

LEAD IN PETROL

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[0] Organisation

Campaign Against Lead in Petrol, 171 Barnett Lane, Ashtead, Surrey. Ashtead
75977

[1] Letter to Bryce-Smith, 28 Nov 1990

Prof Derek Bryce-Smith
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Wed 28th November 1990

Dear Prof. Bryce-Smith,

First of all, I want to thank you for speaking to me and generally presenting your information to me, all that time ago - well, two weeks. In fact, I decided to write to a publisher proposing a book on this subject (rather than including it as a part of a much longer book on the theme of the ways people are misled), though I haven't heard from them yet; they may regard it as a bit of a hot potato, or maybe they think the topic is outdated. However, I thought I ought to tell you that I'd done this.

The other point of interest is why oil companies continued to put lead in petrol for so many years; I managed to work out a theory that is only about 90% cynical. It seems to me that petrol is basically quite a simple thing to make, i.e. 'only' a problem in chemical engineering; so to give their products more of a monopoly in the market, and keep out interlopers who might for example dump cheap petrol, what they need is a magic additive, analogous to colouring in paraffin. Obviously they couldn't colour petrol, but what they could do is find an ingredient added only in tiny quantities which is so dangerous to make, and protected by patents, that they would have a way of keeping out any firms to whom they could choose not to supply the stuff? This as certainly in keeping with the advertising ethos of the time - an artificial monopoly enhancer, like GL70 in toothpaste, but a bit more unpleasant. As a necessary corollary, though, they would have to maintain that it is essential.

That's the only way I could think to explain their behaviour. Do you think this could be what Burmah meant by 'When they're all in bed together and one rolls over... etc'?

Possibly there's a minor effect caused by the fact that, if an additive is

produced by a separate corporation, its profits can be shown separately; this kind of thing is quite standard in big industries, I think; it enables them to have more control over their profit figures - i.e. typically it enables them to be massaged down in one place.

As it happens, I know a man who used to run an oil refinery; so if the publishers show an interest, I might to be able to add a certain amount of anecdotal etc stuff on these related subjects. I'm not too optimistic that oil company financial people would be over-helpful, though.

Yours sincerely, Rae West.

[2] Discussion with Bryce-Smith

- Notes: [Why use lead at all?] Suddenly occurred to me 5 days after our talk - what must surely be the truth - that lead in petrol is a way of establishing a monopoly against independent suppliers: it's so dangerous to make, that only companies that Octel chooses to supply can make unleaded petrol. Cf Bryce-Smith's mention, below, of the company patent, in the early 1970s, taken out for improved way to manufacture tetraethyl lead. I was excited over this idea: what better way to monopolise a simple substance than to find some additive, put in only in traces? Analogous to colouring paraffin. Further thought: this only works if leaded is made to seem necessary; or if distributors, and/or car manufacturers collude in aserting it is necessary, since alternative suppliers can presumably make and promote unleaded. [NB: another possibility is a check on petrol distribution: could analyse, check it's what it says?]

- b about 1926; 64 in 1990.

- READING UNIVERSITY, 0734-875123, & what must be home number: 0734-723132
- Address of Reading University is: The University, Whiteknights, PO Box 224, Reading RG6 2AD.

- Arrived 12.32 at his room, room 232, having parked outside Food Science and run up the wrong spiral staircases. [Chemistry, engineering and other sciences are at almost the far end of the campus; there's a yet further, unconnected by driveable road, part housing psychology. The main entrance notices refer to letters, fine art, agricultural history and so on, and give the impression of complete lack of science]

- Photos in corridor of research and teaching staff, standing in a group on the grass, since 1965; surprisingly little visual difference - occasional very hairy man, or woman in trousers, or Indian woman in sari, or black face; but generally - in fact there's a joke, or well-known observation, to this effect, that science teachers etc all have a similar look

- Engravings in corridor, with handwritten notes in tiny, old-fashioned script explaining that e.g. Pasteur was a benefactor of mankind, best known for his work on anthrax and ??, and researched on stereoisomers; etc

- Note said 'Mr R West. I have been called away..' and invited me to wait inside. Room narrow, not large. Later, I commented in the 60s architecture and Gallenkamp lab equipment: "I don't call it architecture" he said.

- Biochemical Pathways. 1969 version framed on his floor. On wall, down some steps, is 1972 version: smaller print, more rectilinear, doubtless more information

- Unpublished results with a collaborator: scalp hair, washed normally and washed ultrasonically: averages and standard deviations for list of 20 or so elements

- Sheet on his board titled Beaman's Formula:

$$\text{ug/m}^3 = 3.3 - 9.3x^2 + 21x^2^2 - .4x1x2 + 1.7x1x2^2$$

micrograms/cubic metre at distance x feet where

$x_1 = (\text{daily traffic volume} - 42000)/10^3$

$x_2 = (\text{distance in feet} - 172.4)/10^3$

Urban conditions. Stop/ start motoring.

