stating, in addition to the statements herein-before required to be made in such certificate that for reasons specified in the certificate the object of the experiment will be necessarily frustrated unless it is performed on an animal similar in constitution and habits to a cat or dog, and no other animal is available for such experiment; and an experiment calculated to give pain shall not be performed on any horse, ass or mule except on such certificate being given as in this Act mentioned that the object of the experiment will be necessarily frustrated unless it is performed on a horse ass or mule, and that no other animal is available for such experiment. 5

6. Absolute prohibition of public exhibition of painful experiments

Any exhibition to the general public, whether admitted on payments of money or gratuitously, of experiments on living animals calculated to give pain shall be illegal.

Any person performing or aiding in performing such experiments shall be deemed to be guilty of an offence against this Act, and shall, if it be the first offence, be liable to a penalty not exceeding fifty pounds, and if it be the second or any subsequent offence, be liable, at the discretion of the court by which he is tried, to a penalty not exceeding one hundred pounds or to imprisonment for a period not exceeding three months.

4. Attempts made in the Lords to insert the clause "shall not be used upon any wounded animal" failed.

5. The original provision did not extend to equidae. This was added in the Lords. Lowe's opposition to this clause in the Commons was defeated.

And any person publishing any notice of any such intended exhibition by advertisement in a newspaper, placard, or otherwise shall be liable to a penalty not exceeding one pound.

A person punished for an offence under this section shall not for the same offence be punishable under any other section of this Act.

Administration of Law

7. Registry of place for performance of experiments⁶

The Secretary of State may insert, as a condition of granting any licence, a provision in such licence that the place in which any experiment is to be performed by the licensee is to be registered in such a manner as the Secretary of State may from time to time by any general or special order direct: Provided that every place for the performance of experiments for the purpose of instruction under this Act shall be approved by the Secretary of State, and shall be registered in such manner as he may from time to time by any general or special order direct.

8. License by Secretary of State

The Secretary of State may license any person whom he may think qualified to hold a licence to perform experiments under this Act. A licence granted by him may be for such time as he may think fit, and may be revoked by him on his being satisfied that such licence ought to be revoked. There may be annexed to such licence any conditions which the Secretary of State may think expedient for the purpose of better carrying into effect the objects of this Act, but not inconsistent with the provisions thereof.

9. Reports to Secretary of State

The Secretary of State may direct any person performing experiments under this Act from time to time to make such reports to him of the result of such experiments, in such form and with such details as he may require. 7

10. Inspection by Secretary of State

The Secretary of State shall cause all registered places to be from time to time visited by inspectors for the purpose of securing a compliance with the provisions of this Act, and the Secretary of State may, with the assent of the Treasury as to number, appoint any special inspectors, or may from time to time assign the duties of any such inspectors to such officers in employment of the Government, who may be willing to accept the same, as he may think fit, either permanently or temporarily.

6. The original bill stipulated that all premises be registered:

7. The original bill stipulated this as a requirement. Modified in the Lords after medical protest. Such reports have, in fact, rarely been called for.

11. Certificate of Scientific Bodies for exceptions to general regulations

Any application for a licence under this Act and a certificate given as in this Act mentioned must be signed by one or more of the following persons; that is to say,

The President of the Royal Society
 The President of the Royal Society of Edinburgh
 The President of Royal Irish Academy;
 The Presidents of the Royal Colleges of Surgeons in London, Edinburgh, or Dublin;
 The Presidents of the Royal College of Physicians in London, Edinburgh, or Dublin;
 The President of the General Medical Council;
 The President of the Faculty of Physicians and Surgeons of Glasgow;
 The President of the Royal College of Veterinary Surgeons or the President of the Royal Veterinary College, London, but in the case only of an experiment to be performed under anaesthetics with a view to the advancement by new discovery of veterinary science;

and also (unless the applicant be a professor of physiology, medicine anatomy, medical jurisprudence, materia medica, or surgery in a university in Great Britain or Ireland, or in University College, London, or in a college in Great Britain or Ireland, incorporated by royal charter) by a professor of physiology, medicine, anatomy, medical jurisprudence, materia medica, or surgery in a university in Great Britain or Ireland, or in University College, London, or in a college in Great Britain or Ireland, incorporated by royal charter;

Provided that where any person applying for a certificate under this Act is himself one of the persons authorised to sign such certificate, the signature of some other of such persons shall be substituted for the signature of the applicant;

A certificate under this section may be given for such time or for such series of experiments as the persons signing the certificate may think expedient.

A copy of any certificate under this section shall be forwarded by the applicant to the Secretary of State, but shall not be available until one week after a copy has been so forwarded.

The Secretary of State may at any time disallow or suspend any certificate given under this section;8

8. Signatories were originally confined to the President of the Royal Society, or of the Royal College of Surgeons and Physicians of London, Edinburgh and Dublin, plus a professor of physiology, medicine or surgery, Amended in Lords Committee after medical protest.

12. Power of Judge to grant licence for experiments when necessary in criminal case

The powers conferred by this Act of granting a licence or giving a certificate for the performance of experiments on living animals may be exercised by an order in writing under the hand of any judge of the High Court of Justice in England, of the High Court of Session in Scotland, or of any of the superior courts in Ireland, including any court to which the jurisdiction of such last mentioned courts may be transferred, in a case where such judge is satisfied that it is essential for the purposes of justice in a criminal case to make any such experiment;

Legal Proceedings

13. Entry on Warrent by justice

A justice of the peace, on information on oath that there is reasonable ground to believe that experiments in contravention of this Act are being performed by an unlicensed person in any place not registered under the Act may issue his warrant authorising any officer or constable of police to enter and search such place and to take the names and addresses of the persons found therein.

Any person who refuses admission on demand to a police officer or constable so authorised, or obstructs such officer or constable in the execution of his duty under this section, or who refuses on demand to disclose his name or address, or gives a false name or address, shall be liable to a penalty not exceeding five pounds.

14. Prosecution of offences in England - "Court of summary jurisdiction"

In England, offences against this Act may be prosecuted and penalties under this Act recovered before a Court of Summary Jurisdiction in manner directed by the Summary Jurisdiction Acts.

"Court of summary jurisdiction" means and includes any justice or justices of the peace, metropolitan police magistrate, stipendiary or other magistrates, or office, by whatever name called, exercising jurisdiction in pursuance of the Summary Jurisdiction Acts: Provided that the Court when hearing and determining an information under the Act shall be constituted either of two or more justices of the peace in petty sessions, sitting at a place appointed for holding petty sessions, or of some magistrate or officer sitting alone or with others at some court or other place appointed for the administration of justice, and for the time being empowered by law to do alone any act authorised to be done by more than one justice of the peace;

15. Power of Offender in England to elect to be tried on indictment

In England, where a person is accused before a court of summary jurisdiction of any offence against this Act in respect of which a penalty of more than five pounds can be imposed, the accused may, on appearing before the court of summary jurisdiction, declare that he objects to being tried for such offence by a court of summary

jurisdiction and thereupon the court of summary jurisdiction may deal with the case in all respects as if the accused were charged with an indictable offence and not an offence punishable on summary conviction, and the offence may be prosecuted on indictment accordingly.

