The Big Smoke: Fifty years after the 1952 London Smog

edited by:
Virginia Berridge and Suzanne Taylor

Centre for History in Public Health
London School of Hygiene & Tropical Medicine

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The Big Smoke: Fifty Years after the 1952 London Smog

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Seminar chaired by Professor Peter Brimblecombe
Edited by Virginia Berridge and Suzanne Taylor

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Citation Guidance

References to this and other witness seminars should take the following form:

> Witness name, in 'Witness Seminar Title', held [date of seminar], ([Organising institution], [date of publication], [full internet address of seminar]), page number of reference [use the number given in the header at the top of the page referenced].

For example, Sir Donald Acheson's memories of the patients at the Middlesex Hospital in 1952 should be footnoted as follows:

> Sir Donald Acheson, in 'The Big Smoke: Fifty years after the 1952 London Smog', seminar held 10 Decembr 2002, (Centre for History in Public Health, 2005, http://www.icbh.ac.uk/witness/hygiene/smoke), p.20.

For Harvard reference style, use ([Organisation] Witness Seminar, date of publication) in the text, and the following style in the bibliography:

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> http://www2.h-net.msu.edu/about/citation/general.html

Further Reading

Parker, Roy, 'The Struggle for clean air' in P. Hall *et al* (eds.) *Change, choice and conflict in social policy* (London: Heinemann Educational, 1975, reprinted 1986), pp. 371-407.

Jackson, Mark, 'Cleansing the air and promoting health: the politics of pollution in post-war Britain' in V. Berridge and K. Loughlin, *Medicine, market, and mass media: producing health* (London: Routledge, 2004).

The Big Smoke:
Fifty Years after the 1952 London Smog

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This witness seminar on the 1952 London Smog was organised by the History Group (now the Centre for History in Public Health) of the London School of Hygiene & Tropical Medicine as part of *The Big Smoke: Fifty Years After the 1952 London Smog - A Commemorative Conference.* **The conference was held at the Brunei Gallery SOAS, on 9–10 December 2002 and the witness seminar took place on the morning of the second day of the conference. Witness seminar panel members were invited to talk about their memories of the 1952 smog and the audience was asked to contribute their own experiences and to question the panel. Members of the panel were: Professor Roy Parker, from the Centre of Social Policy; Sir Donald Acheson, formerly Chief Medical Officer (1983-91); and Professor Richard Scorer, Emeritus Professor and Senior Research Fellow in Mathematics and Environmental Technology, Imperial College of Science, Technology and Medicine. Peter Brimblecombe, Professor of Environmental Sciences at the University of East Anglia, chaired the seminar.**

PETER BRIMBLECOMBE We will hear from some of the witnesses for a short period, then we will open up the floor to either questions or personal observations and reminiscences. I'm going to try not to interrupt too much, because I was not a witness, and of course what we want to really gain are the impressions of the time, and of what followed the smog. I'll be very happy to receive questions and observations after we go through our introduction. So, first I would like to introduce Roy Parker, who's going to tell us some of his experiences from a historical and analytical perspective.

ROY PARKER I was a third-year student at the London School of Economics in December 1952, so I lived through the days of the Great Smog. In that sense I was certainly a witness. However, what might be useful this morning is if I were to develop a theme which would link the

context of the time with my own experiences and memories of the event. The theme I have chosen is delay. You've already heard about some of the delays in the appreciation of the extent and nature of the ill- health which was associated with the smog. Obviously one of the reasons for that delay was that it took time for the mortality returns to be made. It also took time, as we've also heard, for these to be analysed in a pre-computing age. I was reminded that even towards the end of the 1950s when I undertook my first piece of research that there were just six computers in the whole country, and that if you wanted to use one, you had to join the end of a long queue. In 1952 there was no computing short-cut to analysing these data, which in many cases were quite slow in being returned. However, when the London County Council's Chief Medical Officer of Health at the time made a report to his committee six weeks after the event, his calculation was that the excess deaths amounted to 445 for the week ending the 18th of December. After ten weeks, the General Register Office published its estimate which the Chief Statistician put at 4,000. It was this figure that gained currency at the time, and which was regularly quoted thereafter.

So there was that delay in actually appreciating the scale of death and the ill-health that was associated with the smog. It's understandable therefore that at the time the media focused on almost anything except the effects of the smog on people's health. The most important thing that they concentrated on was the disruption of transport. The second (because the smog occurred largely over a weekend) was the cancellation of almost every sporting fixture in the south-east of England. Thirdly, the popular press (as it might do today) concentrated on what was claimed to be the enormous increase in street crime. Finally, as you've heard, it was the death of prize cattle at the Smithfield Show* which captured media interest. Nothing about human illness or death was reported until much later. As well as this reason for the delay in appreciating the extent of the damage done to health, another concerned the influence of the political situation. Macmillan* was then Minister of Housing and Local Government, and he stoutly resisted all calls for an inquiry to be set up into the London smog until May 1953. Why was there such a resistance to make any kind of political response? One explanation is that the responsibility for air pollution and clean

The Smithfield Show at Earls Court is one of England's premier agricultural events, run by the Smithfield Club (founded 1799). In 1952 the London smog was blamed for the death of several of the prize-winning cattle. This has been questioned by Professor Patrick Lawther, head of the Air Pollution Unit at St Bartholomew's Hospital London, in an unpublished interview carried out by Professor Berridge and Suzanne Taylor in 2003.

Sir (Maurice) Harold Macmillan (1st Earl of Stockton, 1894–1986), Conservative politician. Prime Minister 1957–63. Earlier posts included Minister of Local Government and Planning (1951–4); Minister for Defence (1954–5); Foreign Secretary (1955) and Chancellor of the Exchequer (1955–7).

air was divided at central government level, and had only recently been passed to the Ministry of Housing and Local Government from the Ministry of Health. And in the Ministry of Housing and Local Government at that time there was just one civil servant responsible for all aspects of air pollution. The other thing which needs to be borne in mind is that it wasn't just that responsibilities were divided between Ministry of Health and the Ministry of Housing and Local Government. There was also the Ministry of Fuel and Power that carried certain relevant responsibilities. Furthermore, the responsibility for air pollution at Housing and Local Government was by no means a primary interest. At the time Macmillan was endeavouring to fulfil the promise that the Tories had made in their election manifesto of 1951: namely that they would build 300,000 houses. Certainly in his autobiography Macmillan* says quite clearly that this was his outstanding preoccupation.

Harold Macmillan, *Winds of Change*, (Macmillan: London, 1966).

It is important to realise how dominant the issue of housing shortage was at the time. We had built no houses during the war years, and many had been destroyed, certainly in London. Many others had been damaged; there was overcrowding and the condition of the housing stock was extremely poor, not least with respect to heating and insulation. Yet, we didn't even begin to tackle slum clearance until 1956. So Macmillan was preoccupied with housing, par excellence.