[I asked Bryce-Smith whether this formula - which appears to be wrong; it doesn't contain x - was a good one; he said no, there are canyon effects, wind direction effects, streamlining...]

- Colour photo of his family, posed studio-type shot; I think he had three daughters.

- [Souvenir on brownish paper with pseudo-seal, horse or unicorn with JUSTUM ET TENACUM as 'motto']:

'Blarney Castle, County of Cork, Ireland

Hereby Certify

that

of

visited this castle and, having kissed

The Blarney Stone

is now sent forth with the

Gift of Eloquence

which this stone bestows.

Signed.. date.. The Keeper of the Stone'

- 1975 press cuttings by, or at least labelled, Patrick Sergeant: 'Pure truth, like pure gold, has been found unfit for circulation, because men have discovered that it is far more convenient to adulterate the truth than to refine themselves.' and: 'Truth is a torch which gleams in the fog, but does not dispel it.'

- Handwritten in ink, with pencilled note about 'Old Sayings of Kidmore End': 'Moderation in all things, including moderation. or Everything in excess can be dangerous, even abstention'

- PhD proposal, pinned on wall: '.. found in [Latin plant name] .. precocene.. chromenes I & II cause precocious metamorphosis of insect larvae which feed on it.. Synthesis similar compounds which might retain biological activity and also be less labile.'

- Similar note on synthesis of ?Ghibellinic acid by a new method, with copper intermediate and free radicals - or something

- Letters from: International Autistic Research Organisation. Patron: Luciano Pavarotti/ I.O.N. - Institute for Optimum Nutrition/ handwritten from young person at the Science Museum, who says interest in alternative energy seems non-existent, a state of affairs he wants to change/ West Berkshire Health Authority letter; I forget what about

- Several tomes on airborne lead, report on lead levels; plus many more books of conventional chemistry

- No equipment

- One small plastic bottle, coloured red or yellow, of additive for petrol, a lead substitute. He explained it's a sodium based compound, related to detergents, which leaves sodium salts round the valve seatings of the few cars that have unhardened valve ?seats. Label had a black X on bright red background in a small square on it - poison - which unfortunately suggested it might be no better than lead; Bryce-Smith said something like 'They have to put that on. It's a petroleum product.'

- Box on the floor of printed leaflets

[My list of questions on computer made day before was something like this; actually I forget to bring the list, scribbled out most of the points on my pad when in Sonning Common. Items marked * not discussed:

- Dioxins; why dangerous; more than radiation?

- Perception of pollution as litter; can't understand e.g. lead, as invisible

- D.N.A.; dangers in research? *

- Lead in petrol/ ancient Rome

- Carothers and CFCs, PbEt4 [developed nylon, said Bryce-Smith]
- Aluminium
- Cadmium
- Destruction of chemical weapons *
- ?incineration of plastic? *
- How well advanced is chemical analysis now? *
- Scientists' biographies, attitudes
- '1/2 scientists work on weapons'
- Scientific magazines misleading
- Interesting anecdotes on the lines of Cartland's 'WW1 exciting time.. men were always proposing..'
- Religious *
- BBC and e.g. Reith assuring ?King they wouldn't be partial; informal groups decide public interest, e.g. appeasement policy *
- Governments differ; e.g. no lead in gas in US since 70s?
- Effects of 'truth'; does it really have any effect? *
- Weapons against: ignoring. Ridicule. "Have a sense of humour"
- Alcohol as a fuel *
- Anti-science in community: education, science magazines, surrealism, pseudo-science, discouragement of girls]

- Door opened as I read his notice board

- He's rather short in stature; I seemed to notice his books were arranged rather low on shelves, without the floor-to-ceiling flamboyance of some people

- Wore a brown corduroy suit, and I think informal shirt with reddish-brown wool tie.

"I don't know how professors work.. Are you allowed to choose what you do?"

"Oh yes there's a great deal of freedom"

".. Opposition to me.. I'm told I lost my F.R.S. .. opposition to my medal.. (indicates black-and-white photo of ceremony of people in academic garb) for the John Jeyes lecture" (Indicates box on floor)

"Really? Is that the Jeyes fluid man?"

"Yes"

"Can I have a copy?"

"Yes"

(I pocket one)

"How was your BBC woman?" [I'd arranged to arrive 12.30, at which time he was going to eat with a BBC researcher or producer or something]

"She didn't come. It was a great nuisance..."

