

Prime Minister ²

I fear it looks as though Prof Sadler's idea is not a runner.

W040

MR MORRIS
10 Downing Street

I think
we should
not mention it
in the speech. CDP 2/3

1 March 1989

JM

INJECTING OZONE INTO THE STRATOSPHERE:
ARTICLE IN SUNDAY EXPRESS

MT

This article reports on a scheme proposed by Professor Sadler of Alabama University for direct injection of ozone into the stratosphere to make up for decreases resulting from release of CFC gases. I have sought views from Dr John Pyle of the University of Cambridge (who is Chairman of the Stratospheric Ozone Review Group), Dr Steve Penkett of the University of East Anglia, and DOE officials.

2. The first point to make is that ozone is a very dangerous substance to handle. In its neat solid or liquid form it is explosive and is therefore hardly likely to commend itself for distribution by scheduled airliners or even by military aircraft.

3. The mass of ozone in the stratosphere is about 2×10^{12} kg. The sheer scale on which ozone would need to be added to make any impression or even a 1% reduction in this ozone is vast. It would require 200,000 flights of 747-type aircraft with a payload of 10^5 kg (or 100 tonnes). For comparison, Heathrow handles about 80,000 flights per year.

4. Within the last decade there has been a 1-2% reduction in global column ozone. Reductions over the Antarctic are of course greater (about 5% averaged over a year and 50% in the ozone hole). Forward projections using emissions assumed to follow from the Montreal Protocol predict reductions in global column ozone of up to 4% globally by 2040, although because of uncertainties of the chemistry and atmospheric circulation this may well be an underestimate.

5. Assuming it would be possible to inject the ozone into the right level of the stratosphere (it extends well above most aircraft flight ceilings), it could only be added locally eg. along an aircraft flight path, leading to a very concentrated ribbons of ozone. It would take time to disperse widely and will be depleted in the process. There is thus no guarantee that even were it possible to inject ozone at the right level in the massive amounts required that it would have a lasting effect on the depletions. An on-going exercise would certainly be needed.

6. The consensus is that Professor Sadler's suggestion is a very difficult and impractical solution to ozone depletion. An aircraft delivery system would also probably do more damage to the ozone layer than any possible benefits of its payload.

7. You may wish to be aware that a similar idea was mooted amongst other uses for liquid ozone in a letter from Williamson Draper Ltd to the Prime Minister last December. DOE handled the response to this. A copy of the correspondence is enclosed.

8. I have copied this minute to Miss Deborah Lamb, DOE.



JOHN W FAIRCLOUGH
Chief Scientific Adviser

Williamson-Draper Ltd.

16/12- M

The Prime Minister
The Rt Hon Mrs Margaret Thatcher P.C., M.P.
10 Downing Street
LONDON
SW1

13 December 1988

Dear Prime Minister

In the course of taking a consultancy briefing from a new client recently, we were particularly interested to hear of a development project which apparently has far-reaching implications for the global environment. As an extension to their usual activities in the water treatment industry, the company have designed, prototype built and tested a unit to produce liquid ozone in commercial quantities.

Obviously we are not chemists, but we are told that in sufficient quantities liquid ozone injected into the atmosphere could assist to repair the damage done to the ozone layer; used in water treatment will help in the fight to cleanse our rivers and streams; and placed in the cleaning units operating at electricity generating stations and similar sulphur dioxide-producing plants will lessen the risk of acidic rainfall.

The project has now reached the stage of commercial development and the requirement for considerable investment to enable it to proceed. We understand that earlier approaches to the Department of Trade and Industry have met with very little success, and we ourselves have client access to European sources which we are almost certain would offer sufficient funding when notified of the project. However, we feel that this an important British development which should remain in British control if at all possible.

We should therefore appreciate the favour of your passing the detail of this letter on to the appropriate member of your Cabinet - and await the outcome with interest. Thank you for your time and attention.

Yours sincerely
Dennis L. Draper

D T Draper
Managing Director

'Communications in Marketing'

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DRAFT REPLY FROM PS/LORD CANTONESTO D T DRAPER ESQ.,
WILLIAMSON-DRAPER LTD., HURST MILL, DERBYSHIRE LEVEL, GLOSSOP, DERBYSHIRE
SK13 9PT

Lord Cantonest has asked me to reply to your letter of 13 December to the Prime Minister about a client of yours who has designed a unit to produce liquid ozone in commercial quantities. We understand the client to be Filtration Ltd.

You mention three areas in which you suggest liquid ozone might be used:

- Injection of liquid ozone into the atmosphere has practical difficulties. It would have to be delivered to the stratosphere, and even if this could be achieved, by high flying aircraft for example, the pay load limitations alone would rule it out. Indeed, the delivery system would do more damage to the ozone layer than ^{the} possible benefits of its payload.
- Waste water and sewage are normally processed in the UK at sewage treatment works. The effluent at the works is discharged into rivers. These effluents have to meet consents that include standards for levels of suspended solids, biological oxygen demand and often ammonia. These consents were designed to protect the receiving water and allow it to maintain its quality. There is not normally a need to sterilize or disinfect the effluent and this is not the usual practice in the UK. In theory, ozone at sufficiently high concentrations could be used to destroy refractory organics and reduce chemical and biological oxygen demands in industrial effluent. However, in the past the cost has been considered prohibitive, compared to other methods of treatment. If your clients have developed a cheaper process they may well have a useful product. They may wish to put a proposal to the Department's Environmental Protection Technology (EPT) Scheme and I attach a leaflet for their information.
- The cleaning units at electricity generating stations presumably refer to flue gas desulphurisation. If so it is a new market R & D problem. There are, however, many proven FGD systems on the market.

