

## Liberal objections to nuclear power

Geoffrey Sampson

The Editor announces that he would like an article hostile to nuclear energy and I find this invitation hard to turn down. It has puzzled me for a long time that political "libertarians" seem to treat enthusiasm for nuclear energy as part of the package; to my mind, liberal principles tend in just the opposite direction.

In the first place, one of the principal foundations on which political and economic liberalism rests is awareness of human ignorance and intellectual fallibility. If a group of wise men could foresee accurately all the consequences of human decisions and all the changing external conditions that society will face, then a planned economy might be the best way to deliver the goods; but real life is so endlessly complex and unpredictable that such far-sightedness is just impossible - events continually confound the wisest planners' expectations. One virtue of the free market is that it acts as an economic discovery procedure, in which a wide variety of fallible individuals' hypotheses can be tested and winnowed by the impersonal mechanism of profit and loss. This defence of liberalism in terms of human ignorance and fallibility is central to the writings of Friedrich Hayek.

But this principle makes nonsense of the statistics which play such a large role in the pro-nuclear energy literature. Take a statement by Sir Francis Tombs, chairman of the Electricity Council. "Let us ... look at the figures of the average risk of death per individual per year in a hypothetical population in which nuclear industry supplies each person with 10 kWh per day. The risk to that individual (sic) from nuclear operations, including waste disposal, is about 1 in 2,000,000..."<sup>1</sup> Such a figure might be meaningful in a situation where nuclear-energy technology had been essentially stable for decades, so that the various things that could go wrong had already gone wrong several times (though, even then, one could

not know that some novel kind of accident was not lying in wait just round the corner). In current circumstances, where almost all the possibilities are hypothetical (and a technology for disposal of the highly-active fission products in the waste has not even been developed - at the moment they are just stored until someone works out what to do with them), to give any particular figure (high or low) is to reveal either dishonesty or hopeless naivety about humanity's intellectual limitations.

Later in the same lecture Sir Francis noted that at one time the public had been worried about the possibility of accidents in nuclear power stations, but continued in complacent vein: "Today it seems much more generally accepted that the safety engineering of nuclear plants is of a much higher order than that applied to other industrial processes ... the safety of nuclear plants is no longer a matter for major concern". "Today" was one year before the accident at Three Mile Island. That accident does not yet seem to have led anyone to getting hurt, thanks partly to the fact that a supervisor spotted a jammed valve in the nick of time (though Metropolitan Edison are not finding it easy to recruit people for the cleaning up operation, which will have to be done eventually). But what may be less well-known is that, before it happened, the type of accident which occurred was officially classified among the "Class Nine" or "incredible" events - so unlikely that they need not be figured into the risk estimates.<sup>2</sup>

It is instructive to compare nuclear power with an older technology, that of the railways. The history of railway technology can be seen as, a series of hypotheses about how to use signalling and other systems to make railways safe, which were successfully refuted by novel accidents that, in turn, led to improved but still fallible technology. At each stage there is little doubt that those responsible for railways were convinced that they had now got things right; but events kept taking them by surprise. In the early days of the Great Western, when certain individuals were allowed to run trains privately, Charles Babbage (the Victorian inventor of the computer) was once told to

run out of Paddington on what was normally the up (i.e. incoming) line:

*I inquired very minutely into the authority (for this) ... The officer took pains to assure me there was no danger on whatever line we might travel as there could be no engine but our own on either line until 5 o'clock ... While we were conversing together, my ear ... told me that one was approaching. I mentioned it to the railway official. He did not hear it and said - "Sir, it is impossible". "Whether possible or impossible", I said, "an engine is coming ...." ... I soon perceived the line it occupied, and then turned to watch my companion's face. In a few minutes more I saw it slightly change, and he said - "It is indeed on the north line".<sup>3</sup>*

Compare this with the announcement of Stephen Hanauer, head of the Reactor Safeguards Advisory Committee of the U.S. Atomic Energy Commission, a few days after Three Mile Island, that there had been "changes in my thinking ... Core damage is credible".<sup>2</sup>

The big difference between the two technologies is that the worst of railway accidents will kill or injure no more than a few hundred people, almost all of whom will have voluntarily chosen to take the risk of being a railway passenger or employee. Next time something 'incredible' happens at a nuclear power station, the numbers affected could be orders of magnitude higher, both in the current and in subsequent generations; and, even for the contemporary victims, the element of choice (surely important for liberals) will be absent. (If a reactor released radioactivity it would be carried by the wind for long distances in unpredictable directions.) The "pleasant surprise" announced by Richard Vaughan<sup>4</sup> that, because of an unforeseen chemical reaction, the proportion of iodine among the fission products released at Three Mile Island was less than expected by a factor of about half a million is fine as far as it goes; but only children go through life expecting all surprises to be pleasant ones. If the technologists can get things as wrong as this

in one direction, they can do so also in the other.