16. Appeal to quarter sessions

In England, if any party thinks himself aggrieved by any conviction made by a court of summary jurisdiction on determining any information under this Act, the party so aggrieved may appeal therefrom... to the next court of quarter sessions.....

17. (Applies to Scotland)

18. Prosecution of offenders and recovery of penalties in Ireland

In Ireland, offences against this Act may be prosecuted and penalties under this Act recovered in a summary manner, subject and according to the provisions with respect to the prosecution of offences, the recovery of penalties, and to appeal of the Petty Sessions (Ireland) Act, 1851, and any Act amending the same, and in Dublin of the Acts regulating the powers of justices of the peace or of the police of Dublin metropolis. All penalties recovered under this Act shall be applied in manner directed by the Fines (Ireland) Act, 1851, and any Act amending the same.

19. Power of offender in Ireland to elect to be tried on indictment and not by summary jurisdiction

In Ireland, where a person is accused before a court of summary jurisdiction of any offence against this Act in respect of which a penalty of more than five pounds can be imposed, the accused may, on appearing before the court of summary jurisdiction, declare that he objects to being tried for such offence by a court of summary jurisdiction, and thereupon the court of summary jurisdiction may deal with the case in all respects as if the accused were charged with an indictable offence and not an offence punishable on summary conviction, and the offence may be prosecuted on indictment accordingly.

20. Interpretation

In this application of this Act to Ireland the term "the Secretary of State" shall be construed to mean the Chief Secretary.

21. Prosecution only with leave of Secretary of State

A prosecution under this Act against a licensed person shall not be instituted except with the assent in writing of the Secretary of State. 9

22. Not to Apply to invertebrate animals

This Act shall not apply to invertebrate animals.

9. This most important amendment was made in Commons Committee;

10. A clause "This Act shall not apply to cold blooded animals" (i.e. excluding frogs) was added in the Commons but defeated on vote. Amended by Forster so as to include frogs.

TABLE A: LABORATORY ANIMALS IN THE UK : BREAKDOWN OF DEMAND BY CATEGORIES OF ANIMALS ('000's)

YEAR	1952	1956	1962	1967	1972	1973	1974	1975
TOTAL (Home Office)	2,118	2,791	4,042	4,756	5,327	5,364	5,561	5,379
TOTAL (Surveys)	1,742(1)	2,481(2)			4,355(3)			
<u>ANIMAL CATEGORIES</u>								
MICE	1,181	1,722			3,056			
RAIS	250	328			1,185			
HAMSTERS	5	8			23			
GUINEA-PIGS	200	190			194			
RABBITS	33	38			79			
CATS (Surveys) (Home Office)	5.45 7.44	8.34	12.4	14.5	10.8 12.7	11.7	11.2	10.5
DOGS (Surveys) (Home Office)	7.51 2.83	4.0	8.1	15.0	11.4 17.2	16.9	16.8	16.2
PRIMATES	1	1.9			6.4**			
UNGULATES (SHEEP, CATTLE, PIGS etc.)	0.5	9.5			32.4			
BIRDS (90% CHICKENS)	44	101			358			
AMPHIBIA	10	52			23			
FISH	3.5	13.5			84			

(For references 1, 2, 3 see Table One)

*The figures given in the table for the 1972 survey are adjusted to give approximate 100% totals - the survey produced about an 80% return.

** For more accurate primate figures, one should consult the MRC Laboratory Animals Centre Report of 1976 (Hobbs and Bieby) on primate availability and supply - average use of 9.1 thousand primates (per annum) during the period 1969-1971.

TABLE B : LABORATORY ANIMALS IN THE UK: RESEARCH AREAS AND LABORATORY TYPE ('000's)

YEAR	1952	1956	1962	1967	1972	1973	1974	1975
TOTAL (Home Office figures)		2,118	4,042	4,756	5,327	5,364	5,561	5,379
TOTAL (Survey Figures) (approximately 80% return)	1,758(1)	2,481(2)	-	-	4,355(3)	-	-	-
RESEARCH AREAS	Survey	Home Office						
Diagnostic procedures	142	179	203	251	216	246	135	155
Mandatory Testing of products (or bioassay)	(971)	987	1,214	1,238	1,073	1,261	1,376	1,189
Cancer research	58	-	259	315	397	435	427	443
Nutrition research	49	-	-	-	-	-	-	-
Bact/Pathol/Parasitol	216	-	-	-	-	-	-	-
Pregnancy Testing	83	-	-	-	-	-	-	-
Other	323	1,425	2,366	2,952	3,641	3,422	3,623	3,592
LABORATORY TYPES								
Government departments, research councils & institutes.	300/350*	567	815	897	1,012	1,176	1,018	952
(Min of Defence)	-	-	-	-	(114)	(156)	(125)	-
Other non-commercial	450/500*	521*	-	-	-	-	-	905
Commercial	900/1000*	1200*	-	-	-	-	-	2,522
(* estimated from survey)								

1. WMS Russell & RL Burch (1959) The Principles of Humane Experimental Technique Methuen London. 2. W Lane-Petter (1956) MRC Laboratory Animals Centre Report.

3. MRC Laboratory Animals Centre Report 1974. The remaining data were abstracted from the Home Office Returns to Parliament under the Cruelty to Animals Act 1875. These returns do not necessarily give the total animal usage as shown by the 1972 survey (3) which demonstrated that over 1 million laboratory animals did not come under the Home Office Regulations (for example, animals used in the production of sera are not included).