Friends of the Earth report details decade of environmental damage and pollution

Thatcher's 'black record' on green issues

By Michael McCarthy
Environment Correspondent

A critique of the Government's environmental record over the past 10 years, alleging 55 specific "sins", was published yesterday by Friends of the Earth, the environmental pressure group. It called the record "very poor".

The 80-page report covers all issues and environmental legislation in which the Government has been engaged since 1979, and ranges from air and water pollution and hazardous waste disposal, through energy, transport and overseas aid policy, to wildlife, the countryside and farming.

It accuses the Government of delaying or trying to weaken EEC restrictions on air pollution; of weakening sewage discharge restrictions and not pursuing pollution of water by pesticides and fertilizers; of underfunding the Pollution Inspectorate; and of taking nearly seven years to reply to proposals on hazardous waste disposal made by the House of Lords Select Committee on Science and Technology and then rejecting them.

It accuses the Government of allowing hundreds of the country's most valuable wildlife sites to be lost or damaged,

including the Flow Country of northern Scotland, an area of "global significance"; of repeatedly favouring developers in green field sites by weakening planning regulations; of continuing to dump seven million tons of sewage sludge a year into the North Sea; and of failing to clean up Britain's many severely polluted river estuaries and basins, including the Mersey, "which is probably the most polluted in Western Europe".

It says the Government has cut funding on energy-saving initiatives, refused to introduce legislation on recycling drinks containers and refused to support or develop organic farming, "despite the fact that 44 per cent of Britain's arable land is at risk from soil erosion from intensive, chemically oriented farming".

The report instances the 55 "sins of omission or commission" where the Government is alleged to have failed to protect the environment.

Mr Jonathon Porritt, executive director of Friends of the Earth, said yesterday that the report had been produced as a yardstick against which the seriousness of Mrs Thatcher's conversion to "green" issues could be judged. "This is not an exercise in government-bashing", he said, adding that the Opposition's environ-



The report challenges the Prime Minister to "put some substantial political flesh on her skeletal environmental record" by setting up what it calls a "true" Ministry of the Environment. That would involve the hiving-off of housing and local government departments from the present Department of the Environment, which Mr Charles Secrett, the report's joint author, called an unholy mess. "Setting up a true Ministry of the Environment, with a Secretary of State at Cabinet level, is the only way we can have cogent and coherent environmental policies".

His fellow author, Mr Jonathon Porritt, said he thought that institutional change was now critical, but added: "Mrs Thatcher is known not to be sympathetic to a department merely because it exists, and may well be more sympathetic to institutional reform than other prime ministers."

The report also calls for an Environmental Protection Agency, which would integrate monitoring and regulatory functions, and seeks a White Paper on environment and conservation. "Without such a declaration, the Department of the Environment will continue to struggle in any efforts to control the activities of other departments."

mental track record was also "sadly lacking".

"We greatly welcome the Government's change of heart", he said. "But since Mrs Thatcher's speeches last autumn to the Royal Society and the Conservative Party Conference, no one has been able genuinely to take stock: to see if they are coming on strong with good reason, or with no reason whatsoever."

The report, written by Mr

Porritt and Mr Charles Secrett, Friends of the Earth's campaign co-ordinator, alleges that recent claims by ministers that Britain had taken the lead in environmental matters were "absurd", and that the claim in the 1987 Tory election manifesto that "Conservatives are by instinct conservationists", "simply does not stand up to rigorous examination."

The "few" initiatives the

Government has taken, it says, have generally resulted from the European Community insisting on compliance with European environmental protection laws, or from growing public concern.

Central causes of its poor record, the report alleges, are its ideological reliance on market forces and its preference for the "voluntary approach" over regulation of industry.

The report instances the Government's attitude to chlorofluorocarbons (CFCs) — the chemicals used in aerosols, refrigerators and fast-food packaging which damage the protective layer of ozone around the earth. The Government is hosting an international conference on Saving the Ozone Layer next week.

"Ministers at the Department of the Environment are fond of claiming that Britain's 'second to none' protection of the ozone layer through reductions in the use of CFCs has been largely achieved through the 'voluntary approach'. The manifest dishonesty of such a claim must stick in the throat of even the most glib of green Tories", the report says.

"The Government brought no pressure of any description to bear on aerosol manufacturers to phase out the use of CFCs as propellants; they never even wrote to suggest to them that there was a problem about their use, or to ask them what they intended to do about it. This was done by Friends of the Earth."

It goes on: "The United States banned the use of CFCs as propellants in aerosols in 1978. The UK Government did nothing then, and is still doing nothing (in regulatory terms) even now."

Turning to the future, the report says that the omens for the Government "changing its

foot-dragging prevaricatory ways" are not good.

"Nicholas Ridley remains one of the least-loved and most controversial secretaries of state for the environment that there has ever been. With the best will in the world, it is hard to see how Mrs Thatcher's Government will face up to 'one of the great challenges of the twentieth century' under the aegis of a man who holds all environmentalists in contempt and whose grasp of environmental issues remains pretty patchy."

"It is surely significant that Mr Ridley has never attended any of the bi-annual EEC Environment Minister Council meetings since he took over the DoE. The UK is the only country to be constantly represented by junior ministers".

● Britain is the largest producer of ozone-destroying chlorofluorocarbons in Western Europe, according to hitherto unpublished figures discovered by environmental campaigners. A report, to be released by Greenpeace today, shows that the UK may be responsible for as much as a quarter of the EEC's total production of CFCs.

The Environment: The Government's Record (Friends of the Earth, 26-28 Underwood St, London N1 7JQ; £2.50).

Parliament, page 12
Spectrum, page 14