

of us, behaviourism has always been a methodological principle. Behaviour (or the workings of the brain) is all that you can observe (and neither Rollin nor anyone else has yet come up with any viable alternatives); the rest is theory. And, as a methodological principle, behaviourism says nothing about the existence or otherwise of feelings. But what behaviourism has done, and Rollin signally fails to recognize, is enormously to raise the standards of evidence required for the ascription of feelings or other psychological constructs to animals; and it is this rise in standards that makes the research programme he adumbrates at the end of his book realistic.

The trouble with anecdotes is that there are no rules for choosing between them (though Rollin devotes much space to Romanes' suggestions for such rules). But, apart from the protagonist in the Mozart story, I have never met a scientist who does not believe in the reality of pain and other feelings in animals (which is not to deny the formidable obstacles to their empirical study). It seems likely, then, that Rollin's book will fail in its stated aim: if the scientists who experiment with animals already believe them to have feelings, then convincing them further of this fact will be a poor way to persuade them to desist. So what does the book achieve? It contains a useful review of pre-behaviourist attempts to theorize about animal behaviour (Romanes, Lloyd Morgan, Loeb, Jennings); some examples of the influence of social and ethical factors upon scientific beliefs (though these do not show — as Rollins sometimes seems to argue — that the truth of these beliefs depends upon such factors); and a valuable personal account of recent shifts in scientists' moral concerns about animals.

Sadly, however, the book may also achieve something more sinister. One man's anecdote is another man's smear. The picture Rollin paints of scientists is not flattering (though some of his best friends, it seems, are scientists). We are motivated in the main by ambition and career; scientific fraud is rife; we anaesthetize our conscience by the myth that animals have no feelings; and (according to one after-dinner chat) the only reason we don't do our awful experiments on children is "because they won't let us". Rollin complains that a previous article of his was criticized as providing "a moral ground for laboratory break ins". He should have pondered this criticism more seriously. The distance between the smear and the break-in — or more dangerously, the bomb — gets shorter all the time. It would have been a pleasant surprise, in such a book as this, to see an unequivocal condemnation of such violence. Alas, it is not there. □

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Half a century of fear and of peace

John Maddox

Danger and Survival: Choices About the Bomb in the First Fifty Years. By McGeorge Bundy. *Random House: 1989. Pp.735. \$24.95.*

McGEORGE BUNDY, once one of Harvard's youngest-ever Deans of Arts and Sciences, was translated in 1960 to Washington with and by John F. Kennedy, and promptly became part of the then liberal demonology. With a background in the international control of nuclear weapons, he became one of Kennedy's hard men, responsible for defining and then making clear the reasons why the government of the United States reacted with such force to the Berlin blockade (in 1961) and the Cuban missile crisis two years later. On the evidence of his book, Bundy's main difficulty may have been that he writes too clearly for what he means to be misunderstood.

Bundy is not of course a fully fledged hawk, as has been clear from his spell as President of the Ford Foundation and, now, as a part-time academic in New York and at the Massachusetts Institute of Technology. *Danger and Survival: Choices About the Bomb in the First Fifty Years* is about the personal and political consequences of nuclear weapons. Despite its bulk, it is a gripping tale of the incorrigible failure of the human imagination to comprehend the enormity of the success of the Manhattan project, and the later developments and their consequences.

The tale of how Stimpson, Secretary of War in 1945, failed to persuade Truman that diplomatic prudence required direct discussions with the Soviet Union of the fact of US nuclear weapons, has been told before, notably by Bundy himself. Some in Washington calculated that the mere knowledge that the United States had developed a nuclear bomb would ensure Soviet compliance in negotiations on other matters, principally Central Europe, but Stimpson argued for open discussions on how nuclear weapons would change the relationship between the powers, and for an exploration of international control. It is chastening to see how later heroes such as Acheson were so indecisive at the time.

Bundy is also good on Oppenheimer, coming close to saying that the man who had made the first bombs was afterwards deceitfully framed by Lewis Strauss, the chairman of the US Atomic Energy Commission (AEC) in 1954, when Oppenheimer's security clearance was

withdrawn. That Strauss had arranged for the FBI to bug Oppenheimer's telephone conversations, even those with the lawyers representing him before AEC's review board, has been known from a biography of Strauss. Bundy provides the evidence that Strauss also fed Eisenhower a distorted and damaging account of the board's proceedings, thus making sure, when the board eventually recommended to AEC that Oppenheimer's security clearance should be withdrawn, the White House would not intervene.

My purpose is not so much to rake over old coals (however satisfying that may be), but to illustrate Bundy's theme that the recurring need to make decisions about nuclear weapons has been a constant test of character for half a century's statesmen and scientists. The losers in the Oppenheimer case were not just Oppenheimer, but Teller (who lost "friends and self-respect"), Strauss (who lost a better job at the hands of the US Senate much as Mr John Tower did earlier this year) and, importantly, Eisenhower himself: Bundy's Eisenhower shares Oppenheimer's sense of the danger of nuclear weapons.

Bundy was at the White House during the Cuban crisis; even now, the tale he tells is spell-binding. But was it wise to have risked nuclear war without first trying diplomacy, and while giving European allies almost no opportunity to protest? Bundy (who confesses to have leant towards an air strike, not a naval quarantine) carefully considers the options only to dismiss them. What if the outcome had been different?

The other theme to be found in the book is that governments, which are hardly better placed than people to get to grips with nuclear weapons, at least work hard to comprehend them. They learned from the Cuban crisis. That, says Bundy, is the chief reason why no later crisis brought such a risk of nuclear conflict as Cuba had done.

So has it all been down (or up) hill since? Of course not, says Bundy, it's been down and then up. Even great men's strategic doctrines (McNamara's assured destruction, for example) become recipes for over-providing nuclear weapons. The purchase by third powers of nuclear independence has, in Bundy's estimation, brought neither security nor respect, but only costs.

Bundy emerges as a hawk, but one of the most temperate kind. His account of Ronald Reagan's seduction by the Strategic Defense Initiative is delicate and ironical. Nuclear weapons will continue to keep the peace, as they have done for 40 years, but the safest number is the smallest possible. Bundy's present successors at the White House should read what he has to say. □

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