"Oh. Well, have you had lunch?"

"No"

"Oh good. Let's go"

"I've brought some sandwiches."

[He produced a few brown-bread sandwiches with a custard cake in foil, in a plastic bag. He washed his right hand at a little basin, with a towel.

I wondered if this was after handling chemicals? Eventually we head for the Senior Common Room where "You can get something hot." I was interested that he was a believer in 'hot food'. We descend stairs, cross grass in November sun to large house]

"France and Italy are as backward as us. Sweden and Germany are very much better. Eastern Europe is in a terrible mess..."

[We enter rather dim house, panelled ground floor of which has rooms to the left of its hall and stairway entrance room converted to a small cafeteria.

Wood board floor, some very narrow, presumably replaced after pipes or dry rot mad their mark]

"So this is the cream of Reading!"

"Sometimes I think it's the skimmed milk."

"Um how long have you had your chair here?"

"Well, I'm working part-time at the moment. I'm due to retire next year, and two years before they kick you out they put you on part-time"

"So you're 63?"

"64"

"Mm. It's traditional to say things like you're well preserved for your age"

"Well, I think if you're lecturing on health and so on you have to try..."

"How did you start of this business of lead in petrol?"

"I think we'll discuss it when we're sitting down."

[I tell him I'll get sandwiches; ask if we can jump the queue; he says we'd probably get strange looks; I take a 'live' yoghurt and a banana. He pays: £1.03 as I recall. I noticed the cashier didn't ring up my afterthought banana. Now the difficult bit - trying to find a seat. The adjoining room had a square table with four sets near a window. We sit facing each other and I put down my pad. He asks about my books; I tell him I'd written three, about computers, in which he disclaims knowledge, and perhaps interest. I tell him he hasn't missed much. He decides to buy two coffees; I say that's a nice idea]

- "CLEAR. [Campaign for Lead Free Air] Des Wilson." "Australian?" "No, he's from New Zealand. He adopted the oil industry's line on lead. I was a member of the committee who appointed him. .. He was a good P.R. man and he'd done his homework. He was the most impressive.. He had detailed plans. But they didn't include adopting the oil industry's line on lead.. I think he used the lead issue as a stepping stone in his career.. My experience doesn't encourage me to place great reliance on him. By the way, are you recording this?" "No. No, I wouldn't.." "It has been known."

- "What were the stages in the process?"

- "Began in 1920, before catalytic crackers and alkylation

- Lead tetraethyl: workers driven insane

- Continued after technically unnecessary"

"They said there are two things you can do either modify engines, or composition of petrol

-Unsanitary: denied

-When the evidence was overwhelming, 'only a little bit' - damage nationwide

-Further statistical precision - OK, you can have lead free petrol. But you will have to modify engines.

-They introduced 95 octane petrol at first [see below] knowing most cars couldn't use it..."

- "High octane, no lead, is much better fuel. Less emission of ?unbound hydrocarbons.. oil lasts longer.. silencers last longer.."

- "Oil companies have a big investment in the status quo" [He mentioned an oil company he visited had a hot line to another company - its internal phone directory had a one-figure number straight through]

- "Clair Patterson [man] was a geochemist.. he was violently attacked [not physically!]. In 1980, National Academy of Science report said ?world?wide lead levels were 100 to 1000 times natural levels, the levels we have evolved with.. antisocial propensities.. delinquency, raised blood-lead levels.."

- "Oil industry decided to 'tough it out' to use a Thatcherite phrase, though they knew perfectly well.. series of misjudgments.. they could have got credit for behaving in the public interest.. instead they ?made lie after lie.."

- "Associated Octane manufactured tetramethyl and tetraethyl lead.. 70% of the market outside the US.. very profitable.. owned by a consortium of oil

companies..." [They got a Queen's Award for Industry presumably for exports]

"Is that for technical reasons? A technical monopoly? I mean it's difficult to make?" "... precautions like nerve gas"

- "If unleaded is burned, when properly formulated, silencers last longer, plugs last longer, engine wear is reduced. They had to pretend it was essential. That's why there's a phased introduction - so it doesn't look so serious."

- "Is there a valid comparison with the Roman Empire?" "Yes. Roman skeletons of upper class Romans.. lead water pipes condemned by Vitruvius in 20 B.C. .. Sapa was syrup made from wine, boiled in lead vessels." "Um, so the alcohol boiled off?" "Yes. [I think he said; must have been an unappetising drink. Perhaps he meant grape juice] Lead acetate acts as a preservative; it knocks out the enzymes of ?fermentation bacteria."

- "Yes, of course. There's a popular name, isn't there. Sugar of lead."