Another factor that I think slowed any kind of political response to the smog and its implications was the impending General Election and that the Tory Party was in the process of transferring its leadership from Churchill* to Eden.* At Central Office there was considerable uncertainty as to the Party's electoral fortunes. This was one of the reasons why it was so sensitive about the reaction of the voting public to any steps to deal with the pollution caused by domestic coal fires. Would it cause a backlash against the Conservative Government that would tip the balance against it at the next election?

Sir Winston Leonard Spencer-Churchill, (1874–1965), Conservative politician. Prime Minister, 1940–5 and 1951–5.

Anthony Robert Eden, (1st Earl of Avon, 1897–1977), Conservative politician. Prime Minister, 1955–7.

The other factor which I think is worth bearing in mind is the question which was touched on yesterday: namely feasibility. The view in the Ministry of Housing and Local Government at the time was that any move towards further clean air legislation would be very difficult to achieve, and therefore it was better to delay. There was, for example, the question of an inadequate supply of smokeless

fuels; but there were other things as well. It was calculated that there were about 12 million domestic grates which were not able to burn smokeless fuel. Some kind of subsidisation would be necessary in order for the necessary adaptations to be made. There was also the issue of steam locomotives, of which at the time there were some 20,000. These were often concentrated in the major cities; and that was certainly true of London. As well as the domestic hearths they too were burning very poor quality coal. Whereas in the 1920s and 1930s some of our best coal had gone to fuel ships and locomotives, that was no longer the case. The better quality coal was being exported. None of which could be dealt with in the short term. These were all questions of feasibility. The last consideration that helps to explain why there was such a delay in any kind of political response to the smog was a wait and see philosophy, particularly the hope that there would be no repetition for some time. All kinds of possibilities loomed on the horizon. For example, there was the British Transport Commission's modernisation scheme, which was actually published in 1955.* This included a plan for the phasing out of steam locomotion. There were also clear plans for the establishment of nuclear power stations, the go-ahead for the construction being given in 1955. Such prospects gave the impression that if only we waited for a few years then things would begin to resolve themselves.

In 1955 Sir Brian Robertson, Chairman of the British Transport Commission, announced plans for the complete modernisation of Britain's railway network.

An interesting question however is, why in May 1953 Macmillan actually capitulated and agreed to a committee to inquire into air pollution (the Beaver Committee),* despite having said for nearly six months that that was the last thing he intended to do. There seems to have been two major reasons for this change of heart. One was that the Conservative Parliamentary Committee on Fuel Policy was very anxious to see a movement away from dependence on coal. It included some pretty powerful backbenchers, who, in my opinion, were partly responsible for changing Macmillan's mind, not least in order to curtail the power of the miners especially as it was exercised through the National Union of Mineworkers. There had been many strikes in 1952, and as was to be heard right through to Thatcher's* Government, talk of the miners holding the Government to ransom.

In 1953 a Committee on Air Pollution under the chairmanship of Sir Hugh Beaver was set up and reported after working for 21 months. It reported that the problem of clean air might take as long as 15 years to solve and that there was a clear link between pollution and respiratory diseases. It recommended a Clean Air Act.

Margaret Hilda Thatcher, (Baroness Thatcher of Kesteven), Conservative politician. Prime Minister, 1979–90.

One other consideration also contributed to changing Macmillan's mind, was the fear that a similar smog might occur again in 1953;

and as the next winter began to approach, there were real concerns that there could be a re-run of what had happened in 1952. In the light of this the Government had to make some kind of public response. The Beaver Committee was one. Another was making smog masks available on the NHS.*

NHS: National Health Service.

Let me turn to my own memories of the event. As I said, I was a student at the time, and although I was deeply interested in social and political matters, yet air pollution had not been on my agenda. The first impact the smog made upon me (like most others) was the traffic disruption. I lived in Lewisham in south-east London, which was about seven miles from the centre, and I can recall spending what seemed hours in a stationary train. Secondly, I was a very enthusiastic rugby player, and was upset that the match I was due to play was cancelled that weekend. There is a third memory too. We lived at the top of a steep hill, and at that time various deliveries and collections were still made by horse and cart. I recall a rag-and-bone man came round, and we had some things for him, for which he paid a few pence. However, he complained that his horse had had great difficulty coming up the hill: certainly the animal looked in distress. In its way that echoed what the press picked up upon: namely the death of animals at the Smithfield Show. Nevertheless neither I nor they paid much attention to the health consequences for people. I *should* have realised the full magnitude of the catastrophe, because my father, who was a driver on a steam locomotive, and had been partially gassed during the 1914–18 war, had many of the symptoms which one associates with mining, which resulted from the inhalation of the coal dust and the sulphur. Most of the time he had difficulty breathing. He was 56 years old, and when I saw him that weekend he was in great distress, gasping for breath, struggling, and insisting that he would go to work on his bicycle. Getting to work wasn't the only problem. He was extremely late returning because of the long delays on the railway. Then he had to cycle home in that fog.

Even then the gravity of the event did not strike me (nor perhaps him). It's hard now to appreciate how general the experience of chronic bronchitis was for the industrial working class in this country. Indeed that was the term they used for all kinds of respiratory problems, and in my family, which was large, all the men had symptoms of this kind. Most worked on the railways, and they all gasped

for breath much of the time. These are painful memories but looking back, what intrigues me now is why I didn't put two and two together. I didn't appreciate how significant this smog was, and I think the overriding reason for that was familiarity. We were familiar with fogs of all kinds and that certainly went back to the war years. As a boy, I was in London throughout the Blitz, and when, for example, the docks were bombed, when warehouses storing chemicals and other materials were burning, there was frequently a heavy pall of black smoke over the city. Likewise, during the Blitz, one of the initiatives which the Government put in hand was to have what we called smoke cans placed at about every 50 to 100 yards in the streets burning dirty oil in order to create a blanket of black smoke over the city to prevent German bombers from being able to identify their targets. Frequently, this black smoke, artificially and deliberately created, was dense. Such experiences also contributed to the sense of familiarity. Furthermore, in 1952 there weren't bodies in the street, which would have alerted people like me to the gravity of the occasion. This was unlike subsequent catastrophes as at Aberfan* where a coal tip slipped and killed many children in their school. When I was asked to contribute to this seminar as a living witness, I had to caution myself that history can easily be mis-remembered. In all honesty, at the time I didn't appreciate the severity or significance of the 1952 London smog. That only dawned on me later with hindsight. In this sense my experience and reactions to it reflected the delay that was apparent in various kinds of official and professional responses. Hence the 'linking' theme.

On 21 October 1966 144 people including 116 children were killed when a tip of coal waste slid onto the village of Aberfan in South Wales.

BRIMBLECOMBE Well, thank you very much. I think this goes to show that television isn't the only exciting media for presentation of these kinds of materials, thank you very much Roy, I just found that presentation totally visual. OK, Donald Acheson, perhaps you would speak to us. It's a hard act to follow, but I know you've got a lot to say that's very interesting.