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APPENDIX III

CARCINOGEN TESTING - THE ALTERNATIVES & THE COST AND TIME FACTORS IN TESTING A SINGLE CHEMICAL
(Animal and in vitro systems are not directly comparable, but they are presented together in the table to give some idea of the relative time and cost factors)

TYPE OF SYSTEM	DETAILS OF TEST		NO. OF VERTEBRATES USED		DURATION OF STUDY (weeks)	TOTAL COST (£)	COMMENTS
	Directly	Indirectly	Directly	Indirectly			
I. LIVE ANIMALS	A. MOUSE - animal given test chemical orally for life-time studies. Test includes preliminary determination of Maximum Tolerated Dose (MTD). (2)		400-800	0	78-104	20-30,000	This combined with the rat test is the standard assay for carcinogens. It is time-consuming and expensive and lacks sensitivity - quite apart from the problems of extrapolation to man due to inter-specific variation.
	B. RAT - as for mouse, but lifespan is longer. (2)		400-800	0	104-130	40-60,000	
II. IN VITRO MUTAGENICITY	A. AMES - uses several strains of <i>S. typhimurium</i> to detect reversions to histidine independence. Microsomal extract included in test. (3, 9, 10, 25)		0	1	1	350+	Ames has registered a 90% success rate when compared with selected chemicals identified by animal tests. ICI ₁ in a more rigorous system recorded a 92% success rate.
	B. DROSOPHILA - makes use of defined genetics of <i>Drosophila</i> to detect mutations.		0	0	ca. 2	?	<i>Drosophila</i> system still being evaluated - model includes systemic metabolism, albeit invertebrate.
	C. MAMMALIAN CELLS - select ouabain or 8-azaguanine resistant mutants by seeding treated cells in appropriately treated petri-dish (Chinese Hamster V79). Could be used with human cells. (15)		0	0	ca. 3	?	Still being evaluated, but initial results show promise.
III. IN VITRO CELL TRANSFORMATION	Cell culture is treated with test chemical and then the ability of the cells to grow in semi-solid agar is determined. Microsomal extract added to aid metabolism of test chemical. (25)		0	1	ca. 2	?	ICI report 91% accuracy in predicting carcinogens and 97% accuracy in predicting non-carcinogens. Another system was positive with 58/65 carcinogens.**
IV. IN VITRO DNA REPAIR	Using radioactive thymidine, the extent of unscheduled DNA synthesis in cell cultures is determined after treatment with the test chemical. (19)		0	0	2	400-800	Still being evaluated but gave 29/34 positive results with carcinogens and 0/24 positive results with non-carcinogens - system looks most promising.**
V. OTHER	A. DEGRANULATION OF ROUGH ENDOPLASMIC RETICULUM - determines release of radioactive RNA from rough endoplasmic reticulum after treatment. (25, 26)		0	?	1	400-800	ICI report 71% accuracy in predicting both carcinogens and non-carcinogens. Least promising of the systems listed.
	B. BIPHENYL-2-HYDROXYLATION ENHANCEMENT - measures 2- and 4-biphenyl hydroxylation after microsomal extract has been treated with chemical. (28)		0	ca. 8	1	400-800	Still being evaluated. Initial trial gave positive result with 15/16 of carcinogens and 1/25 non-carcinogens.

* Figures (rough) are given to indicate approximate cost of these systems.

** Mutation Research (1976) 41:395-400

The Table has been compiled from published results and from figures on cost and time factors supplied by courtesy of Hazleton Laboratories (Europe) Ltd. reproduced by permission of F.R.A.M.E.

APPENDIX IVTHE INTERNATIONAL LEAGUE FOR ANIMAL RIGHTS

(founded Geneva on April 2, 1977)

President: P.R. GEORGES HEUSE (Belgium)

Vice-President: P.R. REMY CHAUVIN (France)

Vice-President: JON EVANS (United Kingdom)

Secretary-General: PETER J. HYDE (Canada)

Assistant Secretary-General: SCOTT LINDBERGH (USA)

UNIVERSAL DECLARATION OF THE RIGHTS OF ANIMALS*PREAMBLE

Whereas all animals have rights,

Whereas disregard and contempt for the rights of animals have resulted and continue to result in crimes by man against nature and against animals,

Whereas recognition by the human species of the right to existence of other animal species is the foundation of the co-existence of species throughout the animal world,

Whereas genocide has been perpetrated by man on animals and the threat of genocide continues,

Whereas respect for animals is linked to the respect of man for men,

Whereas from childhood man should be taught to observe, understand, respect and love animals,

IT IS HEREBY PROCLAIMED:ARTICLE 1

All animals are born with an equal claim on life and the same rights to existence.

* Final text adopted by the International League for Animal Rights and affiliated national leagues on the occasion of the Third International Meeting on the Rights of Animals (London, 21-23 September 1977). The Declaration will be proclaimed on 15 October 1978 by the International League, affiliated leagues, associations and individuals who wish to be associated with it prior to being submitted to the United Nations.

ARTICLE 2

- (1) All animals are entitled to respect.
- (2) Man as an animal species shall not arrogate to himself the right to exterminate or inhumanely exploit other animals. It is his duty to use his knowledge for the welfare of animals.
- (3) All animals have the right to the attention, care and protection of man.

ARTICLE 3

- (1) No animal shall be ill-treated or be subject to cruel acts.
- (2) If an animal has to be killed, this must be instantaneous and without distress.

ARTICLE 4

- (1) All wild animals have the right to liberty in their natural environment, whether land, air or water, and should be allowed to procreate.
- (2) Deprivation of freedom, even for educational purposes, is an infringement of this right.

ARTICLE 5

- (1) Animals of species living traditionally in a human environment have the right to live and grow at the rhythm and under the conditions of life and freedom peculiar to their species.
- (2) Any interference by man with this rhythm or these conditions for purposes of gain is an infringement of this right.

ARTICLE 6

- (1) All companion animals have the right to complete their natural life span.
- (2) Abandonment of an animal is a cruel and degrading act.

ARTICLE 7

All working animals are entitled to a reasonable limitation of the duration and intensity of their work, to the necessary nourishment and to rest.

ARTICLE 8

- (1) Animal experimentation involving physical or psychological suffering is incompatible with the rights of animals, whether it be for scientific, medical, commercial or any other form of research.
- (2) Replacement methods must be used and developed.

ARTICLE 9

Where animals are used in the food industry they shall be reared, transported, lairaged and killed without the infliction of suffering.

ARTICLE 10

- (1) No animal shall be exploited for the amusement of man.
- (2) Exhibitions and spectacles involving animals are incompatible with their dignity.

ARTICLE 11

Any act involving the wanton killing of an animal is biocide, that is, a crime against life.

ARTICLE 12

- (1) Any act involving the mass killing of wild animals is genocide, that is, a crime against the species.
- (2) Pollution or destruction of the natural environment leads to genocide.

ARTICLE 13

- (1) Dead animals shall be treated with respect.
- (2) Scenes of violence involving animals shall be banned from cinema and television, except for humane education.

ARTICLE 14

- (1) Representatives of movements that defend animal rights should have an effective voice at all levels of government.
- (2) The rights of animals, like human rights, should enjoy the protection of law.

The INTERNATIONAL LEAGUE FOR ANIMAL RIGHTS expresses the hope that on the occasion of World Animal Rights Year (1978) States will affirm that they recognise the principle of rights for animals.

