

BOOK REVIEWS

Bioethics for Scientists

Edited by J Bryant, L Baggott la Velle and J Searle (2002). Published by John Wiley & Sons Ltd, Chichester, UK. 360 pp. Hardback (ISBN 0 471 49532 8). Price £65.00.

The editors state in the preface that their aim (and inspiration) for the book was to produce a single text that would help their students become better informed about a wide range of issues in bioethics (covering both medical ethics and some of the emerging biotechnologies). It is for this reason that such a diverse collection of subjects is brought together. Uniquely in such a text, there is considerable emphasis on making sure that a sound scientific basis is given so that it can be harnessed to facilitate the ethical debate. By and large they have succeeded in this approach, although one could always carp about the topics chosen and even about the selection of scientific facts; inevitably, these are curtailed because of space limitations.

The book is divided into four sections and 18 chapters and starts with two introductory chapters on ethics and the public evaluation of science. The introduction adroitly sets the tone for the book and introduces by way of example some of the discussions that take place in the subsequent sections. The role of religion and cultural values is addressed, albeit briefly, and might have been more of a focus for some of the subsequent chapters. The general point made was that the ethical journey (“seeking truth through dialogue”) is in itself important. The practicality of retrodution (the determination of choices of action) provides the meat for analysis, and is distinct from the ethical principles, moral values and science covered in the Introduction. This is very well illustrated by the example of labelling of genetically modified (GM) foods: should regulators enforce labelling, or ban all labelling, or simply permit it and leave it up to the manufacturer/retailer? Moreover, what would one label — only items that contain GM ingredients, or label only non-GM foods? The second introductory chapter on the public evaluation of science and technology highlights the way experts are used by politicians and the media and how this impacts on the public understanding of science. It illustrates well the tensions for both ‘experts’ and ‘lay persons’ and contains much food for thought in this broad context. Moreover, it helps question the science in the subsequent chapters, in that it may be more partisan than it at first seems.

There follow three useful chapters on environmental ethics and associated case studies (based on the Declaration of Rio 1992, nuclear fuel and DDT) and, as might be expected from the authorship, these form a coherent base for an understanding of this area of debate, as well as providing an ethical framework for analysis.

The chapter on the use of animals in research is written from a zoologist’s view with a religious perspective and, as such, provides an interesting insight into the traditional “clergyman-naturalists”. The author, quite rightly, addresses what is meant by the term ‘animal’, then tries to find common ground over its use in valuing all animals equally, and comments that even sentience is an arbitrary line. His attempt to find a middle way is summed up by: “...does not give us clear and unequivocal guidance as to what should or should not be permitted in experiments using animals. It leaves us struggling with many difficult and emotive issues and consensus will be hard to achieve”. One can only echo that sentiment. In the last chapter, which is also on animal experimentation, a slightly sterner pro-research line is taken.

Ray Frey’s essay deals with the ‘value of a life’ being correlated with its ‘quality’, but takes it further in terms of rights and duties. Only full members of the moral community can action duties and meet moral responsibilities, and so only humans (and maybe a few other species) can potentially be members. Even within humans there are those with a lower

quality of life, as well as members of other species that might meet the criteria for full membership (NB even though it was measured in human terms). Only full members are able to realise the relationship between cause and effect, and so scientists, as moral agents, are able to experiment upon non-members but are prevented from using other full members (without their consent, presumably?). Again, the value of full members can be traced back to the quality of life. In the end, he suggests that it is a choice between many valued lives varying in degrees that may be the fundamental issue, and not simply a value that is either present or absent.

In Section 3, the next four chapters deal with ethical issues in agriculture and food production. The first starts with a robust analysis of the media's smearing of GM foods and processes, and of how this has inappropriately influenced public opinion to the extent that it may lead to throwing the baby out with the bathwater. There is an interesting and useful history of the rise of cloned and GM foods which lists advantages and objections and which also brings out the subtle difference between issues to do with food and non-food uses, crop performance, and husbandry. It then goes on to deal with risk assessment in terms of safety, environmental impact, biodiversity and regulatory adequacy. There follows a chapter addressing public concerns and how these might be ameliorated. The third chapter gives a technical account of patenting issues and the historical background, giving, again, a balanced perspective on the issues, but highlighting, for me, the dangers of large international monopolies in the developed world that have the capacity to materially help the developing countries. This latter theme is well illustrated in the next chapter, which gives a fascinating account of crop biotechnology in developing countries against a background of feeding the world's population for the next 50 years, when it may reach 11 billion. It addresses whether biotechnology should be used, what sort, when and where, and how it could be harmonised to work within cultural norms for that country and not against them. This shows the potential benefits that could accrue through partnership. It is a good account of the relevant issues in the developed and developing world, showing clearly the tensions that exist.