- "And paint - pica in children - they chew paint, the more lead the more they like it, the sweeter it tastes.."

- "A suppressio veri. A suggestio falsi. You know what that means?" "Yes"

- "I remember reading the Russians thought of using manganese compounds."

"No. Manganese miners get a disease called manganism. Nearly as bad as lead. Symptoms are similar to Parkinsons. Oddly, they sometimes get greatly increased libido." "So watch out for manganese miners" "It is an essential trace element, unlike lead."

- "Lead is an antagonist of Zinc and Calcium. Most peoples' diet is deficient in zinc. Because of food processing, soil impoverishment, and the use of superphosphate, which affects ?bacteria known as mycorrhizia [spelling?] which affects the roots' uptake of iron and zinc."

- "Zinc is much more toxic to plants than lead; in man, it's the other way. All plants tend to take up cadmium, but this is not true of lead. But plants take in metals through their leaves" "Through their stomata?" "Yes. That's why airborne lead is dangerous to plants. .. even root vegetables, carrots, have been found with high levels of metals taken in from the air."

- "There's zinc in insulin, isn't there?" "Insulin is a hexamer with zinc and chromium."

- "Is silver a trace element? I met a chap who said it was found in visual purple.. and fibre was good for you because it allowed silver to pass through the stomach and not precipitate as silver chloride.." "[He didn't quite say 'nonsense' but he seemed three-quarters of the way there. I didn't remember the expression 'silver porphyrin' which might have helped]. "... darkening of the skin.. colloidal silver.. argyria.. no obvious adverse effects.."

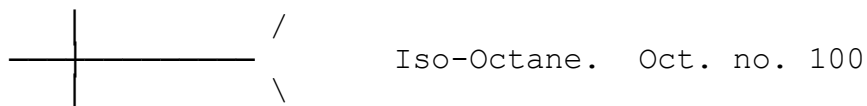
- "Cd, Pb, Hg 'heavy elements.' (Some people want to include aluminium, but that's not a heavy element.) All non-essential to life processes. .. similar groups in the periodic table. They are anti-nutrients - I think I introduced that term." "Did you invent 'anti-vitamin' too?" "Rmm. They have a strong affinity with sulphur. -SH is very common on enzymes..."

- "Cadmium damages the tubular structures of the kidneys. And partly the liver. Find Cadmium ion in the urine" "Is that visible? I mean a colour?" "No, it's colourless. You have to test for it. Cigarettes are the main source of cadmium. Very little is taken in by the gut, about 2%, but cadmium inhaled in aerosols is very efficiently absorbed... Low birth weight babies are correlated with high cadmium levels.."

- PETROL: "What's catalytic conversion? I know about these towers with various levels, where they fed in crude oil.." "That's just the separation of boiling fractions.. most of the hydrocarbons are unbranched.. For a fuel you want even speed of propagation of the flame front. It's like the difference between cordite, which burns evenly, and TNT, which explodes, and would blow up the gun barrel. 1. Shorter chains mean higher octane. And 2. Rearrangement with a platinum catalyst - sometimes called

'Plat-forming'. that's nothing to do with.. " "Yeh, of course. So it has to be done anyway?" "Yes. This is n-heptane... (Draws:)

n-heptane $\diagup \diagdown \diagup \diagdown$ Octane number 0.



- [NB: I didn't find out what 'alkylation' means]
- "Average [I think he said] is 55 for ?uncracked petrol. So this process has to be done in any case... When they first introduced unleaded, they set it at 95, knowing that most cars needed 97, to persuade people the absence of lead was unsuitable. 'Supergreen' has an octane of 97 or 98."
- "I was a consultant.. patented in 1971 or 1972 an improved process for production of tetraethyl lead. My name was on it. I don't get royalties or anything. That's just to show they can't call me an ivory tower academic, out of touch with the real world.." "So it's about to lapse, is it? Patents last 20 years." [He seemed surprised; obviously hadn't thought of it]
- "Another function of lead is supposed to be with unhardened valve seats. Deposit of lead salts on valve seatings which prevented excessive valve wear. There's a slight modicum of truth in this. It costs 50p a car to inductively harden valve seats. Small minority of cars as a false economy are of this sort. Non-toxic alternatives.. similar to detergents.. Traces of sodium salts on valve seats. The motorist has to ask for it." "I saw a plastic bottle on your desk.." [Come to think of it, 'bench' is the right word] "So someone with that sort of car could add traces of sodium salt to 97 octane unleaded and put padlocks on all leaded pumps tomorrow."
- "Another thing the oil industry keeps very quiet about are lead scavengers which have to be added. Originally, lead stopped knocking, but excessive contamination of lubricating oil with lead oxide mainly. By adding organochlorine compounds, $PbCl_2$ would come out of the exhaust instead. EDC, ethylene dichloride, is the usual additive. $ClCH_2-CH_2Cl$. [NB: isn't this 'Ethyl dichloride'?] Generates HCl during combustion. Reacts with PbO. Of course HCl is very corrosive. That's why silencers don't last.. and gets into lubricating oil. But they don't want people to know that."
- "Lead free saves 2-3 cents a gallon"
- "They could add what are called ?oxygenates. [I.e. compounds, like alcohol, with oxygen in]. MTBE, methyl tertiary butyl ether has octane number of 116."
- "The Environmental Protection Agency of the US in 1984 investigated the economic implications if all US petrol was unleaded. They concluded there'd be a net saving of \$704 million plus what they called 'non-monetized health benefits'. ... The Department of the Environment is a very tame pussy-cat indeed."
- "The oil companies have the keys to all the back doors.. they get to know all the top civil servants.."
- "High blood pressure.. 2 big US studies.. risk factors on high blood pressure.. over 60 factors.. after age and other things were taken into account, lead was still significant..."