The League considers that this recognition should be manifested, first and foremost, in the following countries and in the following way:

1. In Canada and Norway, by the announcement of a one-year moratorium on all commercial sealing, to take effect from the beginning of the 1978 seal hunt;
2. In Japan and the USSR, by the announcement of a one-year moratorium on the hunting of whales, beginning in 1978;
3. In France, by the banning of hunting with hounds and the prohibiting of live pigeon shooting and also by withholding permission to open a school for the training of bullfighters;
4. In the United Kingdom, by the prohibiting of hunting with hounds;
5. In Spain, by the prohibiting of live pigeon shooting, by the enforcing of Royal Decree No. 2641 dated 21 December 1929 denying minors of 14 entry to bullfighting arenas and by forbidding all minors to engage in bullfighting;
6. In Portugal, by maintaining the existing ban on bullfighting which results in the death of the animal.

The League will communicate its recommendations to the Heads of State of these countries as soon as possible and will request all friends of animals to refrain from taking holidays in 1978 in countries which do not agree by 31 December 1977 to implement the measures proposed by the League.

This first list is not limitative; it will later include other countries.

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Judith E. Hampson

Animal Experimentation 1876-1976
Historical and Contemporary Perspectives.

ABSTRACT

The thesis is an analysis of changing trends, both in the antivivisection movement and in the scientific community, with some commentary upon the impact of these changes upon government and the public. Part I deals with the historical basis of British legislation controlling animal experimentation and with current moves towards its reform while Part II looks at the nature of animal experimentation and the search for alternatives. The work is not simply a history but those events and arguments relevant to a thorough understanding of the contemporary situation (for example, the Second Royal Commission 1906-1912) are considered in some detail. Some very recent information, much of which is drawn from unpublished sources, is included. The thesis concludes with a brief consideration of the moral status of animals.

Changing Trends in A-V

Paper presented at 'Animal Rights' by Judith Hampson, BSc

I was privileged to deliver this short paper to the RSPCA Animal Rights Symposium. I represented the Hadwen Trust which is supporting my own research.

My concluding quotation of Professor Paton met with somewhat derisive laughter; perhaps I should point out why I included it.

There is every indication from the current scientific literature that many scientists are in tune with at least some of the aims of the animal welfare movement, and it is my conclusion that a mutual co-operation between all interested parties at least in those areas of agreement, cannot fail to benefit those laboratory animals whose welfare must be our first concern.

For this reason I hope that Professor Paton's statement was sincerely meant. From my conversations with scientists and technicians both inside and outside the RDS I have every reason to believe that it was, and if so, it is to be welcomed.



In order to fully appreciate the arguments and strategies of the anti-vivisection movement in the twentieth century I think it is necessary to have some knowledge of their roots in nineteenth century anti-vivisectionism.

The Victorian campaign was launched, broadly speaking, on three fronts. Arguments were put forward both against the utility and ethical justification of animal experiments, while tactics involved exposure of cruelties with consequent vitriolic attacks upon the scientific and medical professions.

Estranged

As the Victorian anti-vivisectionists became frustrated in their aims, and the power of their societies was channelled into the hands of a small number of individuals, the agitation became more extreme, almost, in fact, an end in itself.

The societies became estranged from more moderate bodies such as the RSPCA, and from the public, who were not prepared to support total abolition.

Finally, the movement lost most of its impetus as the medical profession closed ranks behind the experimental physiologists, and the general public tended towards apathy.

It is with this background in mind that the twentieth century anti-vivisection movement must plan its strategies.

Trends are still apparent which reflect the arguments and campaigns of the nineteenth century, whilst there have also been dramatic changes.

It is still a concerted policy to expose the cruelties and sufferings perpetrated in the name of science. As a general policy I think this is a questionable

tactic, since it serves to alienate the scientific community whose support the animal welfare movement must gain, and those members of the public most likely to be sympathetic often shy away, afraid that the facts may be too horrible to contemplate.

Further, this tactic in itself offers nothing positive.

However, when adopted as part of a concerted campaign against some particular practice, it can be extremely effective. We have the example of the "smoking beagles," and the campaign against experiments in certain commercial fields such as cosmetics testing. The response to Richard Ryder's book, *Victims of Science*, has shown that public interest can be generated in such areas.

Provided the facts are accurately presented, and their implications objectively assessed, such campaigns should not alienate the scientists, rather, they should serve as a basis for discussion.

The argument against utility of animal experimentation, so prolific in nineteenth century literature, is seldom reiterated now in a general way. This has been a very positive change, since on this ground anti-vivisectionists have often lost credibility in the past.

Alternatives

It may be valid to point to drawbacks and limitations of animal experiments in specific contexts, but this is not to totally negate the usefulness of the method.

Relating to this change, there is a strategy open to twentieth century anti-vivisectionists which was not of

significance in the Victorian era. The development of viable alternatives (though we must take care not to overestimate their potential in some fields) has provided a new basis for positive arguments and practical action.

In the last decade we have seen the setting up of several trusts to facilitate the search for alternatives.

Commended

The Lawson Tait Memorial Trust, founded in 1961 by mutual co-operation between the British Union for the Abolition of Vivisection, the National Anti-Vivisection Society and the Scottish Society for the Prevention of Vivisection, was the first. It now operates independently in conjunction with the Humane Research Trust.

In 1969 the BUAV set up the Hadwen Trust for Humane Research and, in 1973, the NAVS founded the Lord Dowding Trust. The St Andrews Animal Fund, directed by the SSPV has also sponsored the promotion of alternatives.

In 1968, the FRAME centre for collection and dissemination of information about alternatives was opened, and amongst its many activities is the publication of *Atla Abstracts*, recently assessed by *World Medicine* as a valuable journal.

Many scientists have commended all this positive work and welcomed the changing image of the animal welfare groups. The changing climate is also reflected in the reforms now being considered relating to mandatory tests and to the administration of the 1876 Act.

Most important, the scientists and the anti-vivisectionists have at last been brought together on common ground. At symposia held by the NAVS and other bodies we have seen them speaking on the same platforms.

Unchanged

So it is against a very different background to that of the Victorian Era that the twentieth century anti-vivisectionist must make an ethical standpoint. The policy of total abolition remains unchanged, though the anti-vivisection societies no longer feel precluded from striving for lesser measures as steps towards this ultimate goal.

However, the profusion of ethical viewpoints put forward over the last few years have illustrated the difficulty of resolving a code of moral conduct which can not only be applied to all possible situations, but which can realistically be put into practice at the present time.

Most credible ethical philosophies are ahead of their time, and when first formulated they serve as guidelines for future codes of conduct.

By seeking to live according to rules which may not be attainable by all individuals at any given time, moral leaders at least set standards which slowly raise the level of consciousness in society until those standards can become generally accepted.