DONALD ACHESON Thank you very much, I'm glad to be here, and to be alive, and well. First let me add a few words to what's been said about London as it was at that time. The country was still bankrupt after the World War. Many of the buildings which had been destroyed in the Blitz

had not been repaired; some of them close to this building we are in today. For example Portland Place, a beautiful Regency street just half a mile from here, many of the buildings were shattered, grass had grown up in the ruins where birds were singing. So, that was the situation, which helps us understand the background in which this great smog occurred.

Fifty years ago, at the time of the Great Smog of December 1952, I was resident medical officer at what was in those days one of London's teaching hospitals, the Middlesex Hospital* in Goodge Street. This hospital is just behind Tottenham Court Road, about 12 minutes' walk from where you're sitting. Although it is now merged with University College and the Royal Free,* the building is still there. My job was shared on a one- in-two basis (in other words, one week on, one week off) with my colleague Sir Henry Yellowlees as he is now. Among other duties we had the responsibility for deciding whether admission was warranted and allocating to the wards all cases brought by ambulance for admission as emergencies to the hospital. Whether there was a fog or there wasn't a fog that is what we did week in, week out; I did it I think for two years, he did it for one.

The Middlesex Hospital, Mortimer Street, London.

In 1998, the former Royal Free Hospital School of Medicine(RFHSM) merged with University College London (UCL). It now forms the Royal Free campus of the Royal Free and University College Medical School.

As it turned out, one of my tours of duty coincided almost exactly with the Great Smog, 5th to 10th December 1952. As we now know, but did not at the time, the Borough of Westminster in which we were situated was the part of London where the fog was most dense. First I will say a word about my recollection of the smog itself, and then about its effect on the work of the hospital. As for my personal recollection of the smog itself, at its worst it had the effect of completely disorientating me in a part of London I knew well, so that I lost my way on a minor errand from the Middlesex Hospital to Oxford Street, 400 yards away. To get my bearings and to discover where I was, I had to creep on the pavement along the walls of the buildings, to the next corner, to read the name of the street. I do not recall any smell, but I do remember an eerie silence as there was little or no traffic. Visibility was less than three metres, and it was bitterly cold.

As far as the hospital itself was concerned, somehow, although I find this difficult to understand, sufficient ambulances got to us to deliver patients to take up every available bed. The fog itself swirled into the wards, and seemed to consist principally of smuts, so that

the wash basins and baths turned darker and darker grey, until it was possible literally to write one's name on them which I actually did. I don't recall a smell of SO_2* which according to history I should have been able to smell. Within a day or two, I had to telephone the senior surgeon to ask leave to cancel all admissions from the waiting lists until further notice. He agreed. As I remember the patients themselves, the clinical picture I have in my mind's eye is of middle-aged and elderly people, principally men, gasping for breath, with remarkably little in the way of rales or ronchi to hear in their chests. For the benefit of those of you who are not medically qualified, rales are rattles, and ronchi are wheezes. Usually when one listens with a stethoscope to the chest of people with asthma or other respiratory illnesses, one can hear these noises in the chest. My recollection is that there were none. Just [breathes in and out] in their faint breath sound like that.

SO_2: Sulphur Dioxide

Within a few days patients with acute respiratory distress spilled over into all wards, regardless of the specialty or gender. In other words, they were in the surgical wards, and even in the obstetric wards, and as the majority were men, room had to be found in some of the women's wards. I remember also that the supply of oxygen was stretched to the limit.

Now, I have read since that there was also an increase in cardiac admissions. Although I do not remember that, this may be because I didn't attribute these to the smog. Certainly pressure on male beds was enormous. There were also many deaths. Indeed, I remember the morticians ran out of space in the mortuary, and in the chapel of rest, and we had to use the anatomy department's dissecting room in another building. One point to conclude puts a question on an issue I've not been able to clarify and would be interested to have the views of those present. Bearing in mind the extreme loss of visibility in the streets, I would expect that many people died at home without medical help. As the Office of National Statistics reports the precise place of death as well as the cause in every case, it would be interesting to look at that point before finalising the historical analysis. Although I have not myself made inquiries on the point, the answer is easily available from ONS.* I would expect that actually more people died at home, without help, than died in hospital.

ONS: Office of National Statistics.

BRIMBLECOMBE Well thank you very much Donald. An exceedingly interesting account, and some wonderful personal experience there in the hospital. And finally, I'd like to ask Richard Scorer to tell us something about his experiences and reminiscences of the 1952 smog, and the immediate aftermath.

RICHARD SCORER Well, I don't have a dismal story to tell. I have a rather unfortunate one in the sense that, I don't recollect having any problem at all with getting breath. And the only thing I can remember was that Pat Lawther* told me that I should breathe through my nose, and people who breathe through their mouth got a lot of muck into their lungs, whereas in the nose, the nasal passages were specially designed to capture anything. And I must have got through clean handkerchiefs in very large numbers, but I never had a breathing problem. At that time, in 1952, I had been living in Wimbledon for three years, and I had got my degree and PhD and so on, and I had a job at Imperial College* as a lecturer in meteorology. So here was a challenge: I'd got to work out what we were going to say was happening, and so on. Well, I can remember trying to cycle from my home in Wimbledon to my place of work in South Kensington, and I had planned to do this by bike always, because it was much less expensive, and it could take place at the time of my convenience rather than those of the queues. So, that was a distance of seven miles. Well, I had to give up attempting that while the smog was actually on, but I do remember cycling down the road from Wimbledon to Raynes Park, in which I followed the kerb on the edge of the pavement very closely. It was about the only thing I could see. I think visibility was about one yard at the worst time. But the most significant thing that happened to me was that I became very dirty. My eyebrows were covered with what you might call mud; my hair was filthy; and my hands had collected a lot of muck, from the air, not from the ground. It was as if I'd sort of fallen into a puddle of mud, when I got home. I don't like sort of swanking or anything of that sort, but I was following Pat Lawther's advice to breathe through my nose as much as possible, and it seemed to be saving me from all the mis-happenings that other people were getting. And there were people, and we've just had it demonstrated, how you gasp for breath, you see! Open your mouth and don't filter the air that goes into your lungs. Let it go down as far as possible. And

Pat Lawther, see note p.16. Author of papers on atmospheric pollution and health effects especially chronic bronchitis and lung cancer.

Imperial College, University of London, in South Kensington.

this is what people were doing; they didn't realise that if they could get the phlegm flowing freely in their nasal passages, they could actually avoid inhaling anything, like muck into their lungs. And I was merely following advice given by Pat Lawther, who knew this, knew the medical side very much better.

