

# Agent Orange controversy

SIR—The report “‘Not guilty’ verdict challenged” (*Nature* 342, 217; 1989) on the *Evatt Revisited* conference<sup>1</sup> correctly identified one of the reasons for continuing controversy about the Royal Commission into the Use and Effects of Chemical Agents on Australian Personnel in Vietnam: the use without acknowledgement in its final report, which concluded “Agent Orange: Not Guilty”<sup>2</sup>, of large tracts of Monsanto’s submission<sup>3-8</sup>. This has, however, been known for some time<sup>3-7</sup>; the main point of the *Evatt Revisited* conference was a reappraisal of scientific evidence presented to the commission, and published since. In the introductory paper, my colleagues and I concluded that on balance the evidence now suggests that pesticide exposure increases the risks of some cancers and birth defects, but that there is uncertainty about this conclusion that, at least in the case of the Vietnam veterans, is unlikely to be resolved by further research<sup>8</sup>. This is consistent with reports since the *Evatt* Commission by the International Agency for Research on Cancer and the USAF School of Aerospace Medicine, as well as several research papers<sup>9-16</sup>, but other authors still defend the commission’s unqualified exoneration of Agent Orange, dioxins and other chemicals used in the war<sup>17-21</sup>.

Which of these studies should be accepted, and what level of proof to apply, is a social choice on which scientists can only advise; there is no statistical algorithm that will convert a controversial and confused situation into a simple objective truth that absolves society from making choices that involve value judgments. The traditional scientific stance of scepticism and critical rigour guards against errors of credulity, and in this case happens to favour chemical companies and governments against the veterans; but it is possible to be in error because of excessive scepticism as much as credulity, and in this case to deny the veterans just treatment.

In *The Politics of Agent Orange*<sup>22</sup>, McCulloch argued that epidemiology “cannot resolve the problem of public responsibility for the suffering of the veterans”, and speculated prophetically: “Perhaps the specialists will reveal eventually that it is not possible to prove or disprove that the veterans are ill because of chemical exposure which occurred in the RVN [Republic of Vietnam]”. It is obvious that social decisions based on conflicting scientific evidence and opinion must be made under uncertainty (many philosophers would argue that all decisions are inevitably of this type), and involve issues of trust, justice and equity as well as theoretical knowledge and technical competence. To me the critical ethical issue is the question raised at *Evatt*

*Revisited* by Professor Axelson as well as myself: “who gets the benefit of the doubt?” The organizers of *Evatt Revisited* have presented social justice arguments that the veterans should be given the benefit of the doubt in this case<sup>5</sup>.

A. J. D. BELLETT

*Division of Cell Biology,  
John Curtin School of Medical Research,  
The Australian National University,  
Canberra, ACT,  
Australia*

1. Steele, E.J., Bellett, A.J.D., McCullagh, P.J. & Selinger, B. (eds). 1989. *Evatt Revisited: interpretation of scientific evidence*. Proceedings of a conference which re-examined the findings of the Royal Commission on the use and effects of chemical agents on Australian personnel in Vietnam (Centre for Human Aspects of Science and Technology, University of Sydney, 1989).
2. Royal Commission on the use and effects of chemical agents on Australian personnel in Vietnam. Final Report (The Hon. Mr. Justice Phillip Evatt, Commissioner). (Australian Government Printing Office, Canberra, 1985).
3. Axelson, O. & Hardell, L. *Med. J. Aust.* 144, 612 (1986).
4. Pollak, J.K. *Med. J. Aust.* 144, 612 (1986).
5. Martin, B. *Aust. Soc.* 5 (11), 25 (1986).
6. Hardell, L. & Axelson, O. *Med. J. Aust.* 145, 298 (1987).
7. Humphrey, G.F. *Aust. Soc.* 6 (3), 46 (1987).
8. Bellett, A.J.D., McCullagh, P.J., Selinger, B. & Steele, E.J. in *Evatt Revisited* (1989).
9. International Agency for Research on Cancer. *Working Group on the Evaluation of the Carcinogenic Risk of Chemicals to Humans. Some Halogenated Hydrocarbons and Pesticide Exposures* (Lyon, 1986).
10. Albenese, R.A. *United States Air Force Personnel and Exposure to Agent Orange. Interim report for period March 1984 — February 1988* (USAF School of Aerospace Medicine, Division, Brooks Air Force Base, Texas 1988).
11. Field, B. & Kerr, C. *J. med. Genet.* 25, 819 (1988).
12. Axelson, O., Persson, B. & Hardell, L. in *Evatt Revisited* (1989).
13. Woods, J.S., Polissar, L., Severson, R.K., Heuser, L.S. & Kuander, B.G. *J. natn. Cancer. Inst.* 78, 899 (1987).
14. Hoar, S.K. et al. *J. Am. med. Ass.* 256, 1141 (1986).
15. Buckley, J.D. et al. *Cancer Res.* 49, 4030 (1989).
16. Blakley, P.M., Kim, J.S. & Firneisz, G.D. *Teratology* 39, 237 (1989).
17. Armstrong, B.K. *Med. J. Aust.* 144, 284 (1986).
18. Young, A.L. & Reggiani, G.M. (eds) *Agent Orange and its Associated Dioxin: Assessment of a Controversy* (Elsevier, Amsterdam, 1988).
19. Hay, A. *Nature* 340, 353 (1989).
20. Donovan, J.W. in *Evatt Revisited* (1989).
21. MacPhee, D. & Hall, W. in *Evatt Revisited* (1989).
22. McCulloch, J. *The Politics of Agent Orange. The Australian Experience*. (Heinemann, Richmond, Victoria, 1984).

