

One might think the "paradox" can be cleared up by supposing the pharmaceutical industry is, on the whole, ignorant of these better methods and that is why it continues to pursue profits by inferior means. But Smyth assures us that the scientists in the industry have great expertise in the area of non-animal alternatives.

The simple truth is, according to Smyth, that there are no substitutes for experiments on whole animals and he has been told repeatedly by many other scientists that there is no probability of scientific breakthrough in non-animal alternatives. Consider the fact that many biological activities cannot be isolated within a single organ but involve the coordination of various organs. To study the communication between separate systems requires the whole animal and one could not even begin to guess at the nature of these interactions on the basis, say, of tissue cultures.

Smyth states that so simple a matter as the poisonous effect of strychnine cannot be demonstrated by culture techniques. He emphasizes, too, that the difference between cell cultures and whole animals of the same species is often far greater, so far as their chemical responses go, than the difference between whole animals of two different species. Hence there would be a greater problem extrapolating information concerning toxicity from research on cultures than there would be extrapolating information from research on different species. The famous thalidomide cases had nothing to do with species variation. Instead, according to Smyth, the mistake of the researchers was in not using pregnant animals.

D.H. SMYTH, ALTERNATIVES TO ANIMAL EXPERIMENTS
(LONDON: SCHOLAR PRESS), 218 PP., 1978.

This is a very important book and it deserves a far more extensive examination than the scope of this journal permits. It purports to be a disinterested analysis of the claim that alternatives to animal experiments are now feasible and eventually will be sophisticated enough to replace animal experiments altogether. The author is an eminent physiologist who pioneered in research on absorption from the intestine. The actual upshot of the book is to deny the claims made in behalf of non-animal alternatives.

One thesis that Smyth reiterates many times in nearly every chapter is that the alleged alternatives are already very well known to all scientists who are likely to have any reasons for employing them. Indeed, by 1950, 15,000 papers on tissue cultures had been published. Scientists do not have particularly sadistic tendencies (contra Richard Ryder) and do not prefer to use animals where other methods would suffice. Moreover, they are not overly conservative in their methods and would not willingly cut themselves off from the most promising approaches to interesting discoveries. It has been said that laboratories using non-animal alternatives are much cheaper than standard laboratories. Smyth finds it curious and illogical to belabor the pharmaceutical industry for being driven by the profit motive while, at the same time, attacking the industry for refusing to use better and cheaper methods.

Smyth does not limit his discussion to tissue cultures. He has much to say about bioassay, isotopes, chromatography, computers and the use of one-celled organisms. He is just as pessimistic about them. It is, he claims, "dangerous nonsense" to suppose that gas chromatography and mass spectrometry will ever enable us to learn much about toxicity. Following the progress of a minute quantity of a drug through the body has "nothing whatever to do with toxicity." In any case, the method is not new and does not require to be brought to the attention of biomedical researchers. It is not an "alternative" but simply a means of gathering yet more information from experiments done on animals. Indeed, it is a general thesis of Smyth's, which he often returns to, that sophisticated methods of studying drug structure will "open up new fields of research and so lead to an increase in the number of animals to test out the new ideas."

Smyth is somewhat mystified as to why animal welfare spokesmen suppose they have purposes antithetical to those of commerce and medicine. He states that finding chemical methods to replace bioassay is "so inherently a part of progress that no one thinks of drawing attention to it." Furthermore, it is also "the ultimate aim of the pharmaceutical industry" to find ways of predicting the biological action of drugs without experimenting on animals.

Smyth thinks our concern over the possibility of abuses in the use of animals for medical training is unwarranted. This is because medical students are very sensitive to injustice

and cruelty and that will "ensure that demonstrations on live animals are always carried out with scrupulous attention to the need to avoid pain and suffering." (Underlining added by this reviewer, S.G.)

Since, according to Smyth, we shall never be able to dispense with the use of animals we ought to lay greater stress on finding alternatives to painful experiments rather than on finding alternatives to animal experiments in general.

The book closes with six appendices, the last one being a biographical note about the author written by the author. He points out that he is an animal lover, that he enjoys eating beef, lamb, and wearing leather. He prefers to poison vermin, particularly rodents, although he is sure trapping is more humane. (He would rather not "deal with the little broken bodies.") Since he is an animal lover, he is "unashamedly" more upset about the death of one of his own pet dogs than about a disaster involving a few thousand people in some other part of the world. Finally, he concedes that as one licensed to experiment on animals he may be biased about the value of those experiments but he welcomes discussion with any persons who have different views.

Sidney Gendin
Eastern Michigan University