Well, what was going to happen? We were just going to wait for this fog to clear, there was nothing much else we could do, except attempt a few photographs which turned out to be pretty useless anyway. And when the time came to think about it the day after when the visibility began to rise and the buses could actually move, we were wondering what we were going to do. Now, I want to say that one of the principles about air pollution which I have learnt is that, if it creates problems, the thing that you must do is, stop the sources of the muck. So we had to stop the smoke which was just making everything dirty, people couldn't see the screen in the cinema for example, and so the cinemas just had to close. And, I think the same was true of the theatres. But, people may have been in a front row in the cinema which could see something, but what they saw was projected through the whole range of the seating from behind, so it was pretty lacking in, in fine detail. And it almost could be said to have been a waste of time, to go and sit there, looking at such very poor images. My recollection of that era, which included the week of smog, was of cycling to work. I had been a meteorologist with the RAF up until the end of 1946, when I was demobbed and I went back to university to complete the degree course that I had started before.

Now, when we got to the end of the smog, what do we do? And, the thing one learnt through the National Society for Clean Air,* and other people who were active in this field, was to get people to burn the fuel efficiently, and not inefficiently. And so that was the first thing we spent a lot of time doing, telling people that the problem was that they weren't burning the fuel properly, and smoke was coming out instead of flames being produced by burning the smoke basically. So, we got a stove which was a closed stove, and which the inflow of air was controlled. And I went round with the public health inspectors in some places, particularly, in Liverpool and Salford, just talking to people and explaining, a) that they were very inefficient, and b) they'd got to get something which was more efficient. And eventually, the Clean Air Society persuaded people who

National Society for Clean Air: a non-governmental organisation and charity founded in 1899 which campaigns for the removal of visible smoke, particularly coal smoke, from the urban landscape.

were involved that there was something to be done to make everybody more efficient. Now, somebody mentioned Mr Nabarro,* who was a Tory, who promoted the Clean Air Bill in 1956, and wondered why on earth he did this, because it wasn't … there was no money in it for him. But he had plenty of money. And there was a fellow called Robert Maxwell who ran journals, and he started a journal called the *International Journal of Air Pollution*. And he had come from Eastern Europe in his youth, and he knew that Eastern Europe needed this journal just as much as anybody else, because they were burning brown coal which had much more sulphur in it and produced much more in the way of ash. And I visited Czechoslovakia and got to know the meteorologists there, and we talked about it, and it didn't seem to be a very different problem there, except that their coal was much dirtier in many respects than ours. I can remember when, a bit later on, the meteorological satellite started orbiting round the Earth, and we picked up pictures, two or three times a day, from each satellite, and these were showing that, you could tell where the air was circulating to. By knowledge of clouds you could sort of draw a map of Europe underneath the pictures, because of the way the mountains affected the airflow. And one of the things that happened was that, on one occasion there were showers in eastern Scotland and these showers produced black snow.

Sir Gerald Nabarro (1913–73), Conservative politician. MP for Worcestershire, 1966–74. He put forward a Private Members Bill in response to the Beaver Committee's recommendations for a Clean Air Act. This was withdrawn when the Government introduced its own Bill.

Now, the question was, where did the black come from? And so, all the keen people like Friends of the Earth* and so on were saying, it must have come from the Midlands power stations; and the Midlands power stations said, it can't have come from us, because we burn our black smoke more efficiently than you know about evidently. And so, I used the satellite pictures to deduce where it had come from. And it had come all the way across the North Sea, and across northern Germany, from Eastern Europe, from somewhere around Hungary and Czechoslovakia. And, that was very interesting, because it gave us a little bit of information about the Friends of the Earth, who were prepared to pick on any excuse for blaming somebody for the fog, so it seemed, and of course, that didn't provide much help in trying to prevent its recurrence.

Friends of the Earth: environmental pressure group, launched in 1971.

Now, in order to prevent the recurrence of these smogs, one had to stop the sources of the smoke. And this is the main thing which the Clean Air Act of 1956* did was to make black smoke illegal, and

Acting on the recommendations of the Beaver Committee the Government put forward their own Clean Air Bill, which became the Clean Air Act on 5 July 1956. The Act aimed to control domestic sources of smoke pollution by introducing smokeless zones. In these areas, smokeless fuels had to be burnt.

the only people who were allowed to have it were a few hospitals and places like that which weren't under the control of the local authorities in quite the same way. I've never understood why they could get away with it, but they could, which meant that every time their stoker stoked up the fires, black smoke came out, because the bituminous coal* was being made to emit smoke, and it wasn't being burnt because the heat hadn't got properly distributed in the furnace. So, for ten minutes or so, every time refuelling took place there was a source of black smoke. Now, this business of getting rid of the smoke was also supported by the fact that there existed things called black areas, places where the black smoke had been prevalent for a long time and had been collected by the local authorities, and these were mapped out. There was a national survey made which of all the local authorities gathered knowledge about where the black smoke occurred. And, so this map was drawn with all the black areas put as first priority for treatment; in these black areas, that's where the smoke had got to be stopped for a start. And, then, every local authority was able to declare smoke control areas outside the black areas, gradually expanding until the whole of their borough was covered with controlled areas.

Bituminous coal is a soft coal containing a tar-like substance called bitumen. It is the most abundant form of coal, and is intermediate between subbituminous coal and anthracite in rank in degree of coalifation.

And, I can remember going up onto the top of Westminster Council during the Tory Government of 1954 or 1955 or something like that, where they had declared, I mean, the centre of Victoria Street, for example, was right at the centre of a black area, because it was always very smoky when anywhere was smoky. And so, we could then see from the top of a sort of assembly room in the top of the Westminster Council, and all the people who were concerned were invited to come and take a look at London, which had, at last, become covered with smoke control areas. And, that was very effective. Now, we were given a lot of briefing about why smoke control could remove the effects of sulphur dioxide, that the smoke was in fact covered with deposition of sulphur dioxide, and therefore smoke control got rid of the smoke got rid of a lot of the sulphur dioxide as well. Well now, that is something which the nation had to be persuaded of. And they seemed to accept it. And they seemed to accept that they had to give up the inefficient burning of any coal, and the whole business of getting fuel which was non-smoky to keep their home heating and cooking and so on going, gradually settled in. And so I regard the control of smoke as

one of the great success stories of the post-smog era. We've certainly changed the face of London, and many pioneer areas as well, like Liverpool, Manchester and Sheffield and so on.

BRIMBLECOMBE Thank you very much. Well, I think that is really wonderful to get that impression of just how important smoke was. The critical issue that we often raise was, should the Clean Air Act have neglected sulphur dioxide, or was sulphur dioxide going to be reduced concomitantly with smoke which I agree does seem to have happened. You've had three really great visions of what it was like to be experiencing the smog in the 1950s. I wonder if anybody in the audience would like to say anything about their experiences of the smog of 1952.

ALISON MACFARLANE George Male spoke yesterday about his encounters with Pat Lawther at clean air conferences. What he told me was that, he wasn't actually around in London, in the London area at the time of the 1952 fog, because he came from Plymouth, but in the mid-1950s he moved to Borehamwood to be Chief Environmental Health Officer for Borehamwood, and although we've heard yesterday about changes, which were probably happening anyway, with or without the Clean Air Act, he had a story to tell of a local firm which was a real smoke nuisance, and how delighted he was once the Act came into force. He could then move in and apply the power of the law to this company which had been polluting the residents of Borehamwood. Many of them, of course, had moved out from behind Euston Station so were not rural Hertfordshire people, but were people who had probably come out from London with the symptoms which we've heard about.