A second cardinal principle of liberalism is that one should not create social institutions which require those who operate them to be saints. It is naive to imagine that the scientists who advise on the development of nuclear technology will be motivated purely by consideration of the public good rather than by loyalty to their professional colleagues and their own career prospects, that firms selling nuclear plant will be frank about the problems that arise, that the workers in nuclear power stations will always "go by the book" rather than cut corners, or that politicians will be idealistic in deciding whether the public advantages of nuclear energy outweigh the known risks. When construction permits for the Three Mile Island power station were issued in 1968 and 1969, the Atomic Energy Commission routinely issued safety certificates without even seeing plans, because "the promotional role dominated all other A.E.C. interests and obligations. The A.E.C. became so steadfastly devoted to an enlarged nuclear power program that nuclear-plant construction permits flowed from the agency to the industry with almost no close individual scrutiny ..." After it had become evident just how inadequately trained the workers who had had to deal with the Three Mile Island accident had been, British sources assured us, with disdainful sneers in the direction of the crude Yanks, that we need not worry because standards were quite different over here. Some months later a series of radioactive releases were discovered at Windscale: the eventual report on this by the Health and Safety Executive stated that. "The management (showed) lack of judgement and safety consciousness".<sup>5</sup>

Bernard Donoghue, from 1974 to 1979 the Prime Minister's senior policy adviser, recently discussed public fears caused by accidents at government nuclear installations as essentially a PR problem "You have to be seen to be running round".<sup>6</sup> In this spirit, the people criticised in the Health and Safety Executive report have just decided on a radical step to cure the problems at Windscale: they are changing its name to "Sellafields".

Lastly, for many "libertarians" the worst of all the activities of States is their habit of murdering each other's citizens in wars. They ought to be aware that the already horrific effects of nuclear bombs are greatly magnified if they are dropped (accidentally or intentionally) on nuclear reactors.<sup>7</sup> Even a liberal who holds that war can be justified will surely not be keen to place weapons in the enemy's hands, which is what the construction of a nuclear power station amounts to?

Having said all the above, I do not want to suggest that there is a clear case for abandoning nuclear power. I know that there seems to be little alternative; people like my colleague Michael French who are actively involved in designing technology for extracting power from waves or wind are the last people who imagine that such "nice" sources can ever replace fossil and or nuclear fuel. What I am saying is that the issues which people find worrying about nuclear power are issues which ought to worry liberals more, not less, than most. It is not excluded that the only consistent libertarian position might require us to revert to the primitive living-conditions that would be available in the absence of any cheap power.

When nuclear technologists meet the public, their white-coated, authoritative image is often successful in inspiring reassurance. It happens that I have seen a little of the other side. I bought my house from one of the engineers responsible for building the nuclear power station which looms on the horizon 20 miles upwind; when showing me round the house he explained with pride that he had installed its central-heating system himself. I am no handyman, so in due course I asked a heating expert to come and service the boiler. He looked inside, paled, and told me: "Mr Sampson, you've been sitting on a bomb here just waiting to go off".

Doubtless my predecessor is convinced that his power station is as safe as houses.

**FreeLife**

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<sup>1</sup> "Nuclear power and the public good", lecture to the Royal Society of Arts, 19. 4. 1978, published by the Electricity Council.

<sup>2</sup> Daniel Ford, "A reporter at large, Three Mile Island, part 1, *New Yorker*, 6.4.1981.

<sup>3</sup> Quoted in L.T.C. Rolt, *Red for Danger* revised ed., Pan, 1978 pp. 24-25

<sup>4</sup> After the meltdown, *Free Life*, vol.2, no.1, 1981.

<sup>5</sup> *The Times* 10.4.1981

<sup>6</sup> Quoted by Michael Church in the *Times* 15.4.1981.

<sup>7</sup> S.A. Fetter & K. Tsipis, "Catastrophic releases of radioactivity", *Scientific American*, April 1981