We have seen this in the case of slavery, the emancipation of women and other moral issues. So it will be with animal liberation.

Further, for those adhering to a deontological system of ethics allowing intrusion of personal judgements in cases of conflicting duty, animal experimentation can be justified in certain circumstances. Where the interests of other species conflict with those of man it is clear that individuals will draw ethical lines in different places.

General obedience to a universal moral law respecting the rights of all sentient species is perhaps not attainable given our present stage of moral evolution.

Therefore it is of the utmost importance that we do not allow our ethical judgements, however logically sound or seemingly irrefutable, to obscure the necessity to strive for what can reasonably be achieved at the present time.

Guidelines

Animal Experimentation, regrettably, will be with us for a very long time, and the day when all its ends might be achieved by alternative methods, or when man might desist from all such research on purely ethical grounds, is not, I think, in the foreseeable future.

However, it is clear that the level of such experimentation could be significantly reduced: for example, by more rational design of testing protocols, by employment of alternatives when feasible, and by generally raising our level of consciousness in relation to animal exploitation until we eliminate by choice at least those experiments not absolutely essential to the furtherance of human and animal welfare.

A responsible constituted ethical advisory committee including scientists and lay members, could be useful in helping to draw up the guidelines.

Lastly, we in the animal welfare movement should not lose sight of the fact that the greatest hope for the long term lies not in outside regulation, but with the experimenters themselves.

The growing recognition of this fact is perhaps reflected in the earnest attempts now being made to enlist the support of the scientific community.

Same side

As Professor William Paton, Chairman of the Research Defence Society Council, has put it, "Above all, people should realise that we are all on the same side in our concern for animal welfare, and our desire to reduce the numbers of experiments."

This reduction is an immediate goal and one which is within our grasp.

We must all work together, single-mindedly, to see that it is achieved — in the near future.

ANIMAL EXPERIMENTS - ARE THEY ALWAYS JUSTIFIABLE?

More and more people are becoming concerned about the enormous numbers of animals used both in research and in routine testing. The number in Great Britain now exceeds 5 million annually; 65% of experiments last year were commercial, an estimated one third of these had no medical connection and included such procedures as the testing of cosmetics, household products, and synthetic tobacco substitutes.

In the past, much emotional propaganda has been put out concerning this subject, but now it is becoming recognised as a serious problem both by the more responsible animal welfare workers and by scientists and industrialists themselves. The animal experiment can in some cases be the most expensive and the least reliable method of acquiring the desired information. For these reasons some scientists and animal welfare workers are beginning to work together in the search for reliable alternatives to the animal experiment and to promote their adoption wherever such methods are feasible.

FRAME (The Fund for the Replacement of Animals in Medical Experiments, 312a Worples Road, Wimbeldon) is a scientific organisation set up solely for this purpose. FRAME defines an 'alternative' as any technique, the adoption of which will result in a reduction of the numbers of animals used in any particular type of research programme. Their Scientific Advisor, Dr Andrew Rowan works in close co-operation with research scientists in Universities and in industry. FRAME has received support from a large number of industrial

firms, one of which recently set up a an ethical committee to consider its own experiments, and of which Dr Rowan is a member.

FRAME produces twice yearly a unique journal - ATLA ABSTRACTS (Alternatives to Laboratory Animals) - which is a collection of abstracts on new research methods combed from the latest scientific journals by professional abstractors. It also contains news and review articles, concisely presented in a readily accessible form. The aim of the journal is to encourage scientists, especially students, to seek 'alternative' methods of research wherever possible. It also gives some indication of the areas of research where such methods have already shown to be feasible. Subjects covered include Bioengineering and Computers, Tissue, Cell and Organ Culture Techniques, new Toxicology Testing methods, and various forms of Modelling. A breakdown is given of the areas of research where these different techniques apply. A number of Government Institutions, libraries, and Pharmaceutical Houses all over the world already subscribe to ATLA. FRAME's eventual aim is to have the Journal housed in all institutions where laboratory animals are used and would be particularly pleased if students were to press for its inclusion in their libraries.

As more 'alternatives' are developed, it is hoped that there will be a reduction in the number of animals expended. FRAME recognises that such new methods may not always mean a

complete replacement of animals in the research programme, but in some fields at least, non-animal research methods have provided very valuable information. Examples have been seen with human cell culture in cancer research, bone cultures in arthritis research and recently the Italian Government banned the use of three hair dyes on the strength of a mutagenicity test employing bacteria. There is strong evidence that this reaction gives an indication of any carcinogenic properties of the test substance. The method may become invaluable as a pre-screen test, enabling the routine testing of many more substances than is at present facilitated by expensive and time-consuming animal tests, and forming a fairly reliable basis from which a limited number of animal tests upon a greatly reduced number of substances may then proceed. Such pre-screening would also increase the safety margin of consumer products, enabling the temporary removal at least, of non-essential substances initially shown to be suspect, rather than having to wait years until extensive animal tests PROVE carcinogenicity. We still have products on the British market, (Brown dye for kippers is a good example), which bacterial mutagenicity tests have indicated may well be carcinogenic, illustrating the deeply entrenched attitude of relying upon animal data alone.

One of the problems besetting the adoption of these new methods is simply that of education. Old methods tend to die hard and the laboratory animal has for so long been the scientist's chief, if not his only, experimental tool. Therefore it is important to include some information on these techniques in our educational programmes,

(Continued opposite)

beginning probably at sixth form level. Another problem is finance, though 'alternative' methods of research can often drastically reduce the cost of a research programme, either by totally eliminating the need for expensive animals, or by greatly reducing the numbers necessary, the situation at present is not favourable for encouraging the scientist to adopt them. One of the reasons is the lack of financial resources given to laboratories for purchase of the necessary new equipment; another is the method of allocating grants, whereby a scientist using animals pays the cost of the animals only whilst a scientist using 'alternatives' must pay for ALL the equipment he uses. Such problems must be overcome if these exciting new methods of research are to be pursued and adopted.

Students can help in this promotion by raising the issue in their Union meetings, by discussing it at scientific seminars, by urging their Departments to bring the matter to the attention of the Granting Bodies, and by requesting that their libraries purchase Atla Abstracts.

If you are concerned about laboratory animal experiments and interested in the search for alternatives, then please give your support.

Note: Carcinogenic substances are those which are thought to cause cancer.

The writer obtained a first degree in biology and is now working for a doctorate in the History and Philosophy of Science, considering legal, ethical and scientific aspects of animal experimentation.

Judith E Hampson

VOLUME 6, 1978.