I'd just like to contribute a bit about my father, Angus Macfarlane who would have been here had he not died in 1961. He was not in public health. He was a chemist working in what was then called fuel efficiency. In the late 1930s, my father worked at the Fuel Research Station at Greenwich, as it then was, and this was obviously a time when people were concerned that oil was running out. He worked on the Fischer-Tropsch * process, which was designed to make oil from coal. So this was assuming, presumably, the dependency on coal. When the war broke out, he moved to the London Midland Railway, and, as a child, I was very impressed by

The Fischer-Tropsch Process was named after the German coal researchers F. Fischer and H. Tropsch. Discovered in 1923 it is the method for the synthesis of hydrocarbons and other aliphatic compounds. Synthesis gas, a mixture of hydrogen and carbon monoxide, is reacted in the presence of an iron or cobalt catalyst; much heat is evolved, and such products as methane, synthetic gasoline and waxes, and alcohols are made, with water or carbon dioxide produced as a by product. An important source of the hydrogen–carbon monoxide gas mixture is the gasification of coal.

the fact that he had actually ridden on steam engines. What he was doing was observing how the stoker stoked the engine, and involved in writing a manual to train stokers to stoke in a way which both conserved the coal more, and also produced less smoke. Whether this was before the decline in the quality of coal, which we've heard about, I don't know.

Then we've heard about this pall of smoke that was proposed at the outbreak of war and was clearly created. A bit later into the war it was recognised that this was a waste of our valuable coal stocks. This was seen to be the driver rather than the effect it was having on the population's health. The Ministry of Fuel and Power set up a fuel efficiency section which was advising industry about how to burn coal more efficiently. Again, it was, of course, to make best use of our domestic coal stocks, because, clearly with the war, importing coal was not feasible. The lecture describes as well campaigns to persuade the public to use less fuel, and that people should have a plimsoll line on their bath and only have it six inches deep. It refers to a letter from a woman who said that if she shared her bath with her husband, could they have it 12 inches deep? More seriously, it said that sort of, big publicity campaign didn't work, and how they worked through women's organisations to encourage, within the constraints of the fuel available and the grates available, more efficient use of coal. This explains to me why, at a later date, in the late 1950s, when my father brought home sort of Christmas cards he'd received at work, there were quite a few from women's organisations concerned with the use of fuel.

This fuel efficiency advisory service remained within the Ministry of Fuel and Power after the War, and various committees recommended it to carry on. My father, in fact, went to Washington for five years to do a completely different job, which is why I don't have any memories of the 1952 fog. I was in sunny Washington DC, or sunny Bethesda-Chevy Chase, which is even sunnier. When he came back, he came to manage a company which was the hiving-off of the fuel efficiency section of the Ministry of Fuel and Power. Its job was to advise industry on the more efficient use of coal. I thought this might have been a consequence of the London fog, but in fact, the committees which proposed this met in 1952, and had already made their decisions by March 1953. In 1954 we came back to England, and he worked until his death as managing

director of the National Industrial Fuel Efficiency Service. I remember as a teenager him saying, you know, that their work was getting easier because so many people were moving to oil particularly, at that stage. I presume some of them moved to coal gas. And, so, I think this fuel efficiency agenda, obviously the agenda was different, may or may not have interacted with public health. As a postscript, I think that the National Industrial Fuel Efficiency Service was one of the first quangos* which Thatcher privatised. I didn't know if it was still around, but I typed it into Google* and found it's still there as Nifes Consulting. It has a nice page on its history with a picture of the vehicles used in 1954.

Quango: An organization or agency that is financed by a government but that acts independently.

Google: Internet search engine, www.google.co.uk.

BRIMBLECOMBE Thank you very much. Indeed, it's proper to draw attention to the publications on fuel efficiency that came very rapidly in conjunction with the 1952 smog.

GEORGE LESLEY My name is George Lesley. I was a schoolboy at the time, at school in Clapham and living in Brixton, and I remember a friend slightly older had bought a very old and very decrepit car, and he had to get the car home from Clapham to Brixton. And, I sat on the bonnet of the car, because it was possible for me to see the kerb, which he couldn't see from the driver's seat. As we went through Clapham, a motorcycle came along the inside of me to the left, and said, 'Which way is Clapham Common Underground station?' And I said to him, 'You are on the pavement; if you go forward about 20 yards you'll go down the stairs.'

MALE SPEAKER The information about the London smog was pretty much spread out. What I was to ask, however is, and this is a question to Sir Acheson, there was a lecture given by Professor Bates* in a conference in Vancouver in September, and he was also working in London as a hospital doctor and his recollection about the event was that, most of the doctors working in the hospitals didn't really have an idea what was going on. And, he was I guess in a slightly different job from you, because you were selecting the people to the ward, and he was working in the ward, and when the ward was filled, it was filled, and he didn't see the patients who did not come in. Would you comment on this?

David Bates, Professor of Clinical Neurology, Royal Victoria Infirmary, Newcastle upon Tyne.

ACHESON Actually, I don't remember what happened after the wards were already filled and had overflowed into the anatomy room. I honestly think the fog lifted. You know, it wasn't all that long. I don't have any recollection of having to turn people away, to go somewhere else. But, you know, it's a long time ago.

DAVID HURST I was only five so my recollections are pretty vague. We lived in north London, and in my parents' household, money was scarce, I mean they were not well-to-do although my father was a professional architect. Coal was one of the big issues. I once, sort of, managed to sort of lose the money for the coal man, and this was really something of a crisis. But I do remember the fire. I mean we had a fire with a back boiler, and it was, it was pretty central to the household. And I also vaguely remember the smog itself, and really the story I remember about that was, an uncle of mine who was visiting, who had had to walk there, and he had worn out a pair of gloves, the back of a pair of gloves, walking along, touching the wall beside him. And so the visibility was something sort of frighteningly low.

PAUL BLANC I also have a question for Dr Acheson. When a patient would die on the wards, who would complete the cause of death for the death certificate? Was that done by someone else, or, was that done by you as the treating physician let's say? Or was there an attending physician who would come to complete it, after a post-mortem by a pathologist?

ACHESON I think, the practice, as I remember it, was that the death certificate for people who died in a hospital, whether in the smog or not, was the junior doctors' job, in consultation with the person known as the registrar who was the person whose training was virtually complete. There was a consultant, or attending doctor as you would have in the States; the registrar would be the equivalent of the resident, and the senior registrar, the chief resident in the States.

MALE SPEAKER Resident.