- "Volkswagen agree with my stand now." "In every respect?" "Yes, in every respect."

- "Civil Aviation. Until 1972, lead free" "Not in jet engines, surely?"

"No. Piston-engined aircraft. Avgas contained no lead. They withdrew unleaded, and introduced an 'equivalent' leaded grade for piston-engined aircraft. The C.A.A. issued a warning sheet about problems, including increased frequency of maintenance, fouling, corrosive wear; 'where the lead content is reduced, this can be expected to have beneficial results.'"

- "Russians in the late fifties - was it 1959? Found lead-induced behaviour effects in traffic policemen. .. Only unleaded in major Russian cities."

- "It's a Central Nervous System, CNS, toxin. Earliest symptoms, before the classic ones of wrist drop, headaches, pains in joints, are learning difficulties, loss of stress resistance, loss of adaptability. Russians introduced tests for these when no-one else did."

- "Lead causes IQ deficit of 5 to 10 points"

- "Still birth tissues have high lead levels. Correlated with drinking water. Fumes from exhausts can fall out thousands of miles away..."

- "I've heard chelates, crab-like molecules, can get metals out. It that true?" "Yes. A chelating agent is penicillamine, a degradation product of penicillin. But it takes out Zinc and Copper too.."

- "Everybody in this room is affected.. subtle impairments.. lead is by far the most dangerous and insidious pollutant. It affects the brain. The most important organ..."

- "In 1954 I was an ICI post-doctoral fellow of Kings College, London. In those days "Nobody talked about the environment. I wanted some lead tetraethyl for an experiment, to test the action of ultraviolet light, nothing to do with petrol. I found it was not listed in any chemical catalogue. Although hundreds of thousands of tons were manufactured a year [sic; don't know modern figures]. I contacted Associated Octel. Perhaps I could buy, or maybe they could donate a few grammes? It clearly embarrassed them. They said they were sending a man from Ellesmere Port to explain matters. He said they didn't make it available even for research, because of its extreme toxicity.. It's a colourless liquid, readily absorbed through the skin. If you get one drop on to your skin, it gets to your brain, and you'd go mad. Even if you drop it on the lab floor, its penetrating power is so great you'd have to have the whole floor taken up.. if anything like that happened, the press might get hold of it and suggest we shouldn't put it in petrol.. well, that suggested to me they were keeping a very low profile.

I did in fact get some, and I treated it with the sort of care with which I'd handle nerve gas.. Well, this lay dormant in me.. till Dupont in 1968 or 1969.. lead plant.. personal call outside working hours.. Patterson.. Well, I lost my FRS, I'm told" "Oh you're in good company! H G Wells never got an FRS" "I didn't think of that. Thatcher got a FRS. That shows how politicised it's become" "Really! God. You could be like Jean-Paul Sartre, and turn it down!" "I found my consultancy with Du Pont terminated. Threats were made." "Did you lose your job?" "No. I was supported by the Vice-Chancellor." "Was that in the interests of academic freedom?" "Er yes." "Who was he?" "Harry Pitt." "He's not still there?" "No."

- "So what was the strategy against you?" "I'd find stories in circulation. My first wife died in a car accident and as a result I was obsessively anti-car. Or another one was that I was a hypocrite, because I drove a Rolls-Royce." "Or I suppose any car." "The C.M.O. [Chief Medical officer] of Octal .. interview with a Swedish journalist.. said looking at me, I showed signs of paranoid schizophrenia. Dr Barry. He died of a CVA" "You said there could be a link.." "Yes. I wonder about that. I think he probably got his desserts." ... Journalist.. half way through my professional career.."