Beauty and the beasts

Judith Hampson on cosmetics and cruelty



On average, a whale is killed by man every ten minutes. Eight species of Great Whale are hunted; some are on the verge of extinction. These large and sensitive mammals are blasted to death by explosive harpoons; it takes up to an hour or more for them to die. Whale oils are employed for maintaining the texture and stability of products such as soaps and lipsticks, and for softening leather. Another whale product, ambergris, is often coughed up and found floating on the sea. More commonly it is extracted from the intestines of slaughtered whales. Ambergris is used in the blending of the more expensive perfumes.

Oestrogen from the urine of pregnant mares is used by the drug industry and in cosmetic skin preparations — where it is probably of little value since it tends not to be absorbed. These animals are kept continually in foal, are fed an unnatural diet, given no exercise, and confined in special harnesses which make it impossible for them to lie down. They may be kept in this condition for several years.

Ethiopian civet cats (relatives of the mongoose) are exploited for the musk contained in their sex glands, which is used in the perfume industry. Once trapped, the animals are confined for the rest of their lives in cages scarcely bigger than their own bodies. Every nine or ten days the musk is extracted by distracting the animal and angling it with a stick thrust through the bars of the cage. It is then partially dragged out by a second person whilst a third scrapes out the gland beneath the tail with a spatula.

Musk is also obtained from two species of Asian musk deer, now under threat of extinction. Depletion in their numbers is partly due to natural predators, and partly to habitat destruction and hunting by man. Musk deer are protected by the Chinese government but extensive poaching and smuggling prevails; hardly surprising since weight for weight this musk is worth four times the price of gold. Exporting via Hong Kong is making a mockery of legislation imposed by other countries.

Castoreum from the scent glands of the beaver, killed both for this product and for fur, is also employed by the perfume industry. The European beaver has already been trapped to extinction; Canadian populations also are now being rapidly depleted.

A wide variety of other animal products are to be found in cosmetics and toiletries. They include various

fats and oils employed by the soap industry, and in the production of its by-products such as the glycerine used in toothpastes. Even more bizarre substances which may be encountered include placenta, crushed snails, mink and marmot oils, and offal from slaughter-houses.

The cruelty involved in the use of these products is unnecessary, since there are perfectly adequate substitutes for every one of them. Musk, for example, is employed only in production of the more expensive perfumes; there are more than 80 synthetic alternatives. British cosmetics manufacturers do not knowingly employ whale products, but these may be contained in the raw materials which they purchase from abroad. In addition they may appear in foreign goods available on the UK market, especially in perfumes and lipsticks. Many natural plant oils and waxes can be used to replace ambergris and animal fats in soap and lipstick manufacture. Flower and herb extracts provide substitutes for animal-derived odorants.

Since most cosmetics and toiletries also contain a wide variety of synthetic chemicals it is considered necessary that they be extensively tested for poisonous properties (toxicity), and for irritancy potential (to skin, eyes and mucous membranes). Such tests are usually conducted upon animals.

Toxicity is usually measured by the standard LD₅₀ (lethal dose 50 per cent) test. This is an estimation of the dosage required to kill off 50 per cent of animals in a sample, worked out from samples in which a significant number have been killed. The test is described by scientists themselves as a "crude measure." It is so unreliable that large samples of animals must be used in order to obtain results with any statistical validity. In some instances, massive doses of the test substance are forced into the animal by stomach tube.

A large body of informed opinion maintains that the LD₅₀ test is of limited value, and that equally valid if not better methods of evaluation already exist. An example would be initial screening employing culture techniques followed up by tests on human volunteers. In tests where animals must still be employed for some reason, a more rational design of testing protocols could reduce the numbers used and the suffering involved. For example, the setting of an upper dose limit can now eliminate pointless force feeding. Better use of the existing literature would eliminate unnecessary repetition.

The Draize test for optical irritancy is commonly used. This involves instilling the test substance into the eyes of rabbits and monitoring them for eye damage, which is sometimes severe. The animals are restrained in "stocks" for long periods, unable even to rub themselves with their feet. The species employed have a thin cornea and poorly developed tear ducts, making it impossible for them to flush the substances away properly. A Draize measure is also used to assess skin irritancy potential. This involves applying the product to the shaved back of a similarly restrained rabbit. In some cases the top layer of cells have been peeled off with adhesive tape in order to make the skin more sensitive.

Surveys conducted in the United States have shown the data produced by the Draize test to be very

Cosmetics without suffering to animals

Send for FRAME's leaflet, WHAT PRICE VANITY, which gives a list of humanely produced cosmetics and suggests ways of reforming present testing methods.

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unreliable, and have concluded that the FDA should not continue to recommend them in testing protocols. Alternative methods employing culture techniques look most promising in this field. Such tests are under evaluation at Hazleton Laboratories — Britain's largest commercial testing centre. However, large sums of money are required for their further development and assessment, and sufficient interest on the part of the government or industry has not yet been forthcoming.

Firms which continue to employ animals make strong statements to the effect that their animals are well cared for and do not suffer. The very fact that anyone can seriously state that animals subjected to the procedures described above do not suffer is a sad reflection of the importance man has come to place upon the sufferings of other sentient beings when commercial interests are involved.

The wide variety of goods produced without the addition of animal derivatives and without recourse to animal testing would seem in itself to illustrate that such procedures are not necessary. The list of firms which do not test their products on animals include The Boots Co Ltd; Innox (England) Ltd (producers of an excellent range of medicated products ideal for sensitive or problem skins); F.W. Woolworth and Co Ltd (who have recently launched their new TU cosmetics with a very extensive range of unusual colours) and Yardley of London. In addition there are a wide range of beauty products available at health stores which are also guaranteed not to contain animal products. There are a number of firms which carry out no tests in this country but make use of results obtained by their parent companies in foreign laboratories: these include Revlon, Orlane and Wella.

Animal tests are not mandatory in the United States yet the government there has passed a law making it obligatory for firms to indicate on the label if their goods have not been tested on animals. Firms obviously consider absence of such a label to be a selling-point, since the implication is that products tested upon animals may be regarded as safe. This inference should be treated with contempt. Animal toxicity tests can never be wholly predictable for man, since there is a wide divergence of metabolic pathways between different species. In addition adverse local reactions are usually individual allergic responses which will never be made apparent from any degree of testing. Most people have experienced such a reaction from a cosmetic product at some time. Animal tests certainly give no guarantee that the product may be used (or abused) with impunity.

Firms which produce a wide range of excellent products without recourse to animal testing are able to do so because they are content to employ thoroughly tested ingredients which have been on the market for some time. By contrast, the larger multinationals, and also a number of British firms, seem to find it necessary constantly to bombard us with still more "wonder" ingredients, resulting in an estimated 50,000 animal tests per year in the UK alone.