ACHESON Resident, the chief resident. And then the intern (in British parlance the 'house physician') would make the first draft and the resident

would finalise it. They're fairly unsatisfactory documents everywhere, death certificates, and, I've no idea what was written on these. Acute respiratory failure due to smog would be the closest to the truth one would be likely to get. It is still possible to find out because these death certificates are still filed away in the Office of National Statistics.

JON AYRES

I too was rather young at the time. I was two and a half at the time of this smog, but certainly living in north London I remember the 1956 smog. And I think, we all felt at that age that these smogs were rather fun. You know, here were the grown- ups getting all worried about it; for us there was a real chance that school might be cancelled. It was really rather splendidly eerie, the muffled sounds and all the rest of it. It was rather exciting, you could play all sorts of games that young boys did with 'baddies round the next corner'. And, it is a funny sort of thing, that's how we recollect it. This weekend I visited my parents, who of course have different memories, and their memory of the 1952 smog was much as we've heard today. But what they found more difficult to cope with on a day-to-day basis were the smogs that occurred during the War when there were the blackouts, because with the blackouts it made such limited visibility that it was almost impossible. There were tales of people crawling along the kerb to get home, because there was just not a shred of light. These were more memorable to them almost than the 1952 smog, which is interesting.

DAVID MUIR

Although I had no direct recollection of the smog, having been born in a town in the north of England, and again only being about two or three at the time of the smog, there were some things that have come up since then. The town where I lived, in its infinite wisdom, never adopted a smoke control policy, and so, you found that there was quite a market in that town for products which allegedly reduced the amount of soot that was deposited in the chimney, presumably, by allegedly reducing the amount of smoke that the fuel, that the non-smokeless fuel was giving off. But there are some other things which I've picked up on, and one of the points that came up earlier was in relation to the steam locomotives. And there seems to have been a particular problem in central London with the major sheds, especially as a large number of locomotives were

having to be fired up and kept on the shed. And there is a book by someone who was the shed master at King's Cross, *Top Shed*,* where he refers to the problem for them of the smoke inspectors coming round, and apparently they used to shove a number of special briquettes onto the fire which produced a white smoke rather than a black smoke. And they actually, he actually says that they had people who they trained to use the Ringelmann chart* so that if the smoke was getting into a rather dodgy area, they'd shove some of these briquettes on to avoid the possibility of prosecution. The other, the other point I would like to make a comment on is the question of the hospitals and other premises that had Crown immunity from prosecution. As somebody who has worked in the local authority for quite a number of years, these premises were a real problem to us, because, we were going round prosecuting other people for smoke offences, and they would say, 'Ah yes, but look at all that black smoke that comes out of the B; look at all the black smoke that comes out of the Customs & Excise stack down at Avonmouth docks.' And it was, from the smoke control perspective it was a great boon to us when that immunity was lifted.

P.N. Townsend, *Top Shed, a pictorial history of Kings Cross locomotive depot.* (London: Ian Allan 1975).

Ringelmann charts were used in air pollution evaluation for assigning the degree of blackness of smoke emanating from a source.

MALE SPEAKER

Following the lead of other people, kind of giving reminiscences of their parents, I was talking to my parents at the weekend about this, and, as I have done many times, and my dad left school in 1950 and went to become a French polisher for an undertaker's, and, it was pretty well known in undertaking circles that with each winter smog, well you'd get a lot of business. And, as a kid of about 18, 19 years old, just earning a few bob a week and courting my mum, he certainly appreciated the smogs. Not particularly in a callous way, but, as he seemed to remark at the weekend, you know, wasn't glad that people were necessarily dying, but he certainly appreciated the overtime. Though he was remarking that the difficulty was that he couldn't take my mum particularly to the cinema, because it was just too full of smog, and the way that kids seemed to rush to the front, he said, between the showings, and where there's fire doors, as here, you've got them either side of the stage, they would open them up, and he said fog would just roll into the cinema, and everybody would have to go home then. But, that's just something I thought I would share, that this whole perception, that, you know,

we didn't seem to know that smog actually caused death, was very well established amongst undertaking circles anyway.

ACHESON

May I add another point to my previous. The most, from my point of view, unpleasant personal experience was the sense of complete disorientation, when I lost myself in a street in London which I knew like the back of my hand. I couldn't see anything, had no idea where I was, and had to go to the wall and feel my way, until I could find a sign giving the name of the street, to see where I was. And that was really unpleasant.

MALE SPEAKER

Well actually, if I might ask a question of Roy. What do you think about the relative balance of removing smoke and sulphur dioxide from emissions, as it was finally embodied in the Clean Air Act? Do you have any sense of what the driver was over that particular issue?

PARKER

See note p.23.

Not exactly. However, it is worth bearing in mind that Gerald Nabarro's Private Members Bill,* which the Government eventually took over, was much stronger than the eventual legislation. One of the reasons for the subsequent dilution was that a good many exceptions were allowed to be introduced, and many of these were exceptions for various kinds of emissions from industrial processes. So, although domestic smoke was addressed as a major problem, rather tiptoed round many of the problems of industrial emissions to which of course SO_2 was a major contributor. Perhaps there is one thing to be said in the Government's defence. It is important to emphasise just how bad housing conditions were, and how cold houses were. We had one open fire; bedrooms were unheated. And, when there was a particularly cold spell, what we did like many others was to 'bank up' the fire at night with coal dust so that it would last until morning. And the coal dust, of course, produced even more smoke than burning the poor quality 'nutty slack' as it was called. It's hard now to remember the desperately poor condition of most housing, certainly in London and in other cities around the country. Domestic heating and therefore domestic smoke *were* major problems.

UNDERWIN From the London School of Hygiene. I just wanted to ask you to comment on that fact that we have been talking about direct effects of the air pollution, but listening to the comments of the people here, I picked up the fact that it was a huge disaster for the society in general, and in that sense, if you compare that event to, for example, just to say a disaster we know very well, which is the Twin Towers disaster, the number of deaths is roughly similar, even if in the Big Smog there were more, but it's sort of, isolated situation. The remaining people in the rest of New York, for example, were shocked by the, they had the opportunity to go to work, they had the opportunity to go on with their own life.
In the Big Smog it appears that, although there was a huge number of deaths, there was also a big burden for the society in general. I wanted to ask you to comment on that.

BRIMBLECOMBE Who wants to try that one?

PARKER As I understand it your question is, which catastrophes actually prompt a significant political response, initiate the biggest shifts in perception and understanding, and hence, lead to the development of policy? That is a fascinating question. One might ask, for example, why the 1948 London smog didn't have the same political consequences as that of 1952. It lasted as long, although it wasn't quite as dense and as far as we know there were not so many deaths. I was speaking earlier about Macmillan's reluctance to respond in 1952, yet in February 1953 there were vast east coast floods to which he did make a rapid response, even though there was much less loss of life. What triggers, or doesn't trigger, what is done? The involvement of children is often important. I mentioned Aberfan where the coal waste tip slipped and engulfed the school and killed many children. By contrast, the fact that many of the casualties of the 1952 smog were elderly and not children may have been important: they might have died in any case. The other thing to bear in mind is that these catastrophes are to some extent orchestrated by the media. In 1952 that meant essentially the press. Indeed, it was not until 1953 that the issue appeared in the *Times*. This was a serious analysis by a Dr Lessing, but it prompted almost no correspondence. So the question of how events are orchestrated is of considerable important. Remember too that in 1952 there was

virtually no television, so it was orchestrated by either radio or press.