- "Lead is by far the most dangerous." "Dioxins?" "Dioxins? Nothing like as dangerous. Even dioxins eventually degrade." "Plutonium? Hasn't that got a half life of 250,000 years?" [I quoted a TV program] "24,500. It's very toxic" "But presumably it doesn't actually give off much radiation" ". . . ability to be concentrated gives a high dose to certain organs.. don't really know. I mean you can handle a piece of it - below critical mass! - and you'll be OK if you wash your hands... Lead is an element with an infinite half life! That's the problem with these elemental contaminants - you can't remove them! You can't go round picking up every grain with tweezers..."

- "If levels are pathogenic before conception, leads to death. The brain is the target organ. . . abnormal intermediary metabolites.. Notorious in the lead industry.." [He drew attention to an article on improper factory examination in a lead battery factory, in New Scientist, 10 Nov 1990, p 16. NB: My father told me he wanted Mandy, his daughter, to be a factory inspector; but she didn't like it and rebelled, becoming a social worker.]
- "generations of sociologists have been taught behaviour is about social causation. Not diet, pollution..."

- "Lord O'Hagan, House of Lords debate. Called for a technical briefing. I mentioned micrograms of lead in decilitres of blood, and he threw up his hands in horror - if I use words like that half of them will turn off their hearing aids!" "Was that the end of the briefing?" "No, we went on. But there's a tendency for people in administration to be technically illiterate.. PPE.. Greats.. out to the Colonies .. etc."

- "The ethic of science is different from the ethics of politics. The ethic is truth, by the progressive elimination of error. The ethic of politics is opinion. If the majority believed the earth is flat, a politician would say there's a lot to be said for the view!" "Well, it's a nice theory.."

- "I gave a talk to The Board of Burmah Oil in 1971. They were planning to introduce unleaded because it's a better fuel. One said; 'It's like half a dozen people in bed. If one turns over all the rest have to.' They prepared an advertising campaign, with a slogan 'Clear petrol. Your oil lasts twice as long.' But they didn't want to break ranks. Once they started on a path of lies they were forced to tell more and more. Nobody rose in the oil industry through excessive concern of his fellow man. The oil industry is like the dinosaurs. A very complicated and efficient machine for turning grass and plants into dinosaur dung. The oil industry turns oil into money."

- "Is the present situation controlled by legislation? You know, the maximum levels of lead" "There's no legislation. There's a regulation.."

- "If you want an anecdote: Balmoral water had a lot of lead in the 1970s. On holiday.. I'd take sample bottles, bring them home. Small village ?Crathie right next to Balmoral - soft, acid water. It's interesting that ?Crathie is known to be an unhealthy place - pains in joints etc. I took a sample from a little cafe outside Balmoral, attached to the castle. The lead level was twice the hazardous level of the WHO. I sent a note to Prince Philip's secretary.. never had the courtesy of a reply. . . A Christmas visit from a retired ex-colleague, who happens to live in the village of ?Crathie - he was taking the Royal Train to Balmoral. He promised me he'd take my photocopies of the correspondence and I could be sure they'd be placed in the hands of the Queen's secretaries. Still I heard nothing.. several months later at a department open day I was approached by people, hoping for a ?franchise on a new independent TV enterprise, and wanted me to present environmental programmes; well, that came to nothing. A reporter said, I can give you a good story. We had a big map of the British isles, with big arrows showing high lead levels, including Balmoral Castle. I happened to

be away, on a lecture tour of Irish universities - I was in Galway, after lunch. The bell rang. Associated Press asked me if it's true about the Queen's water being poisoned. I said yes, and I hadn't received the courtesy of an acknowledgement. .. very discourteous. Reuters, The Times, all this made front page news: 'Queens Water Poisoned.' - All they said was 'their analysis didn't get the same level' which of course didn't mean anything.. I got a letter six months later from an architect in Edinburgh... wondered if I knew.. all the lead pipes in Balmoral had been replaced? When it was built in the 1830s, the hazard was known then: tinned copper pipes had been specified for the royal apartment. All the servants rooms had lead pipes.

[Note: Could be relevant to Queen Victoria; John Brown etc; lunacy in some members of Royal Family at present day?]

- Glasgow replaced council-owned lead pipes. Children with mental retardation.

- "In any scandal, what do you think is the best thing to do?" "Get publicity. Publicity! I've given hundreds of interviews and talks" "But. Um it's not in the mainstream. I mean you don't see it.." [I couldn't think how to express the idea that in hundreds of news programmes, science programmes, current affairs programmes, general interest programmes, broadcasts, motoring magazines and programmes, in-house car journals; the sum total; of stuff about lead was tiny and appeared like a curiosity..]