## Reprint solidarity

SIR—I agree with Alexander C. Leung (*Nature* 339, 574; 1989) that “reprints are costly to authors and should not be requested unless there is a really good reason for it”. However, for most of us working in Poland (and I believe in most Eastern European countries) reprints are the only available source of scientific information. As a neuropathologist and electron microscopist, I have no access to any neuropathological or electron microscopical journal, let alone books.

I cannot read an article before requesting a reprint, as I know the title of the article only through *Current Contents* or from the bibliography section of another article. Even sending a request for a reprint is expensive, as in many situations I have to pay for requests from my own

pocket. Even if I have access to journals, I would not be able to make a photocopy as such a service is almost non-existent in scientific libraries in Poland. It could be said that working in such conditions is my choice, but every time I obtain a reprint I have a feeling of understanding and international ‘solidarity’ among scientists.

PAWEŁ P. LIBERSKI

*Medical Academy Lodz,  
Department of Oncology,  
Electron Microscopy Laboratory,  
Gagarina 4,  
Lodz, Poland*

## CF screening

SIR—We disagree with L. P. Ten Kate (*Nature* 342, 131; 1989) who argues that screening of cystic fibrosis (CF) carriers should be delayed until detection of 96 per cent of all mutated genes would be possible. It is certainly true that anxiety of couples with one carrier of the  $F_{508}$  deletion would be increased by knowledge of their situation. Nevertheless, we consider that it would be unethical to neglect the possibility of informing about 50 per cent of the couples with a 0.25 risk of having a CF child that an ante-natal diagnosis is available to them. We propose that couples should be offered the possibility of being screened for the  $F_{508}$  deletion while being explicitly told that (1) the procedure will fail to detect the risk in about 50 per cent of the cases, and (2) only if both of them were carriers of the mutation would they be informed of a positive result. By doing so, the possibility of helping 50 per cent of couples at risk of having a CF child would not be sacrificed to the psychological comfort of the others.

GILBERT VASSART

PASCAL COCHAUX

MARC ABRAMOWICZ

*Service de Génétique Médicale,  
Université Libre de Bruxelles,  
Hôpital Erasme,  
Bruxelles,  
Belgium*

## Fine writing?

SIR—In your leading article “Adirondacks awake” (*Nature* 343, 101; 1990), you mention the *New Yorker’s* “devotion to fine writing” and its commissioning of “fine writers”. The first sentence in the third paragraph, a quotation from one of these “fine writers”, reads “A forty-minute hike brings the dog and I to the top of the hill behind my home”. Presumably if the writer had gone unaccompanied, it would have read “A forty-minute hike brings I to the top of the hill behind my home”. Perchance the big apple hath a worm betwixt its rosy cheeks.

BRADFORD D. PEARSON

*7431 Lindsay Road,  
Richmond, BC V7C 3M7, Canada*