MALE SPEAKER There's another point, that smog doesn't make good television. (laughter) [inaudible] any pictures, or any pictures in the newspaper. I mean it's one of the catastrophes which really is not visual.

SCORER I think it has to be realised that people thought that these disasters of smogs were the result of the industrialisation of our country, and that they were a necessary evil which we had to put up with in order to get the benefits of our industry making us more wealthy. That was the viewpoint. Because it happened gradually, I mean, the regions where the industry began to be very profitable were local, and produced a lot of smoke in that immediate neighbourhood. And when they began to join up with other premises in the neighbourhood, to engulf whole towns, this was simply regarded as, as a natural evolutionary process by people, and they didn't complain, they just said, "Well, keep away from it if you can."

TONY HEDLEY I'd just like to make a comment about things people do to protect themselves. It was prompted by Richard Scorer's memory that Pat Lawther had told him to breathe through his nose. Yesterday on the film* we saw the UK Government's pushing people to wear the cotton masks, the loose cotton masks. I live and work in Hong Kong and all over Asia you see people wearing simple cotton masks in order to try and protect themselves against pollution, whether it's from the Indonesian forest fires or the urban pollutant cocktails in Manila and Bangkok and so on. But, can I suggest that Richard Scorer's freedom from symptoms owes more to his constitution than Pat Lawther's advice, which I doubt would have reduced the fine particulate load to his terminal bronchioles, and certainly would not have protected him from the gases. But it also reminds me of something I'd forgotten, and that is, as a child in Lancashire in 1949, when I was going to school. It was about an hour's journey, and the town of Bolton was extremely polluted. My father, who was a chemical engineer, made me an aluminium face mask, it was quite an elaborate affair, which oddly enough I didn't mind wearing, I sort of looked like a sort of latter-day Darth Vader.* My father lined the mask with many layers of lint. And of

'Killer Fog', TV programme first broadcast on Channel 4, 1999.

Character from the *Star Wars* films.

course, by the time I got home at night, this was a black sodden mess, and the idea that somehow we'd trapped all this stuff was very comforting. He used to put it in a beaker of solvent and swish it around and then pour out the oily fluid, which was quite a dramatic demonstration for youngsters. But, in truth, there's nothing that can protect us against this, short of perhaps wearing respirators with sealed systems.

BRIMBLECOMBE

Tony Fletcher, Senior Lecturer in Environmental Epidemiology, LSHTM.

Yes, thank you very much. One of the things that's quite striking about this session is that 50 years after this event we're still absorbing some of the messages, and some of the evidence is clearly only now coming out. Yesterday Tony Fletcher* mentioned that the Department of the Environment had declined to sponsor this event on the grounds that they were now looking forward, and this was a rather retrospective affair. And I have to say, that's an extremely regrettable decision I believe. We are learning quite a lot. I have been listening over the years to the experiences of various people who must have been junior doctors during this Great Smog, and the subsequent events, and what struck me is that they have very different experiences. We heard Sir Donald Acheson's comments today, mainly relating to male and middle-aged and perhaps elderly patients; I've heard junior doctors who were treating children, and their experiences were very different, and very important. I've heard also from people who are in specialist medicine, and they all have their own stories. I was also very struck by listening to somebody who's made a study of the psychology of disasters, and has been quite instrumental in our understanding of trauma post-flood, and who mentioned that one of the effects of the great smog was, there was a very large number of extremely distressed adults, who either couldn't locate children or were very worried about their state of health. And that created a trauma which lasted for some time afterwards. So, I feel that there's enormous value in us actually sharing these stories, and it surprises me sometimes, as yesterday when I mentioned Barbara Clayton's* recollections about stomach contents of infants exposed to the smog and that Ross Anderson wasn't aware of it. So there's still a lot to be learnt, and still a lot to be taken from the stories of those people who were actively involved in treating people at the time. This matters because of course if we're going to solve a problem, it has to be the

Dame Barbara Clayton, Honorary Research Professor in Metabolism, University of Southampton; Honorary President, The British Nutrition Foundation.

right problem, and Professor Scorer's reminded us very forcibly that addressing the wrong problem is a very poor use of resources. So, for me this has great value, and I hope we will be able to contrast and compare, and find some way of getting more of these experiences from those who were actually treating people during this period. Thank you.

SCORER

I wanted to say that I had some previous knowledge of smogs, because my father who was a civil servant in the county of Lindsey in Lincolnshire, had to come up to London to the Ministry of Health, which was also the Ministry to Local Environment or whatever, at the time, because a Bill was being promoted by two or three of the different counties, such as Lincolnshire and Merioneth and so on, that had a lot of sandhills, to try and control the building of permanent buildings or ramshackle shacks on the sandhills, to disfigure them. Now, he came from Lincoln to King's Cross by a normal train, which we knew the times of when I was a youngster, and he used to come back in the evening sometimes on the same day, and tell us that it was like night in the middle of the afternoon in London, it was so dark. It wasn't so much on the ground as lifted a little bit, because they could walk about the streets with a visibility of enough yards to know where you were. But it was the darkness that used to caused by the earlier smogs in the, particularly in London, and these were well known, and nothing was done about it. But when the Great Smog of 1952 came along, and it was on the ground as opposed to lifted up a little bit, with people walking around and going about their business underneath, it made all the difference.

MALE SPEAKER

In Japan the peak of air pollution was in 1960s. A teacher said, one day in September smog came to the elementary school, bad smell came to the classroom. Students claimed a huge headache, respiratory insufficiency. Lecture became impossible to do. Students refused to be out of classrooms, but bad smells increased further. Not only students, but also teachers were screaming. Fire fighters also lost his consciousness. They were like refugees in the bombing during World War II. I think, not only sulphur dioxide and smog, but also smell were important in Japanese cases. Because of the...cause of smell from petroleum coming out, petroleum factory.

The colour of the smog was white, but smell of the smog varied. How about smell in London smog incident?