- "What about vehicle manufacturers?" "They have solidarity. VW broke ranks. BMW, Ford started to criticise. There's general solidarity. People attack me, in the hope that when they're attacked, others will spring to their defence."

- "I really must go"

[Went back to his office to check I hadn't left anything. "Did you ever write anything about this? A Penguin Special or something?" "It's a matter of time. I never had time." I said he was a credit to Reading. He smiled as he closed the door: "If there's anything you need to know, please get in touch." "Thank you."]

[3] Thorsons Book Proposal

Thorsons Publishers Ltd
Denington Estate
WELLINGBOROUGH
Northants
NN8 2RQ

Mr R C West
58 Littleton Road
ASHFORD
Middx
TW15 1UQ

17th November 1990

Tel: 0784-246428

NEW BOOK PROPOSAL

SUGGESTED TITLE: LEADED PETROL - THE CONTINUING SCANDAL

SUGGESTED CONTENTS:

Background: Early motoring: petrol in the 1920s and the first introduction of lead compounds/ Subsequent invention of cracking procedures which made high octane refining possible/ simple sketches to show molecular processes of petrol components and burning

Post-War Expansion: Lead tetraethyl and tetramethyl compounds production increased to level of hundreds of thousands of tons/ Other additives as lead 'scavengers'/ Warnings in US and elsewhere/ Toxic and neurological effects of lead/ Patent taken out in early 70s/ Separate company owned by consortium to make highly profitable lead compounds

Reaction to Criticism by the Industry: First denials of the problem until the evidence was overwhelming; examples of government and other reports, effects on children, delinquency etc, low birthweight babies, CVAs/ Phased introduction of lead-free petrol at deliberately low octane level, to make it appear that lead is necessary

Present Situation: The myth of engine conversions/ Could be abolished tomorrow, instead of taking 70% of the market/ Motor vehicle manufacturers opposition to lead/ Benefits of fuel free of lead adulteration include longer oil life, longer lasting silencers in addition to health benefits/ Use of alternative additives for a few older vehicles/ Lessons (including royal anecdote about Balmoral; and international comparisons) and conclusions about business and science ethics, and public knowledge.

[4] Oil Industry Views?

- * Contact Judy Levy's ex-oil refinery manager via Dorothy and Matthew?
- Get oil industry view: refining costs/ additive costs?

[5] Distribution Industry Views

- See leaflets on leaded petrol

[6] MUCH LATER letter re Dick van Steenis

Rae West
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Date: Wed 11 June 1997

Prof. Derek Bryce-Smith
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Dear Professor Bryce-Smith,

Orimulsion

You may recall that we had a conversation back in 1990, in the chemistry department of Reading University. I seem to remember you were about to leave; at any rate, I hope this letter reaches you.

Recently I've been in touch with a retired GP, Dick van Steenis, who lives in Milford Haven, and who has been campaigning against the use of orimulsion fuel in power stations (there are related issues involving bitumen 'bottoms')

and cement works). He maintains, no doubt correctly, that there's overwhelming evidence for increased asthma, heart disease and cancer in the 'footprint' of such power stations, but hasn't got very far in having his case publicised, because of various forms of obstruction and refusal to allow him figures - no doubt you can imagine the kind of thing. I'm trying to help him put together a proposal to make a TV programme on the subject and would be interested to know whether (a) you have investigated the effects of airborne fine particles of heavy metals and arsenic, (b) you'd be interested in appearing in a film or otherwise assisting. We're trying to do this fairly rapidly; the first stage is to submit a detailed (but not too detailed!) proposal and it occurred to us that you might be a suitable person to approach, partly so we could supplement our various more local figures with someone better known.

I'd be grateful for and interested in your reply.

Best wishes, Rae West.

[7] Bryce-Smith's handwritten reply

Essentially says he's still working in pollution, appeared on TV last year, and would do what he could.

[8] Follow-up letter (inc van Steenis's paper)

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Date: Sun 29 June, 1997

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Tel: 01189 723132

Dear Prof. Bryce-Smith,

Thanks for your letter (dated 15th). I have a number of separate comments:

[1] Enclosed is a photocopy of Dick (not Richard - he's of Dutch 'extraction'!) van Steenis's work, as published by a group called 'Freedom to Care'. In

common with many people in this sort of situation, there's a tendency for the victims or enthusiasts to get carried away in a maze of sub-issues...

At any rate, I enclose it, with apologies for the rather poor quality of the maps.