In 1973 the Central Statistical Office stated that almost 100 new cosmetic products came on to the British

market each week. These new products are introduced to boost sales. The annual turnover of the cosmetics industry is in excess of £300 million. It becomes apparent that animal testing is being done not because it is essential to consumer safety, but in the interests of commercial gain. It is also done to protect the firms. In the case of adverse reactions firms may claim that they have employed the best testing-methods available. Firms which do not employ animals carry out any routine tests they consider to be necessary upon their own research teams who willingly volunteer.

Concerned consumers may well want to boycott



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Weleda UK Ltd, Littlehurst, Ship St. East Grinstead, Sussex.

Cruelty," a charitable educational organisation based in Tunbridge Wells, has demonstrated the possibilities of positive action by setting up a limited company to market its own cosmetics (vegan standards) and a wide range of simulated furs, in its London shop and subsidiary branches. BWC's booklet *More Than Skin Deep* lists 20 pages of cosmetic and toiletry products (including their own — which have been supported by top models and actresses) which do not contain animal ingredients and have not been tested on animals.

FRAME — The Fund for Replacement of Animals in Medical Experiments, is a scientific charitable organisation which confines itself strictly to the promotion of "alternatives" to animal experiments. It is primarily an information centre, producing its own scientific journal *Atla Abstracts* (Alternatives To Laboratory Animals) twice yearly, in addition to numerous leaflets and fact sheets. Their leaflet, *What Price Vanity?* makes some suggestions for action which the consumer can take, and also lists the major firms which do not carry out animal tests.

There are several courses of action open to the consumer. The case must be pressed for the labelling of products, since the consumer surely has a right to this information. A recent National Opinion Poll indicated that 73 per cent of the British population disapprove of cosmetics-testing on animals. The line so far taken by the Department of Prices and Consumer Protection, according to a reply which one FRAME supporter

luxury products which have been produced at the expense of animal suffering. They will not find the relevant information readily accessible. Though the Department of Prices and Consumer Protection is obliged to protect the consumer, it is not able to provide the consumer with detailed information about the products which it regulates. In fact, this information is not available from any government department. Neither has the Consumers Association, publishers of *Which?* carried out any research into the subject.

Fortunately, two private charities have managed to procure this simple information. "Beauty Without

managed to get out of the Division of Fair Trading, is that such labelling would not be possible since it would refer only to the final product and not to the basic ingredients which the manufacturer may have purchased from other firms. There clearly is a problem here. Firms which do not test their products upon animals will not vouch for the testing or origin of their ingredients. However, I find it rather difficult to believe that they could not trace the history of their ingredients if obliged to do so.

The Department of Prices and Consumer Protection seems to be under the impression that there is no evidence to show that such cosmetics labelling is in the consumer's interests. They need to be woken up as to what the consumer regards her/his interests to be. The National Consumer Council, though under no obligation to deal with individual enquiries, has a brief to represent the consumer's interests to the Government. We need to demonstrate a sufficiently coherent consumer movement, perhaps through bodies such as the Parliamentary Animal Welfare groups, in order to get such a representation made.

Anyone interested in this campaign, or in legal reform, should express their interests to their MP. They might also like to support Baroness Phillips who has taken up the issue on behalf of the National Antivivisection Society. They can also write to the Committee for Reform of Animal Experimentation which is seeking more comprehensive reforms to the administration of the law. The LD₅₀ test is currently under review.

The most effective action is to boycott those firms whose policy it is to employ animal tests or to incorporate cruelly obtained animal products. The latter are likely to be encountered in the more expensive preparations, French perfumes in particular. Government control will be slow in coming. In the meantime we, the consumers, are responsible for the cruel exploitation of animals by the cosmetics industry.

For further information contact:

FRAME, 312a Worple Rd. Wimbledon, London.
Tel: 01-946 1450

The National Antivivisection Society, 51 Harley St.
London W1. Tel: 01-580 4034

The Committee for Reform of Animal Experimentation,
c/o David Paterson, Chief Education Officer, RSPCA,
Causway, Horsham, Sussex. Tel: Horsham (0403) 64181

For cosmetics by BWC and Martha Hill visit the BWC shop
and Martha Hill Boutique, 40 Marylebone High Street,
London W1. Tel: 935 4050 (Martha Hill) or 486 2845
(BWC)

also write to: The Department of Prices and Consumer
Protection, Fair Trading Division, 1 Victoria Street,
London SW1, and ask why more information is not
available.



Fund for the Replacement of Animals in Medical Experiments
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2 June 1977

TO WHOM IT MAY CONCERN

This is to certify that Judith Hampson should be listed as a co-author of the article appearing on pages 20 and 21 of Scrip Pharmaceutical News, No 253 (April 30, 1977), titled 'Alternatives to the Use of Animals in Toxicity Testing.'

Signed:

Andrew Rowan

ALTERNATIVES TO THE USE OF ANIMALS IN TOXICITY TESTING

by Dr Andrew Rowan of FRAME

Increasing attention is being paid to the limitations of present methods in toxicity testing and to the escalating costs of procedures specified by regulatory authorities. This increase in cost is due partly to the more extensive testing (using a broader range of species) now required by national bodies, and partly to the higher prices that are charged for standardised laboratory animals. In addition, new acts such as the 'Health and Safety at Work Act' in the UK and the 'Toxic Substances Control Act' in the USA will add many more chemicals to the long list already requiring toxicity tests.

The relevance of many of the tests was questioned by Dr Kenneth Melmon in the August 1976 editorial of *Clinical Pharmacology and Therapeutics* in which he points out that standards for toxicity tests are often set by official bodies responding to well-intentioned but ill-advised legislators and consumer groups. This has resulted in guidelines for complex and expensive test programmes which are far too rigid and often fail to predict the effects which drugs and other environmental chemicals will produce in man. The chief problem of interpretation and application of data from *in vivo* tests is the difficulty of extrapolating results from other species to man himself. Melmon states that such tests can only add to the cost of drug discovery, limit its range, and delay the application of specific discoveries. This results in a waste of animals and of limited scientific resources. FRAME (Fund for the Replacement of Animals in Medical Experiments) considers that both could be saved by the development and use of suitable alternative systems.

The topic of 'alternatives' is being discussed ever more widely but, unfortunately, the term is rarely defined. As a result, those arguing different cases often find themselves talking at cross purposes. FRAME defines the term 'alternative' as any technique which could lead to a reduction in the use of animals. This covers a broad field, from the promotion of more efficient research (including better experimental design), to the use of slaughterhouse material where feasible, and to the development and use of *in vitro* methods. FRAME concentrates its attentions on the techniques of tissue culture, computer and mathematical modelling, clinical pharmacology and epidemiology, and on the use of single cell organisms. In toxicity testing, bacterial and mammalian cell cultures hold out the greatest immediate promise because the protocols involved are rapid and the running costs are low.