SCORER

Yes. My recollection of the years following immediately after the Great Smog was that one could go along the street and smell every house that was emitting everything, with any sort of, unburnt fuel. There were a lot… The chemistry was not widely known about at all. And so, when we tried to make relative calculations as to how much different sources produced damage to human health, we were guessing a lot that we'd got rid of a large amount of this SO_2 by getting rid of the smoke. And, since then there has been a large development in the understanding of atmospheric chemistry at ground level. We have quite a new problem today. It's not simply a repeat of the same kind of problem as we had before, which was produced mostly by fires in houses, which you could smell as you go along the street, you could know exactly which one was producing the smoke. But nowadays, we're concerned with what might be called secondary air pollution, that is pollution which develops according to how long it's been in the air, and how much it's been affected by sunshine. Now, a large amount of knowledge about this has been gained in Switzerland and south-east France, of what happens to car exhaust when it's collected in a tunnel and emerges from the tunnel mouth into air which is not...where the pollution is not dominated by vehicles. It could be dominated by all sorts of possible other things. But the point is that there is quite a lot of chemistry going on around, in the nearest 20 or 30 miles around the mouth of an alpine tunnel for example, and perhaps the most important is that the oxide of nitrogen become nitrogen dioxide by reacting with any ozone which may be in the atmosphere around the mountainous area, which is quite large normally, but when it comes out of the tunnel, it's...the main pollution is nitrogen oxide. Now, this gets oxidised to nitrogen peroxide by, and it consumes the ozone. So you've got damage due to oxide of nitrogen, instead of having damage due to ozone. This is an interesting development, and I think that we should say that the secondary pollutants are now just as important as the original pollutants.

The other thing that we learn is that, in the calculations, well certainly in the calculations that I did at the time of the Great Smog, to calculate the damage done by a ton of coal or coal equivalent in var-

ious ways, that showed that if you got rid of the smoke sources, you were going to get a great reduction in the damage done to human health. But also there was a promise of an increase in the car population (which has actually taken place since then), and we now have a much bigger source of exhaust from car engines, but there are attempts to remove the sulphur from the fuel, and other devices, to oxidise the carbon monoxide for example. And so we're in a new era where the problem is traffic, and sitting in its own stew, things get worse. This is exemplified in Alaska, where in the capital of Alaska, it's in the bottom of a valley, and in the middle of the winter there is a lot of icy pollution, of steam from exhausts of cars and so on, and if you go into the centre of the town to do some shopping, you have a problem of, what do you do with the car? You have to leave its engine running, otherwise it freezes up so solidly that you can never get it started again. And if you leave it running, then it's simply adding to the smog. Now this is the kind of problem we have. Our civilisation generally, including Alaska and many other places, is dominated by motor vehicles, and it's not quite so easy to tell them to use decent fuel; they use the best fuel they can get. And we haven't solved that problem, of the total density. I mean, there is an attempt to do it from February onwards in London, by decreasing the number of cars that are allowed to go into the centre of London, but it remains to be seen how effective this is in actually reducing the level of pollution.

PARKER To put that into context: in the whole of the United Kingdom in 1952 there were only five million licensed vehicles.

SCORER And now?

PARKER I don't know what the figure is now, but certainly it had doubled by the middle part of the 1960s.

DOUG DOCKERY I wanted to return to Professor Acheson's comments about the patients he saw. You notice historically or looking back at the record, there are some indications of increased cardiovascular deaths, and you saw no evidence of that. I was wondering if that's because people were dying at home immediately from ischaemic events, for example, and arriving dead at the hospital. What was the

process? Would they have come to the emergency room, or would they have gone to some place else where you would not have seen them? I was also very interested in your comments, that you did not observe rales or ronchi, other indications of wheezing or airway narrowing, and seemed to be consistent with some of the other comments, that there does not seem to be a lot of asthma, or exacerbation of asthma associated with these types of events. As I recall, David Bates* was commenting that they saw, he saw a lot of mucus hyper-secretion. Possibly that was with some of the animal autopsies that they had done. What is the pathology here? People were short of breath, but it's not from airway narrowing, it's not from wheezing; what do you think was going on? And finally, I'd like you to...in thinking about not the immediate event but in the months afterwards, when we had this, what was supposedly an influenza epidemic, do you have any recollections on, you know, what happened in the months afterwards, whether there was a lot of influenza there, or increased case mortality that might have been associated with some lingering disease associated with having been challenged during the event itself? And maybe some of the other pulmonologists could help me understand what the meaning of some of these observations are.

See note p.29.

ACHESON

I don't know that I can help with any of these important points. All I can say is that, during the week in which I was in charge, I would have seen all the people who were brought to the hospital for admission, including those who appeared to have an exacerbation of coronary heart disease. It is a fact I think that there were almost as many during the fog 'extra deaths' from what was described by the person who wrote the death certificates as 'coronary heart disease' as there were from what was described as 'chronic bronchitis and emphysema' or however else they chose to describe 'acute respiratory failure'. I would have seen them all, but perhaps I did not think of all of them as being related to the smog. In any case the medical wards the cardiologists worked were the same as the wards where the respirologists worked. Why did, why did some patients die without rales or ronchi, and why did they not have obvious chronic respiratory disease? I can only imagine that the pathology was microscopic, wasn't affecting the larger bronchi which cause the, the wheezes, that's all I can think of. But the pathological

reports of the deaths which occurred during the smog in which there was an autopsy must still be in existence; they never get thrown out as far as I know, and anyone who wished to make a study of them should still be able to. I'm sorry to be so unhelpful.

FEMALE SPEAKER Just a question. You mentioned people dying at home. Were the people who had, anyone who died with acute heart failure, presumably would have, if they died at home, they would then be certified by a GP, and go straight to the undertaker without passing through the hospital?

ACHESON I feel that must be the rule in a situation like that. I mean, we know from the state of the visibility in the streets, there's no way that some of the people who were exposed to the smog would have ever got to hospital, and they would have died at home. The death certificate would have been written following a visit of the general practitioner. As we know that the autopsy rooms were already overwhelmed by, I suppose people who died in the street or in hospital, I can't imagine that during the smog many of the people who died at home would have had an autopsy.

MALE SPEAKER This is a follow-up to a previous question on what makes an event significant. And, it seems to me that, you've commented on the smog of 1948, which nobody really took as gravely as that of 1952, and what seems to me is important is that you at some stage consider the thing as normal, and later you don't consider it as normal any more, so there's something you can do about. And, so I wonder what, and this also fits in with what Richard Scorer said, that, you know, if chimneys smoke, that means progress, so, something must have happened in the 1950s which changed this notion. And then, I wonder, if an event one could compare this to is not rather the recent, well, the heatwaves in cities like Chicago in the recent years, which also killed large numbers of people, but don't receive much, well they receive some press echo, but not as much in the media as the twin towers for example. So I was wondering if you could comment on this.

PARKER I've mentioned 'familiarity', and you've talked about things being regarded as 'normal'. I brought along a quotation from the *Times*.

It's a fourth leader which was written during the smog, and emphasises another aspect of 'familiarity' and the assumption of normality; namely their romanticisation. This is what appeared in the *Times* during the smog: 'British fogs, taking advantage of a Northern Ireland, rich in rivers and diversity of soil, roam about on their little cat feet as freely as they did before anyone had heard of smoke abatement.' That's just a breathtaking piece to be published in the middle of the 1952 smog.

MALE SPEAKER I like your analogy, breathtaking. (laughter)

PARKER Yes, absolutely.

MALE SPEAKER Absolutely correct.