There are several distinct issues including (this is my list; not intended to be exhaustive):-

1. Whether in fact orimulsion was burnt - it appears the relevant authorities and companies carefully refrained from taking any samples

2. Whether the burning caused a footprint; I exchanged letters with Prof Beament, also an Emeritus, who was chairman of CEGB research, but who thought the chance of getting a footprint at all was 'forlorn'; this seems in such contrast with van Steenis's work that I asked how this conflict of opinion could possibly occur; Dick told me that if chimneys are run cold, to save money, the particles etc only rise a few feet, then fall, particularly if there's mist etc

3. How dangerous the resulting stuff is; there seem to have been lots of asthma cases, but not many heart or cancer deaths - but then, it appears the figures for these latter are almost impossible to get hold of, and in any case of course there are delays in the causes/outcomes in such diseases.

4. Whether the investigating authorities have been negligent or criminally negligent. (Van Steenis maintains one of these organisations gets all its income from investigations; they therefore don't want to close them!)

5. Networks of colleagues/ friends/ people on boards/ spouses who mutually cover things up. (E.g. planning officer being husband of local MP).

[2] Should you wish to know, Dick van Steenis is at:

11 Lilac Close,

MILFORD HAVEN,

Pembs.

SA73 1DF

Phone/fax 01646-690550 (Phone first to say you're faxing)

[3] Dick maintains that 'gasification' makes fuels like orimulsion safe; his description made it sound as if metals like vanadium were converted or floated off into a slag or ore-like substance, and made pretty much completely safe. All other European countries burning the stuff, he said, use this method. This sounded unlikely w.r.t. arsenic, at least to me, and I wondered whether you have information on the engineering aspects of this sort of thing?

When dealing with cement works, there are alternative processes - scrubbers and electrostatic precipitation I think being mentioned - but with orimulsion, particle sizes are so fine that precipitation doesn't work.

[4] I visited him a week or so ago & exactly on the same day a public enquiry into orimulsion burning in Pembroke was announced; my guess is the object is to whitewash the stuff retrospectively, or perhaps to offload the cost of future treatment onto the public.

[5] He also is on to a related topic, the increase in malformed births in a part of the Rhondda near a dump where, no doubt also through negligence, assorted stuff has been dumped; apparently this has led to increases (according at least to van Steenis) in the rate of ?schistognosis (I haven't checked the spelling; this is a wild guess), something I'd assumed was very rare, in which baby's intestines are partly outside the body.

[6] He's been to the News of the World with this, and the Sunday Times with the orimulsion story; though I'm not sure how much they've published.

From the TV point of view, so far as I can tell as an intermediary and outsider, this makes it less exciting as a story. (NB I recall seeing you on the Purdey OP programme.)

If you have any comments on the above, I'd be interested, as no doubt van Steenis would. (Rather to my surprise, he hadn't heard of you or your work, which is why I got in touch).

[7] This is a completely different matter: a friend of mine, ex-Surrey University, a retired physiologist called Dr Harold Hillman, has spent most of his working life opposing the establishment in several fields of biology, including the interpretation of electron micrographs/ the mistake, in his view, of the idea of 'transmitters'/ the structure of the brain. He's made little impact and lost his tenure as a result. He has a somewhat sceptical outlook and (for example) has doubts over the biological effects of lead - though perhaps you're not the person I should mention this to. I wondered if you'd mind talking over your experiences with him and with me? I'm trying to piece together as many 'dissident' views as I can, with a view to working out the general principles of the way information is controlled, and like to interview people on that basis. I hope this doesn't sound too odd. Perhaps we could arrange a meeting some time in, say, summer or autumn.

I look forward to hearing further from you,

Best wishes,

Rae West.

[9] Letter Suggesting a Meeting with Harold

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Date: 5 September, 1997

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Dear Prof. Bryce-Smith,

Thanks for your return letter some time ago on Pb, Cd, Zn, Mg. So far as I know Dick van Steenis hasn't got very far (though a couple of newspapers ran his part of his story, and there's due to be a public enquiry into orimulsion-burning in Pembroke).

I still wonder whether you'd be interested in meeting Harold Hillman, as it seems a pity that two such independent-minded people, moreover essentially on the same public health side, should never meet. Possibly you could supplement his chemistry, and he could point out a few traps and myths in biochemistry (one example being the so-called 'high-energy bond' in ATP). Even if not, I wondered whether I might come on my own & discuss things with you again? I made detailed notes at our last meeting (Nov 1990) and would be interested to know whether you've changed your tack on anything & written new papers. I'd also be interested if you've established anything on the various organophosphorus compounds.

Best wishes,

Rae West.