FRAME suggests that current toxicity testing guidelines should be reviewed and that efforts should be made to introduce *in vitro* techniques wherever possible. Standardised, routine testing procedures (eg LD50 Tests) are not necessarily appropriate in every case, and to some extent they are included in testing protocols simply because they are relatively easy to perform and their results can be statistically analysed. This satisfies current demands even though it may be entirely irrelevant to determining safety levels for a particular substance. Validated *in vitro* assays may be at least as useful and it is encouraging to note that the Tissue Culture Association in the USA has a special committee defining and validating the currently available cell culture tests.

A letter was recently published in *Science* (193:834) proposing that a team of experts should be established to evaluate existing technology and to identify a battery of the most predictive screening tests, including *in vitro* systems, animal models and chemical behaviour. The authors suggested that a combination of quick tests could replace the conventional protocols whereas any single test might not. A very similar suggestion was made several years ago by a leading toxicologist in an article in the *New Scientist* but it is likely that the climate of opinion is more favourable now. It is estimated that the new protocols could cut costs by a factor of ten and the testing time by a factor of five and they expect little or no sacrifice in safety since most of the tests tend to err on the side of false positives. Given this fact, it should be possible to regulate the production and sale of 'non-essential' items on the basis of results from the battery of *in vitro* screens alone.

Employment of such a scheme would facilitate the process of testing the many thousands of chemicals and FRAME considers that it would also reduce the requirement for laboratory animals since it would engender a change of approach in toxicity testing leading to a greater emphasis on satisfactory *in vitro* techniques. The acceptance of just one *in vitro* screen would undermine the attitude that only whole animal models are satisfactory in toxicity testing.

... Possible *in vitro* screening systems

Since it is estimated that some 80 per cent of human cancers are caused by environmental agents, the majority of which appear to be reasonably simple chemical structures, it is in this field that the desirability of developing and adopting cheaper and more rapid testing methods is most evident. Non-animal screens seem particularly appropriate, not only on account of their low cost and rapidity, but also because current animal testing protocols do not always give a reliable indication of carcinogenic hazard. This is due in part to species differences in the metabolism of a particular chemical and in part to the low sensitivity of the animal test. Because it is logistically difficult to use large numbers of animals to increase the sensitivity of the system, this will always be a problem.

The Ames test relies on the premise that DNA damage (ie mutation) is linked in some way to chemical carcinogenesis (at least for the majority of chemicals). The system developed to detect this damage employs histidine-requiring mutants of *Salmonella typhimurium* and the end-point measured is the number of bacterial cells which revert to histidine independence. The other major feature of the system is the use of a crude microsomal extract from rat or human liver to mimic the biotransformation of inactive compounds to active species which occurs *in vivo*.

Considering the crude nature of the activation system and the large conceptual gap between mutagenicity and carcinogenicity, the success of the system has been astonishing. Ames himself tested over 300 chemicals and found that 90 per cent of the carcinogens tested were mutagenic while 87 per cent of the non-carcinogens were non-mutagens. The question of the false-positives and false-negatives remains, but further study by Ames and the 1000 or so laboratories using his system will no doubt clarify the problems. Ames himself considers that the false-negatives are due mainly to failings in the activation system (which could be remedied without too much difficulty) or to the fact that certain chemicals (such as hormones) cause cancer through some other mechanism. The false-positives may be due either to quirks in the bacterial metabolism or to the fact that the animal test is not sufficiently sensitive to detect weak carcinogens. Other very promising systems include the use of 'normal' mammalian cell cultures in which the chemical is tested for its ability to 'transform' the cells. This is probably a system more relevant to the actual process of tumourigenesis but a number of technical problems remain — chiefly the problem of defining adequate parameters to measure 'transformation' induced by chemicals. A cell transformation system developed by ICI achieved an 83 per cent success rate in predicting carcinogenesis. Other cell systems being developed include the use of other bacterial species, yeast cells, the assessment of DNA repair after challenge by the test chemical, and mammalian cell mutagenicity systems. An acellular technique measuring the enhancement of biphenyl-2-hydroxylation activity in microsomal preparations also looks promising — especially in regard to quantitative aspects of carcinogenic hazards.

One of the chief problems associated with these *in vitro* tests is the lack of any reliable assessment of their ability to predict the level of risk. The qualitative identification of possible carcinogens is now accepted, but the regulatory bodies need quantitative data in order to make valid risk-benefit decisions. Ames argues that his system does give reasonable quantitative data, at least within one or two orders of magnitude, and that in relation to the million-fold range of mutagenic potency observed this is adequate for risk-benefit decisions to be made. In this respect the Italian authorities may have been premature in banning six hair dyes on the strength of Ames test data alone — although the positive indication of risk does present a strong case for banning non-essential commodities.

Carcinogenicity is only one aspect of the standard test protocols and FRAME's journal (ATLA Abstracts) includes references and review articles on work relevant to other areas of toxicity testing. For example, some of the above carcinogenicity systems might be adapted to provide adequate *in vitro* mutagenicity tests. A replacement is in any case required for the unsatisfactory dominant lethal test. In teratology testing, a system is currently being developed by Dr Clayton in Edinburgh; and Hazleton Laboratories have carried out a preliminary investigation into a possible alternative to the Draize eye test.

... The scope for alternatives

It should therefore be clear that the scope for alternatives is considerable, and this is becoming more widely recognised by such bodies as the UK DHSS. However, FRAME still finds that the limitations of a newly developed *in vitro* system are discussed on the basis that the animal system is, if not perfect, at least more than satisfactory. There is now a large body of evidence available to show that this is not the case, but that many well-established and valuable drugs would never have reached the market place if today's standards of testing were in force when they were introduced.

... and the need for an initiative

It is vital that industrial companies should co-operate in funding research to develop and validate these promising systems. Government funding agencies should also assist with these programmes, but the initial impetus will probably have to come from the commercial sector. Initiatives are also required in the arguments about the current level and rigidity of test protocols and in relation to the duplication of tests (because some national authorities insist that data be generated in their own laboratories). Rigid testing protocols are always likely to be a problem but not one that should be tamely accepted. Every effort should be made to ensure that new developments are adopted when properly validated and that the testing guidelines for individual drugs should be reasonable. For example, if a drug metabolises in two very different ways in man and the primate model, the study of acute and chronic toxicity of the drug in the primate is irrelevant. In this respect, pharmaceutical companies must co-operate within the industry as well as with other interested bodies in order to ensure that unnecessary testing does not occur.

FRAME recognises that in all these areas there is a changing climate of opinion and foresees a day when safety testing will be cheaper, quicker and more relevant to the problems of human efficiency and safety. This day will come all the sooner with the active support of the relevant industries.