

been led to believe.

The physically handicapped were also made into objects of derision, victims of the cutting satire, the pointed, steely jesting and unforgiving irony with which are provided, as with lacerating thorns the rose bush, the comedies of Plautus, Persius and Aristophanes. Garland devotes thoughtful pages to the possible meaning behind the seemingly heartless act of mocking the disabled. Without wishing "to impart any moral judgement into [his] analysis", he points out the complex causality: sadistic impulses, sexual and scatological tendencies, and the desire to exorcise the threat embodied in concrete physical disability, for "to deride the monster is to deprive him, at least temporarily, of his malevolent power". Other chapters deal with the representation of physical deformity in popular or folk art; the groping attempts of the medical profession to correct a few malformations, notably deformities of the spine; the early, rudimentary notions about the cause of congenital malformations; and that most peculiar of collective myths, belief in the existence of 'monstrous races' that populated remote regions of the world.

Garland tells us that we know next to nothing about the fate of infirm or disabled slaves; that the rich epigraphic and literary Greek sources, in contrast to the Roman, hardly mention monstrous births as omens; and that "there are almost no known representations of the severely disabled in the entire canon of classical art", however many vivid depictions there may be in folk art. The eye of *any* beholder, it must be noted, is a zealous gate-keeper. Seeing is not a passive act. We do not retract our eyelids to let the world rush in, as one who opens a sluiceway simply allows the pouring inward of a body of water impelled by purely external forces. No; seeing is an actively exclusionary process, a ceaseless, though perhaps unconscious sifting. Seeing, to function normally, must go hand in hand with blindness. What we fail to see is therefore at least as telling of our intimate self as is the cast and character of our personal vision of the world. Classical Greece chose to lift her eyes in enraptured contemplation of a sublime ideal of bodily perfection, while averting them, perhaps out of a sense of utter powerlessness, from the ubiquitous presence of bodies broken, thwarted and undone.

The Eye of the Beholder is an important, fascinating book that will command the attention of all those interested in the history of ideas. It is an articulate reminder of our unalterable kinship to the historical past. The deformed are no longer regarded as portents or as proper targets of ridicule. But despite our protestations to the contrary, a survey of contemporary history will show that societal and cultural attitudes in the past hundred years have

engendered untold suffering for the physically handicapped. Today, we enter a scientific revolution in the field of genetics still clinging to the belief that the congenitally malformed are, in the words of Garland, "a problem, the curing of which is their final elimination". Two millennia seem not to have decreased one bit the pathos, the gripping power of the well known Sophoclean line, that for some unfortunates "not to be born is, past all prizing, best". To which we continue to rejoice in bewilderment: "Yes, but who is so lucky as to have *that* happen to him? Not one in ten thousand!" Laughter, if devoid of malice, is still a legitimate defence. □

Frank Gonzalez-Crussi is in the Department of Pathology, Children's Memorial Hospital, Chicago, 2300 Children's Plaza, Illinois 60614, USA.

The researcher's dilemma

George J. Annas

Subjected to Science: Human Experimentation in America before the Second World War. By Susan E. Lederer. *Johns Hopkins University Press: 1995. Pp. 192. \$32.95, £27.50.*

THE Nuremberg Code, established by US judges in 1947 at the trial of Nazi doctors following the Second World War, remains the most authoritative statement of the

sary, consent is not a sufficient precondition for lawful human experimentation. Eight of the code's other nine provisions deal with measures researchers are obliged to take before they can even seek a potential subject's consent. Perhaps the most controversial of these is that the "experiment should be designed and based on the results of animal experimentation".

Because of the central importance of the Nuremberg Code, Susan Lederer believes that recent scholarship has tended to ignore the ethics of pre-Second World War experiments and apparently assumed that there were no formal rules before 1947. This seems, for example, to have been the case when the US Advisory Committee on Human Radiation Experiments, charged with establishing the ethics of such experiments conducted by the US government, announced last year that it had discovered a 1953 directive in which the US Secretary of Defense formally adopted the Nuremberg Code as official policy shortly after the election of General Dwight Eisenhower as President. Although this directive, like most military documents, was stamped "top secret", its existence has in fact been well known at least since General Richard Taylor presented it at a public hearing before a US Senate subcommittee in 1975. But neither 1947, 1953 nor 1975 is the critical date in determining when the ethics embodied in the Nuremberg Code should be considered as applicable to all medical researchers. As the code's authors made clear, they were not writing new law or ethics. Rather, they believed they were

IMAGE
UNAVAILABLE
FOR COPYRIGHT
REASONS

Murderous medicine — Nazi doctors on trial in Nuremberg.

rules of human experimentation despite almost 50 years of pressure from the World Medical Association to replace it with various versions of the Helsinki Declaration. The core of the code is the requirement of the voluntary, competent, informed and understanding consent of the research subject. But although neces-

merely formalizing "certain basic principles [that] must be observed in order to satisfy moral, ethical and legal concepts". So the real issue is whether these human-rights principles were in fact widely held and recognized.

Lederer's research on medical experiments in the United States before the Sec-

ond World War supports the conclusion that consent of the subject was a primary consideration in research with humans, at least by 1900. For example, medicine's leading spokesperson on ethics at the time, William Osler, wrote in 1907 that the "full consent" of the research subject was "an ethical requirement". He also argued that although the ultimate test of a new procedure is to try it on humans, that should never be done "before it has been tried on animals". Although the importance that early-twentieth-century researchers attached to consent is well documented in the book, Lederer spends most of her time on her thesis that groups opposed to experiments on animals were the most influential in attacking and limiting experiments on human beings.

