Part 3 of the book (chapters 7-11) is headed, *Values, Economic Growth and the Environment*. Of the chapters, two have been previously published in *Futures* (in 1974 and 1984) one in *Science and Public Policy* (1991) and two are conference papers from 1990 and 1992. Chapter 7 is a discussion of the problems of the *Limits to Growth* literature of the 1970s. Chapter 8 continues this theme, but is primarily concerned with technology and long waves. Chapter 9 addresses issues relating to the impact of technological change on skills and employment, chapter 10 addresses environmental issues from the view point of technological change and chapter 11 addresses issues relating to technology and the quality of life. There is an epilogue to the volume, written jointly with Geoff Oldham, that discusses what is now required, in terms of improvements in measurement and advancement in economic analysis, if past successes in science policy research are to be continued into the future.

Overall, the papers in this volume give a broad picture of the issues which interest students of technological change. They are generally of the high quality that we have come to expect from Chris Freeman. Also, as we have come to expect, they reflect Chris' insights into a number of key issues and the judicious use of quantitative and qualitative evidence in the support of the arguments made. Again, as one would expect, the analysis is not in the domain of high theory, nor is the statistical work in the domain of econometrics. However, it is precisely because Chris does not attempt these that his breadth of perception is so wide. It is also as a result of the lack of formality that his work appeals to all readers.

In general, I have my doubts as to the utility of exercises such as this, where a number of past papers are pulled together in book form. In this case, however, I think we are presented with a useful collection from a major figure in the field. As a number of these papers are really quite inaccessible otherwise, there is considerable value added in the exercise. However, it is only fair to state that should we look back in a few years' time and consider Chris' contribution to the field, I do not think that this volume will be one of the highlights.

P. Stoneman
University of Warwick

Scientific Knowledge in Controversy: The Social Dynamics of the Fluoridation Debate *by Brian Martin* (State University of New York Press, Albany, 1991), pp. viii + 266, $US16.95, ISBN 0-7914-0538-9.

In Stanley Kubrick's 1963 black comedy, *Doctor Strangelove: Or How I Learned to Stop Worrying and Love the Bomb*, one of the key characters (US) General Jack D. Ripper, believes that an objective of "the international communist conspiracy (is) to sap and impurify all of our precious bodily fluids". The mechanism by which this was happening was water fluoridation. For General Ripper "Fluoridation is the most monstrously conceived and dangerous Communist plot we have ever had to face". When asked how he formulated this view General Ripper explains "Well, I first became aware of it, Mandrake, during the physical act of love... A profound sense of fatigue... a feeling of

emptiness... Luckily I was able to interpret these feelings correctly... Loss of essence... I can assure you it's not recurred. Women sense my power and they seek the life essence. I do not avoid women, Mandrake, but I do deny them my essence". Thus an opponent of water fluoridation is depicted as a right-wing fruitcake, and a figure of fun.

Brian Martin does not take this view of fluoridation. His approach is to apply the sociology of knowledge in which" ...all of science is opened for social examination. The processes by which scientists decide that certain claims deserve to be treated as facts are examined, just as the beliefs about religion, gender, or politics are examined" (p.155). It is relevant to consider the characteristics of this approach. Martin argues that the "strong program" in the sociology of knowledge is based on four postulates, viz:

1. All knowledge should be explained as resulting from social causes, called causality;
2. The investigation should be impartial with respect to the truth or falsity of the beliefs analyzed, called impartiality;
3. The same conceptual tools should be used to explain both true and false beliefs, called symmetry; and
4. The analysis should be able to be applied to itself, called reflexivity (p.155).

What does this mean? In part it means that the claims about "science" and "scientific knowledge" are analysed in the same fashion as reasons for public opposition to fluoridation, vested interests, etc. Another implication is that both pro- and anti-fluoridation claims are treated in a similar fashion. Thus it is not all that surprising that Martin was treated, in large part, with indifference or hostility, when he showed parts of his manuscript to proponents of fluoridation (pp.163-6).

Another implication is that the sociology of knowledge approach applies "a relativist picture of knowledge, which denies that there is any inherently superior way to determine truth rooted in nature. Science is... then analyzed just as is any other belief system" (p.157). Scientists, on the other hand, are more comfortable with a positivist approach. What this means is that Martin is not determining the "scientific truth", rather he is examining the strategies (presentation of data, theoretical arguments, appeals to authority, attacks on others' credibility, etc.) of the various parties. With this perspective science is not seen as "a search for truth" but an activity in which power is involved.

Martin proceeds by providing, in my view, a balanced account of the arguments raised by supporters and opponents of water fluoridation. This is his Chapter 2. Chapter 3, entitled "Coherent Viewpoints", presents material from interviews the author conducted with a group of Australian supporters and opponents. Chapter 4, "The Struggle for Credibility", provides an account of various tactics used in the debate. Endorsements by professional bodies (the United States Public Health Service, dental associations, etc.), debating or ignoring issues, circulating unpublished critiques and personal attacks have occurred over the decades. Chapter 5, "Processional Attack", discusses "attempts [which] have been made to stop anti fluoridationists from expressing their views, doing research and practising dentistry" (p.92). Chapter 6, "A

Corporate Connection?", considers the role of interest groups which support or oppose fluoridation. Chapter 7, "Making a Decision", canvasses a range of issues ranging from public decision-making processes in a democracy to evaluations of the strategies of both camps. The final chapter, "Studying the Controversy", provides an interpretative summary of previous social science literature on water fluoridation.

A reason that there has been continuing controversy over the decades about fluoridation is because it involves issues of public policy and power, science, ethics, etc. Numerous issues are involved, only one of which relates to science or scientific knowledge. Martin is clear on the heterogeneity of the debate. However the public health proponents appear, typically, to lack an appreciation of this, despite the fact that their actions have been clearly partisan.

An overall impression I have, having read Martin's book, is how badly the public health professionals have behaved. Their tactics have, at times, been deplorable. Another impression I have is the extent to which deception has been practised by the public health officials.

This is a sobering book which, I think, has some important lessons for more contemporary health issues. The behaviour, attitudes and advice of some scientists, when they become embroiled in issues of public policy, have been well documented in some cases, e.g., in the nuclear industry.[1] But we may be inclined to forget that the arrogance of 'physical' scientism is alive and well in the health sector. It is pertinent to recall that a recent book has found that the practices, which Martin has described in the book under review, have also occurred more recently on issues such as passive smoking and the effect of diet, exercise and smoking on cardiovascular disease and cancer. Practices such as withholding data that do not fit with preconceived views, and making pronouncements which contradict cited sources, are still occurring in health.[2] Martin's book should be compulsory reading for the political activists of "the new public health".

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D.P. Doessel
University of Queensland

Tournament of Lawyers. The Transformation of the Big Law Firm *by Marc Galanter and Thomas Paley* (University of Chicago Press, Chicago, 1991), pp. xii + 198, $US27.50, ISBN 0-226-27877-8.

The operations of city law firms generate wide public interest: LA Law is watched by lawyers and non-lawyers alike. At least part of the interest in LA Law is a vicarious interest in the wealthy who work in the fast lane. City lawyers and city law firms are hot topics.