The final section deals with some ethical issues in human medicine raised by biotechnological advances — specifically, assisted conception, handling of genetic information, genetic enhancement of mammals, patenting of human genes, cloning (of humans and animals), and euthanasia, followed by a chapter on animal experimentation. These all touch on some of the current ethical issues raised by such work. The chapter on reproduction gives a comprehensive factual outline of the technologies involved in the treatment of infertile women, covering also religious views, use of spare embryos, selection of embryos for sex and other 'desirables', and surrogacy. Genetic information and its availability for others with an interest (eg familial disease, employers and insurers), as well as traceability of medical records in trying to research genetic influences on disease, are all raised as interesting ethical tensions. The chapter on genetic modification for the perceived enhancement of humans through pre-implantation and pre-natal screening discusses several issues including giving the parent(s) the choice of whether to re-implant, genetically manipulating to achieve some enhancement or to reduce the likelihood of disease, or discarding the embryo; and, in the case of a foetus, whether to abort (which itself is yet another ethical issue). Embedded in this chapter is an interesting history of the human genome project and its potential impact on human health and welfare. There follows a well-presented chapter on patenting that illustrates some of the tensions caused by the issuing of patents. It would have been interesting to have had some analysis of the historical outcomes over the past 50 years or so when medicines were patented, to look at the track record of the claimed altruism by various pharmaceutical companies.

Cloning is dealt with in terms of the technical background and its potential impact on animal production, cloning of children, and then, with an eye to the future, the use of embryonic stem cells and other cells for therapeutic purposes in humans (eg organ generation *in vitro* obviating the need for immunosuppression). The next chapter on euthanasia gives the case for and against, as well as dealing with the difficult issues of prolonging dying (and life), resuscitation, permanent (or should it be persistent) vegetative states, defective brain stem function, withholding and withdrawal of treatment, and conjoined twins. This chapter is unique in that three case studies are appended. The final chapter covers the use of animals in research and gives some of the relevant philosophical background as well as a breakdown of how animals are used (this is somewhat out of date and was potentially misleading; eg cosmetic testing was banned in the UK in 1999). A useful addition to the table given on medical milestones reached as a result of animal research could easily have included freezing of semen, *in vitro* fertilisation and embryo transfer, to link in with earlier chapters. I also felt that the summary dismissal of self-awareness in animals was ignoring the body of evidence that has now accumulated on this topic over the past 10 years or so; but, again, the chapter sets the scene well for debate.

In summary, this is a textbook geared to a particular course at Exeter, but is none the worse for that. It is obviously limited in what it covers but it must be a fascinating course for the students and it is easy to understand the frustration of the teachers (and students) in not being able to find such reading material easily. It may have been more helpful if more case studies and ethical questions on which to focus had been given at the end of each chapter to help those teachers who are perhaps less used to teaching in this area as the authors. But despite these criticisms it is a book that morally serious scientists should dip into in order to help them engage in the scientific and ethical debate, which is becoming more commonplace in laboratories as advances in biotechnology impact on ourselves (as patients and scientists) as well as on the environment and public safety.

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A Manual of Lambing Techniques

A C Winter and C W Hill (2003). The Crowood Press, Crowood Lane, Ramsbury, Wiltshire SN8 2HR, UK. 96 pp. Hardback (ISBN 1 86126 574 3). Price £14.99.

This updated version of the authors' manual, first published in 1998, is aimed at providing practical information to undergraduate students and those undertaking a lambing assistant position for the first time. While many sheep farmers may consider themselves too skilled and experienced to read such a manual, their confidence, not to mention arrogance, is not supported in a sector when perinatal ewe and lamb deaths have not declined over the past four decades. This is a particular welfare concern in an industry where ever-reducing inputs and increasing flock size are implemented to reduce costs in an attempt to maintain profitability.

The 20 chapters cover basic lambing equipment, abortion, prolapses, malpresentations and malpostures, and conditions of the newborn lamb. The line diagrams add clarity to the obstetrical manipulations but colour plates would have been helpful, especially when illustrating the typical appearance of the allanto-chorion and meconium staining of newborn lambs. However, such photographs would have increased the cost of the manual from its present excellent value.