At that time, research on both animals and humans was denoted and denounced simply as "vivisection". The most famous essay against the practice was written by George Bernard Shaw in his preface to *The Doctor's Dilemma*. Shaw saw vivisection as simple cruelty that was uncritically justified by the search for knowledge that he believed could be obtained in less barbaric ways. In the United States the groups fighting animal vivisection argued that unless it was prohibited, scientists would quickly move on to human experimentation. Protection of animals was therefore seen not only as a good in itself, but as a way to protect humans from unscrupulous scientists as well. The fact that many human experiments were carried out on orphans and institutionalized mental patients helps to explain the early alliances between animal-protection organizations (humane societies) and child-welfare organizations.

The author's description of experimentation on children and animals before the Second World War is much more complete than her analysis of research on prisoners and members of the military, although those wanting to do their own research on these populations will find places to begin in the book. Her analysis of the legal cases, however, leaves much to be desired. She does discuss the most famous pre-war US case to reach an appeals court, that of *Bonner v. Moran* in which a 15-year-old boy was recruited to try to graft some of his skin to a burned relative by keeping it attached to his circulation (through a "tube of flesh") while the graft was attached to the relative. The author says this case is consistent with the general pre-war US view that physicians experimented on patients at their own peril, being held liable for "adverse results". In fact, the case supports the proposition that reasonable experimentation on mature minors such as Bonner is lawful so long as the informed consent of both the minor and the parents is obtained. That is still the law today.

The antivivisection movement to pro-

tect animals lost much of its momentum during the First World War. Since the Second World War, human experimentation has moved from single researchers working on one or a few subjects to large-scale research projects often funded by government and commercial ventures. The promises of advancing knowledge and conquering disease remain, but the public has become much more supportive of the venture, usually uncritically so. Even in this new atmosphere of public support and enthusiasm, however, the protection of the rights and welfare of human subjects has remained a central concern of society, and a new 'animal rights' movement has arisen that once again condemns gratuitous cruelty to sentient creatures. Those interested in the historical interplay of animal-rights activists and human experimentation will profit from reading this book. Those with a broader interest in human experiments before the Second World War will find it less illuminating. All readers, however, would probably agree with the observation made at the turn of the century by the antivivisectionist Albert Leffingwell: "There is no objection to human experimentation when there is no invasion of human rights". □

George J. Annas is in the Department of Health Law, Boston University Schools of Medicine and Public Health, 80 East Concord Street, Boston, Massachusetts 02118, USA.

No sympathy for the Devil

Mark Pagel

The Lucifer Principle: A Scientific Expedition into the Forces of History. By Howard Bloom. *Atlantic Monthly*: 1995. Pp. 466. \$24.

WHAT little is known of Lucifer's life comes from just a few fragments spoken about him by others, including God. Lucifer left no written work. We do know Lucifer was an angel, but that this career was abruptly terminated. God had to cast him out of heaven for organizing a rebellion among the angels and for stealing light. With what would be irritating consequences for the rest of us, Lucifer landed somewhere below Earth where God had little control over him (Machiavelli would never have made this mistake). This all happened sometime before Adam and Eve. Despite the paucity of information about the man, however, most are familiar with his *oeuvre*.

In Lucifer, writers throughout the ages have found a convenient metaphor for the

evil tendencies that possess human nature. Sociobiology has recently provided a mechanism for this possession: aeons of natural selection have favoured strategies that promote our selfish genetic interests. Although a powerful creative force, natural selection has left us masters at lying, cheating, coveting, stealing, pillaging, raping and murdering. These things are part of the normal routine for the merely infra-human but become evil when expressed in ourselves — presumably because we fear our own worst instincts.

Against this backdrop of the Lucifer-possessed individual, Howard Bloom, a sometime rock-impresario and sometime researcher, constructs the view that humans are nevertheless ineluctably part of a larger social being — the superorganism — for whose ends we will sometimes behave. Superorganisms arise when individuals surrender their own interests to those of a larger group. To Bloom, the cells of a tree, the ants in a colony, the bees in a nest and the humans in a social group act as one, and thereby constitute superorganisms. When it suits the superorganism that we call society, we will wage war on its behalf or even commit suicide when we feel it no longer wants or needs us. Our most terrifying capacities for violence and destruction arise out of our subjugation to the superorganism.

Many of Bloom's arguments will elicit a sense of *déjà vu* to evolutionary biologists, who long ago abandoned the idea that individuals sacrifice their interests to those of a group. One of the great triumphs of evolutionary thinking has been to show how the selfish interests of individuals often coincide with those of the group. Indeed, that may be why the group exists. The peculiar form of genetic inheritance among ants, bees and wasps known as haplo-diploidy means that nonreproductive workers can actually reap higher fitness from rearing their sisters than from reproducing themselves. In other cases, behaviours such as the giving of an alarm call at the approach of a predator, only seem to be for the good of the group. On closer inspection, these alarm calls are shamelessly selfish: they tend either to be given only when relatives are around or to direct attention away from the caller and towards the other (unrelated) fleeing members of the group.

Reproductively inefficient behaviours such as suicide and celibacy may not be performed to advance the group's interests. Bloom uses 'apoptosis' or programmed cell death to understand human suicide. The cells of many multicellular organisms have suicide programmes. When a cell in such an organism no longer receives the message to stay alive, it uncomplainingly activates its death programme and dies. In doing so it probably promotes its genetic interests because the other cells in the organism are clones of it: