Lifting the smokescreen

Tobacco industry strategy to defeat smoke free policies and legislation

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Foreword

The tobacco industry is one of the most successful industries in the world. Each year its combined profits exceed the Gross Domestic Product (GDP) of several mid-sized economies. Maintaining these profit margins in the face of ever increasing awareness of the harm caused by their products to smokers and non-smokers alike, has required the development of a unique range of lobbying tactics and strategies by cigarette manufacturers. Over the years these have included: denying the existence of any causal link between smoking and disease; covert recruitment of scientists to downplay and deny these risks; and a tireless commitment to block all efforts at legislation to curtail the marketing, promotion, taxation and regulation of their products. The result has been an unprecedented level of regulatory capture which has only recently come to light with the court-enforced publication of millions of internal tobacco industry documents since the late 1990s.

Commissioned to accompany the publication of a report on passive smoking in the European Union (EU), "Lifting the Smokescreen: 10 Reasons for a Smoke Free Europe"[1], this report concentrates on just one aspect of that strategy: the recruitment of scientists to attack and undermine the emerging, and now independently confirmed, scientific consensus on the harm caused by exposure to second-hand smoke.

As the industry internal documents make clear, the tobacco industry realised very early on that harming smokers who chose to smoke was one thing: harming non-smokers who did not want to smoke was quite another and that this would lead eventually to increasing regulation of the industry and its products which it could not defeat. Knowing this, the cigarette manufacturers attempted to delay the inevitable for as long as possible by denying the obvious. This strategy has been remarkably successful and continues to be so, at the cost of thousands of deaths in the EU each year.

As one of the most active regulatory jurisdictions for tobacco products in the world, the EU institutions and the EU member states have been a particular focus of the tobacco industry and its lobbying efforts. This effort continues today as the industry attempts to stave off smoke free laws, effective product regulation, higher taxes and all the other tobacco control interventions we know to be effective at saving lives by reducing tobacco consumption and prevalence.

[1] Smoke Free Partnership. Lifting the smokescreen – 10 reasons for a smoke free Europe. February 2006.

Unlike the World Health Organization, no EU institution has yet carried out an internal audit of tobacco industry lobbying and its effects on policy development and legislation[2]. Accordingly, this report is intended to serve as the forerunner to a larger volume that will analyse tobacco industry lobbying in Brussels and selected member states and assess the extent to which it has successfully blocked measures designed to prevent millions of premature deaths in the EU and beyond. This report will be published by the Smoke Free Partnership in 2007[3].

European Respiratory Society (ERS)

Institut National du Cancer (INCa, France)

2 Tobacco company strategies to undermine tobacco control activities at the World Health Organization. Report of the Committee of Experts on Tobacco Industry Documents. World Health Organization, Geneva, July 2000. www.who.int/tobacco/media/en/who_inquiry.pdf. Accessed: February 2006.

3 The Smoke Free Partnership consists of Cancer Research UK, the European Respiratory Society and the Institut National du Cancer (INCa, France).

Executive summary

In the early 1970s, a number of research findings began to suggest that exposure to environmental tobacco smoke (ETS) had deleterious health consequences for non-smokers. The tobacco industry understood from the outset the threat that the passive smoking issue represented to its interests, and viewed this "secondary issue" as even more dangerous than the "primary issue", as it internally and euphemistically called the health effects of active smoking.

The industry quickly realised that, if it wanted to continue to prosper, it became vital that research did **not** demonstrate that tobacco smoke was a dangerous community air pollutant. This requirement has been the central pillar of its passive smoking policy from the early 1970s to the present day. The tobacco industry has developed an instinct – which has been internalised so as to become an integral part of its corporate culture – for countering any kind of research as soon as it provided some evidence linking exposure to tobacco smoke to the occurrence of diseases. It has demonstrated an almost inexhaustible capacity of inventiveness in this endeavour, and has not been restrained by either moral or ethical considerations. Only the result counted: to undermine, denigrate, discredit, repudiate, belittle, ridicule, attack, throw doubt on the "bad" research and on the "anti-smoking" scientists who produced it.

During the early years the tobacco industry responded to the passive smoking threat in a rather defensive way, reacting on a case-by-case basis. At the time, much of the smoking-related research was financed by the tobacco industry. The industry, however, expected as a counterpart that scientists to whom it provided financial support and who conducted research in "sensitive" subjects would know "where their bread was buttered".

Faced with an array of results which were unfavourable to its product, the industry soon found that a way to cope with such a situation was to influence the scientific review process and the way that results were reported in the media. One instrument used quite successfully for this purpose was the "symposium", in which its lawyers had, covertly, tight control of all aspects, from agenda, choice of participants, proceedings and publication of the results. Since the early 1970s and until very recently, the industry organised many symposia based on this model, spreading misleading information and artificially maintaining an impression of controversy. Review articles also offered the industry another possibility of producing an interpretation of scientific results favourable to the industry's theses.

However, when the first conclusive studies started to provide decisive evidence that non-smokers' exposure to tobacco smoke significantly increases the risk of respiratory and cardiovascular disease, the industry abruptly escalated its

attacks, mobilising all its firepower against the research and the scientists who had conducted it. The industry launched an unprecedented campaign aimed at denigrating Hirayama's landmark epidemiological study[1], which had shown that wives living with smokers had a twofold increase of lung cancer risk, even resorting to *ad personam* arguments. Another study, by White and Froeb[2], was considered so threatening by the industry that it lobbied the US Congress to stage a hearing which concluded that their research results could not be relied upon to justify smoking restrictions in public places. As it could not prevent new evidence from emerging from a growing number of studies, the industry tried, with dubious success, to modify the scientific foundation on which the studies were based, stretching the concept of "confounding factors" and proposing a new standard for epidemiological practice, called GEP (Good Epidemiological Practice) that would have, in one sweep, invalidated most of all previous research in the field.

Over time, the tactics of the industry became more elaborate, with attempts to bypass the scientific process and manipulate public opinion, and were consolidated into fully-fledged pan-industry strategies, developing network of allies, lobbying governments and politicians, with the aim of defeating legislation aimed at protecting the population against exposure to second-hand smoke, by either having it rejected or pre-emptively replacing it with weak legislation aimed at maintaining the *status quo*.

The tobacco industry has been largely successful at delaying decisions to introduce smoke free measures that could have been taken as early as two decades ago. It has however failed to prevent them. Following the lead of Ireland, a growing number of countries are adopting strict measures to protect their populations against the toxicity of second-hand smoke, including smoking bans in all indoor public places and in the working environment.

[1] Hirayama T. Non-smoking wives of heavy smokers have a higher risk of lung cancer: a study from Japan. *Br Med J (Clin Res Ed)* 1981; 282: 183–185.

[2] White JR, Froeb HF. Small-airways dysfunction in nonsmokers chronically exposed to tobacco smoke. *N Engl J Med* 1980; 27: 720–723.

1. Environmental smoke and disease: a pattern emerges

In the early 1970s, a number of research findings began to suggest that exposure to environmental tobacco smoke (ETS)[a] had deleterious health consequences for non-smokers. These first results were sketchy and disparate. But gradually, a pattern began to emerge with increasing clarity.

In 1972, the U.S. Surgeon General released his Report to Congress on Smoking and Health, in which he noted that tobacco smoke can produce levels of carbon monoxide, which, depending on the length of exposure, may be sufficient to harm the health of an exposed person. This was seen as particularly significant for people who were already suffering from chronic pulmonary disease and coronary heart disease. The same year, the *Journal of the American Medical Association* reported that 34 million Americans were sensitive to smoke because of existing medical conditions.

In 1973, the U.S. Environmental Protection Agency (EPA) reached the mid-point of a 5-year study on the effects of air pollution on respiratory illness and reported that the cigarette-smoking habits of parents were a significant determinant of acute lower respiratory conditions in their children.

Under the title "Should public smoking be banned", in August 1973 the *New Scientist* published an article that captured well the implications of these early findings:

> *If it were indeed established that pollution from tobacco smoke were doubling the lung cancer expectancy of a significant part of the population, the strange tolerance with which non-smokers regard their smoking friends might rapidly disappear. No longer would it be socially acceptable for smokers to pollute the air of offices and cinemas, to scatter cigarette ash over food in cafes or beer in pubs, or to light up without permission in a non-smoking household. If research did indeed demonstrate that tobacco smoke was the most dangerous community air pollutant of all, the case would be overwhelming for a legal ban on smoking in all public places – including restaurants, schools, offices and factories.*[1]

[a] In this chapter, we consider the terms "environmental tobacco smoke", ETS, and "secondhand smoke" as synonyms, and we will use them interchangeably. The same applies to the terms "passive smoking", "involuntary smoking" and "second-hand smoking".

The tobacco industry understood from the outset the threat that the growing emphasis on passive smoking represented to its interests. Commenting on the proceedings of the Third World Conference on Tobacco and Health, the Chair of TAC, the UK tobacco manufacturers' association, wrote in 1975: "If the dangers of passive smoking can be played up, the whole anti-cigarette campaign will acquire a new and powerful element which it has hitherto lacked. So far, no one has seriously disputed that in the last resort the decision whether to smoke or not is for each individual to make. […] It is a very different matter if you can establish that smokers are endangering not only their own health, which is their affair, but that of the rest of the community. This, once established, would add wickedness to the list of the smoker's vices; and the use of compulsion against wickedness requires no great compunction."[b]

How the passive smoking issue could be detrimental to the tobacco industry's interests was expressed concisely by William R. Murray, the vice-chairman of Philip Morris, in a speech: "Environmental Tobacco Smoke, or ETS, is probably the greatest threat to our industry. ETS is the driving force behind smoking restrictions in the workplace, on airlines and other forms of public transportation, and in virtually all public areas. If present trends continue, smokers will have fewer and fewer opportunities to enjoy a cigarette. **This will have a direct and major impact on consumption**" [emphasis added][2].

If it wanted to continue to prosper, it therefore became vital for this industry that research did **not** demonstrate that tobacco smoke was a dangerous community air pollutant. This requirement has been the central pillar of its passive smoking policy from the early 1970s until now. The tobacco industry has developed an instinct, which has been internalised so as to become an integral part of its corporate culture, for countering any kind of research as soon as it provides some evidence linking tobacco smoke exposure to the occurrence of diseases. It has demonstrated an almost inexhaustible capacity of inventiveness in this endeavour, and has not been restrained by either moral or ethical considerations. Only the result counted: to undermine, denigrate, discredit, repudiate, belittle, ridicule, attack, and throw doubt on the "bad" research and on the "anti-smoking" scientists who produced it. This obsession with "bad" research has evolved over time into very comprehensive and incredibly sophisticated strategies, which we will discuss later in this chapter.

[b] Ord Johnstone MM, Chairman, Tobacco Advisory Council, Third World Conference on Tobacco and Health "Passive Smoking", 17 July 1975. Philip Morris (Bates No. 2501160168).

2. The industry's initial response

During the early years the tobacco industry responded to the passive smoking threat in a rather defensive way, reacting on a case-by-case basis. Each new result that added further evidence that non-smokers needed to be protected against ETS was followed by declarations by the industry refuting the conclusions and labelling them as "emotional", while the scientists who produced them were systematically categorised as anti-smoking, if not anti-smokers.

On the other hand, the industry expected scientists to whom it provided financial support and who conducted research in "sensitive" subjects (i.e. anything related to smoking and health, whether it was the "primary issue" – linking diseases to active smoking – or the "secondary issue" – linking diseases to passive smoking) to know, as is said eloquently in a Philip Morris internal memorandum, "where their bread was buttered"[3]. When scientists forgot it, the industry would remind them rather vigorously, as is illustrated by an episode involving a Swiss scientist, Dr Annetta Weber, the assistant of Prof. Grandjean at the Swiss Federal Institute of Technology. The Swiss cigarette industry had provided Dr Weber with a grant for a study that was intended to show that "before reaching toxic levels, the smoke build-up would force persons to take evasive action, such as leaving the room, opening the windows, etc. The conclusion being that in reality, no health hazard could result from the build up of side-stream smoke…"[4]. Dr Weber's published findings did not lead to this conclusion. Dr Wakeham, then Philip Morris's Vice President for Science and Technology, complained to his counterpart in Switzerland that "the Scientific Commission [the funding mechanism] is negligent in not preventing the research and publication of misleading and erroneous information harmful to the cigaret [sic] industry"[5]. H. Gaisch, in Philip Morris's Swiss office, replied that "After having tried unsuccessfully to influence Dr. Weber, the only way that remained feasible was to cut off the research grant." He continued that the research team involved was continuing to research the effects of passive smoking in settings such as restaurants and offices, but concluded that "with the threat of discontinuation [of funding] hanging over their heads, we have a better and more effective means of influencing the style and the content of their pending reports."[4]

However, influencing the style and content of the work produced by scientists who received funding from the tobacco industry did not do much to prevent others from producing results, which provided evidence that started to accumulate, so building the case against passive smoking. The industry knew that what mattered more than the scientists who published their results – the senders of the message – was how these results were received and understood by the public and by public policy makers – the targets of the message. It was vital for the

industry that the worrying message about ETS did not reach this target audience, at least unchanged.

In the early 1970s, scientific results related to ETS were somewhat sketchy and scattered, and their raw scientific form did not make it easy for non-specialists to fully appreciate their significance. There was a need to pull this information together, to interpret, summarise and present it in a way that was digestible and understandable by the lay person. In this process, the media played a key role. As is said in an internal Philip Morris document, "The role of the media is perhaps as important as that of the scientists, perhaps more so. The reporter is the mouthpiece of scientist."[c] The tobacco industry quickly understood the opportunity presented by this situation: if it could gain control of the scientific review process, it could inject its own theses in it and would be able to propose a "balanced" and "reasonable" interpretation of the findings, brushing aside the "emotional" statements made by the anti-tobacco scientists, who, the industry claimed, were driven by a hidden political agenda and were inherently biased against the industry. In such a context, reports emanating from the review process, which had a greater propensity for being used as information source by the media, presented an opportunity to influence how scientific results were reported to the public. One key instrument in the review process was the symposium.

3. The symposium

In 1974, the tobacco industry sponsored its first symposium on ETS (the term ETS was coined on that occasion), with the help of an "independent scientist", Ragnar Rylander, who was then professor at the University of Geneva. The university did not know that R. Rylander had a parallel existence as a secretly employed consultant of Philip Morris since 1972. The symposium was organised according to the following principles:

- The aim of the symposium was to review the state of knowledge on the health consequences of exposure to passive smoking.
- The symposium was placed under the aegis of an official sponsoring organisation with a high level of scientific credibility (in this case the University of Geneva).
- It was, however, entirely financed by the tobacco industry. Participation was by invitation only, all expenses being supported by the industry.

[c] ETS Plan, A Reorganization of Resources, 1989. Philip Morris (Bates No. 2021159514/9522).

- Tobacco lawyers had a high degree of control over all stages of the symposium. They had the final say on the list of participants, which included a majority of undeclared industry-affiliated scientists, and a few truly independent scientists to preserve a minimum level of credibility. Working documents, symposium conclusions and proceedings were all "edited" by the lawyers, and the final report was published in a paid supplement of a reputable scientific journal.

The conclusions of the symposium, generally aligned with the position of the industry, were given enormous publicity by the industry and were extensively used to lobby public policy makers and dissuade them from the need to take protective measures.

To present the case for the 1974 symposium, Dr. Wakeham of Philip Morris wrote to H.C. Goldsmith, the president of Philip Morris USA, arguing that "it would well serve the industry to get eminent medical experts to define indoor conditions under which cigaret [sic] smoke in their best judgement is not hazardous"[6] [the word "not" was underlined]. Wakeham expected that "The report from the proposed conference could be invaluable in putting some sense into the legislative drive to restrict smoking in public places, and the sooner the better."[7] The symposium took place in March 1974 in Bermuda and met Philip Morris' expectations. Wakeham described its proceedings as a "very convenient piece of paper"[8]. There were two quotes in them that the industry liked very much and which it propagated widely: "the risk for the development of chronic pulmonary effects due to environmental tobacco smoke is non-existent among the population in general"[9] and "the CO in environmental tobacco smoke does not represent a health hazard."[9]

The 1974 symposium was so successful from the industry's viewpoint that it became a model, known as the "Rylander symposium", that inspired many similar symposia and workshops organised by the industry over the next decades, several of which were organised by Rylander himself. Another one was organised nine years later in Geneva. It was financed by the Tobacco Institute and again placed under the aegis of the University of Geneva. It was tightly controlled in great detail by the Kansas law firm Shook, Hardy and Bacon, which worked for the industry. Its conclusions basically confirmed those of the 1974 symposium, in spite of the accumulation of new evidence linking disease and passive smoking and in defiance of landmark results by Hirayama, Trichopoulos and White and Froeb, who had been deliberately excluded from the symposium. The Tobacco Institute sent a copy of the proceedings to Dr. C. Everett Koop, the U.S. Surgeon General and summarised in the cover letter the major conclusions of the workshop: "Available data do not establish an increased lung cancer risk for nonsmokers

from ETS exposure. The contribution of carbon monoxide from tobacco smoke to the environment 'is not important from a health point of view'. Data on possible effects of exposure on children 'are still contradictory'. The most prevalent reported effect of ETS is in the area of personal annoyance and irritation and not chronic disease."[10] The U.S. tobacco industry liked these conclusions so much that it requested permission from the University of Geneva to reprint the report in the United States: "This will enable our distribution to all Members of Congress, daily newspaper editorial page editors, science writers, broadcast editorialists, state health officials and legislative committee members and others."[11]

The symposium has been one of the favourite mechanisms used by the tobacco industry to force its views into the scientific record. A review of all 297 symposium articles on ETS published between 1965 and 1993 was conducted by researchers from California, and compared to a random sample of 100 journal articles[12]. They found that "symposium articles were more likely to agree with the tobacco industry position (46% versus 20%), less likely to assess the health effects of ETS (22% versus 49%), less likely to disclose their source of funding (22% versus 60%), and more likely to be written by tobacco industry-affiliated authors (35% versus 6%) than journal articles (p=0.0001)." The researchers conclude that "sponsored symposium proceedings influence public policy because they are often presented in a misleading fashion, as if they are the equivalent to peer-reviewed journal articles, as if they are balanced reviews of the scientific literature, and as if they are not affiliated with the tobacco industry. […] The publication, dissemination, and citation of symposia on ETS are some of the means by which the tobacco industry has administered the 'antidote' to data on the adverse effects of passive smoking."

Although its stratagem has long been exposed, it seems that the industry still believes in the merits of the symposium formula. As late as November 2004, it made yet another attempt with a seminar entitled "The Science of Environmental Tobacco Smoke", which the British Tobacco Manufacturers' Association held at the Royal Institution of Great Britain. The name of this prestigious institution figures prominently on the printed material of the seminar, giving it a veneer of respectability. However, the premises were simply hired privately by the tobacco manufacturers, without any implication of endorsement by the Royal Institution. The draft programme listed the name of the head of ethics of the British Medical Association, as a possible speaker "to be confirmed", even though she had not been approached and would refuse to attend. Unsurprisingly, from a scientific point of view, the seminar was a complete flop, with only five speakers, including two industry-affiliated persons who made the key presentations. The scientific level of the presentations was mediocre at best. The conclusion of the seminar follows in direct line from the 1974 symposium: "The findings of individual studies

on the health effects of ETS are inconsistent and inconclusive. Few of the studies have produced results that fulfil conventional statistical tests for significance. Where a positive effect has been found, the relative risk has been so low that it is beyond the limits of reliable epidemiological inference."[13]

4. Reviewing the evidence (selectively)

Review articles are another denial mechanism used by the industry. They may be published in symposium proceedings or as individual contributions. Review articles provide some scope to re-interpret scientific results. This characteristic appears attractive to tobacco industry-affiliated authors. Californian researchers D. Barnes and L. Bero identified and analysed 106 reviews articles on the health effects of passive smoking published between 1980 and 1995. They found that 37% of the reviews concluded that passive smoking was not harmful to health. Using a multiple logistic regression, the only factor associated with this conclusion was whether an author was affiliated with the tobacco industry. The researchers observed that "These findings suggest that the tobacco industry may be attempting to influence scientific opinion by flooding the scientific literature with large numbers of review articles supporting its position that passive smoking is not harmful to health."[d]

5. "Shoot the messenger"

When it felt that some results were particularly threatening to its interests, the industry mobilised all its firepower to launch massive attacks against the research and the scientists who had conducted it. There are numerous instances of such attacks over the last three decades, but one in particular epitomises the way the tobacco industry acted when confronted with important research on ETS. We will discuss it in some detail, as it offers a good illustration of the methods used by the tobacco industry.

In January 1981, the *British Medical Journal* published an article that sent an electric shock to the entire tobacco industry.[e] The article reported the results of a study by a Japanese epidemiologist, Takeshi Hirayama, who had followed up

[d] Barnes DE, Bero LA. Why Review Articles on the Health Effects of Passive Smoking Reach Different Conclusions. *J Am Med Assoc* 1998; 279: 1566–1570.

[e] Hirayama T. Non-smoking wives of heavy smokers have a higher risk of lung cancer: a study from Japan. *Br Med J (Clin Res Ed)* 1981; 282: 183–185.

265,000 men and women in his country over 14 years. He concluded that non-smoking women married to heavy smokers doubled their risk of dying from lung cancer. Just reading the headlines, one can say that the American media grabbed the significance of this result: "Smoking your wife to death" (*New York Times*), "Smoking: killing 2 for the price of 1" (*Chicago Sun-Times*). As can be guessed, the tobacco industry did not like this turn of events. The Tobacco Institute (TI), the US industry's front organisation, issued a press release in which it stated that "There are a number of eminent researchers who feel that many studies claiming effects of tobacco smoke on nonsmokers are at best poorly done and prematurely publicized. Dr. Hirayama's findings were accepted as fact and widely reported in the U.S. news media. As a result, many people may have been misled and unduly alarmed, and in some instances this report was used to support legislation for smoking bans and other restrictions."[14] The reaction of the industry was massive. The TI wrote to the magazines and newspapers which had reported on the Japanese study results, stating that "Hirayama's study was totally statistical. To view this work as anything more than a study of unconfirmed numbers may be a serious error."[15] There seemed to be no limits to the Institute's critique of Hirayama's work:

> *[...] most of the smoking related data presented by Hirayama over the years in other papers are extremely questionable. Also he is known as an anti-smoking fanatic, so that "massaging" of the data is definitely a possibility.*[16]

We find here a recurring theme: scientists who produce results which are not in line with the industry's interests are quite systematically denigrated as "anti-smoking fanatics". A statistician at the Tobacco Institute believed that he had discovered an error in Hirayama's calculations and claimed that this invalidated his conclusions. The TI paid Nathan Mantel, the creator of the statistical test used by Hirayama, to make comments on this discovery and then published it under Mantel's name. With the help of Burston-Marsteller, the public relations agency, the industry staged an "aggressive" campaign to "discredit Dr. Hirayama's contention […] with a broad communication of the fact that [he] made a basic, significant error in his calculations."[17] The Tobacco Institute tried to intimidate the Director of the Japanese National Cancer Research Institute, Hirayama's supervisor. H. Kornegay, the TI chairman, sent him a strongly worded telegram, which said:

> *I must tell you that we regard this discovery of an arithmetical error as very grave. There is continuing evidence of concern in public, political and scientific circles throughout the world over what has been regarded as a startling report that lung cancer among Japanese women is associated with environmental tobacco smoke. In the*

> *United States, news media have reported extensively and commented upon Dr. Hirayama's report as a warning of danger and members of legislative bodies have been pressed to enact cigarette smoking prohibitions and other restrictions. Many persons have been unfortunately misled and unduly alarmed by the Hirayama study, and it has been used to support unnecessary limitations on individual liberties. Since the study was sponsored by your institute, I am confident that you will share our concern regarding the validity of its conclusion.*[f]

Actually, there was no error in Hirayama's calculations, which had been checked and confirmed by prominent statisticians. It turned out that the "error" discovered by the TI was the result of unfounded speculation, as was explained in correspondence published by the *British Medical Journal*. However, the tobacco industry had managed to create a controversy, which was fed by public comments by industry-linked scientists, and it took advantage of this confusion to launch a U.S. nationwide communication campaign to denigrate Hirayama's results, with full-page advertisements "in each of 17 national publications, five magazines and 13 newspapers circulated in the Southeast, and 115 newspapers."[18] From the very moment he published his results in the *British Medical Journal,* Hirayama became the *bête noire* of the tobacco industry, which has never missed an opportunity to discredit him and his results. For example, as noted above, Hirayama was deliberately not invited to the Geneva symposium organised in 1983 by Ragnar Rylander. His involuntary absence gave Rylander a free rein to echo the attacks of the tobacco industry against the Japanese epidemiologist, presenting these attacks as if they emanated from the scientific community:

> *This study has been criticized in detail by other researchers from the point of view of questionnaire reliability, absence of histological diagnosis, statistical treatment, grouping of smoking habits among husbands and confounding factors.*[19]

This is quite a long list of criticisms for a single study. Putting it another way, for Rylander, Hirayama's study was nothing short of junk science. However, in spite of all the efforts deployed by the tobacco industry, Hirayama's conclusion that passive smoking causes lung cancer has stood the test of time[20].

[f] Horace R. Kornegay, Chaiman, The Tobacco Institute, Telegram to T. Sugimura, Director, National Cancer Research Institute, Tokyo, Japan, 17 January 1981. Philip Morris (Bates No. 2504013065/3066).

6. Bypassing the scientific process

When it felt that it had little chance to convince the scientific community of the validity of its views, the tobacco industry did not hesitate to bypass the scientific process altogether and go directly to policy decision makers, putting pressure on them using whatever mechanisms was at their disposal, taking advantage of their infiltration of governmental structures. In the United States, the industry lobbied tobacco-friendly members of Congress to conduct hearings on specific ETS related topics and obtain favourable reports and recommendations.

For example, the congressional Subcommittee on Tobacco and Peanuts, chaired by Charles Rose, published in 1981 an official report with a long title which tells the whole story in one sentence: "New England Journal of Medicine article entitled 'Small-airways dysfunction in nonsmokers chronically exposed to tobacco smoke' authored by Drs. White and Froeb should not be relied upon by government policy makers."[21] The research conducted by J.R. White and H.F. Froeb, published in March 1980[g], provided one of the first confirmations that exposure to tobacco smoke in the workplace altered the respiratory functions of non-smoking workers. Internally, the tobacco industry considered this work of high quality. J. Charles, of Philip Morris, commented in a confidential note "I have reviewed the above paper and I find it to be an excellent piece of work which could be very damaging to our business."[22] The paper was then reviewed by a panel of Philip Morris scientists and the conclusion was that "this paper appears to present a powerful argument for small-airways dysfunction in nonsmokers exposed to tobacco smoke."[23] This did not prevent the company from denigrating the White-Froeb article, calling it "a propaganda piece very clearly timed and orchestrated to have maximum exposure and impact."[24] Dr. White was described in a Philip Morris presentation as "a physical education instructor lacking even minimal scientific credentials."[25] However, having failed, in spite of its attempts, to discredit his work before the scientific community, the tobacco industry relied on the congressional Subcommittee as a last resort. In its background comments, the Subcommittee observed:

> *[…] the Subcommittee is aware of several recent occasions where the White-Froeb study has been used to support regulatory and legislative activities. Numerous witnesses referred to the study in testimony before the Civil Aeronautics Board during its consideration of rules regarding smoking aboard commercial aircrafts. The National*

[g] White JR, Froeb HF. Small-airways dysfunction in nonsmokers chronically exposed to tobacco smoke. *N Engl J Med* 1980; 27: 720–723.

> *Research Council Report entitled "Indoor Pollutants" that was produced in 1981 under an Environmental Protection Agency contract also relies on the study. Finally, the White-Froeb study has received wide-spread attention in state and local legislative and policy-making bodies.*[21]

The Chairman of the Subcommittee summoned Dr. White to make his data, together with all protocols, questionnaires forms and other material immediately available to him, on the grounds that the article he published with H.F. Froeb was "adding significantly to the public uncertainty about the state of scientific knowledge regarding the public smoking issue" and that its conclusions appeared to "conflict with testimony presented to the Tobacco Subcommittee by a panel of expert witnesses"[21] It turned out that these expert witnesses were, not surprisingly, all tobacco-affiliated consultants. The Subcommittee met Dr. White. It also selected and heard three "experts" – Dr. Sterling, Dr. Fisher and Dr. Aviado – all with links to the tobacco industry, and obtained a written contribution by M. Lebowitz, an industry consultant. The conclusion of the Subcommittee was predictable:

> *The White-Froeb study is highly suspect from a scientific viewpoint and should not be relied upon by the Congress, federal departments, agencies, or other legislative and policy-making bodies when considering restriction on smoking in public places.*[21]

More recently (in 1996), a similar method was used by the tobacco industry in an attempt to prevent the Swiss national health authority from taking into account the results of the Swiss Study on Air Pollution and Lung Diseases in Adults (SAPALDIA). This large-scale collaborative study had an important section dealing with passive smoking, which concluded that there was a causal link between passive smoking exposure and respiratory symptoms. The association of the Swiss cigarette manufactures, the CISC, mustered all its consultants and industry scientists to elaborate a rebuttal of the study, which it then sent to the Director of the Federal Office of Public Health. In a covering letter, the CISC said that it did not doubt that the Federal Office, in line with its objectivity and neutrality obligations, would take into full consideration the industry's analysis, "which proves without ambiguity that the 'Report on passive smoking in Switzerland' cannot serve as a basis, in any form whatsoever, for the policy of the Federal Office of Public Health with respect to environmental tobacco smoke."[26]

7. Shifting the goalposts

The industry used an array of other techniques to counter scientific progress in the area of public health as soon as it affected, in one way or the other, its commercial interests and could be used to justify legislation. However, at some stage, the industry must have been confronted with the spectre of an impasse if it continued to react to each study on a case-by-case basis, as the number of such studies was rapidly growing and there was a risk that the industry would be overwhelmed. One solution was to devise generic denial techniques, which would make it possible to refute in one go a whole range of studies, if not a whole area of science. The use of "confounding factors" was one such technique. The concept of Good Epidemiological Practice (GEP) was another one. These two techniques belong to the "third strategy" devised by R. Rylander in 1988:

> *The present strategy to evaluate the importance of ETS has been to scrutinize available data and evaluate the importance of methodological shortcomings, particularly in the epidemiological studies. This is the strategy taken during the two ETS meetings on Bermuda and in Geneva, and subsequent meetings in Germany and in Japan.*
>
> *An additional strategy during recent meetings, has been to consider ETS as an indoor air pollutant and establish the perspective to other airborne pollutants, such as gases from cooking fuel, etc.*
>
> *A third strategy could be considered. There is general agreement among researchers that ETS risk levels are small although this is not always appreciated by the media and the public. In studies of low risk factors, methodological problems are present, particularly in epidemiological studies. Such methodological difficulties are not previously fully evaluated and the impact on low risk factors has not been defined.*[27]

It should be observed that the methodological difficulties associated with low risk epidemiology were not considered as problems to be solved; they were rather seen as opportunities to discredit research work on ETS.

Put simply, a "confounding factor" is a name for a risk factor other than the one under study that could explain the observed association between the risk factor of interest and the disease. The industry has made intensive use of this notion to invalidate results on ETS. Its technique was actually quite simple. By conducting a large number of small studies, each looking at many possible risk

factors, there is a very good chance that one or more of the variables will appear as a "statistically significant" risk factor simply by the play of chance. Of course, the numerous studies in which these "risk factors" do not emerge as being significant are not reported. Such results obtained in a post-hoc fashion are purely spurious, and the statistical test of significance is actually meaningless. This did not seem to bother Ragnar Rylander, who used this technique almost systematically in his study on children and respiratory infections. In one of his earlier pilot studies, he looked at diet as a potential confounder, considering 30 food categories with a sample of 90 subjects. As might be expected, he found some "significant" correlation between some respiratory symptoms and the consumption of eggs, chicken, yoghurt and milk desserts. He announced his results at the meeting of the American Thoracic Society in May 1992, concluding that "the data suggest […] that there is a relation between consumption of certain proteins and the risk of respiratory infectious disease in children. Diet factors **must** be taken into consideration in studies on the relation between environmental agents and respiratory infectious disease in children."[28] [emphasis added] with, of course, the implication that all previous studies that did not take diet factors into consideration could no longer be assumed valid. In one sweep, this mini pilot study was used to discredit most of the previous work on this subject. And it used only a single confounding factor – diet. Even if the scientific community would from that point on produce studies that controlled diet as a risk factor, this would by no means exhaust the supply of potential risk factors.

Philip Morris paid US$1.4 million to the company Newman Partnership to "execute a science/media program designed to effect a meaningful change in the views of science and policy decision leaders regarding the alleged health threat posed by ETS [and] communicate the inadequacy of the scientific evidence implicating ETS as well as the social and political motivations driving the issue."[29] Newman Partnership produced a report entitled "ETS and Children's Respiratory Illness" which contained a "laundry list of confounders", including heredity, gas stoves, cross infection, family size, home dampness, moulds, dust mites, fungi and other allergenic microbes, socioeconomic status, daycare, season, swimming, frequent change of address, outdoor air pollution, parental neglect, nutrition, lack of preventive care, nutrition, per capita living space, etc.[30]. This list provided enough confounders to "invalidate" studies for decades to come.

In the early 1990s, Philip Morris tried to promote a new standard, called Good Epidemiological Practice, or GEP, for the conduct of epidemiological studies. The initial motivation was to subvert[31] the effects of the major World Health Organization (WHO)/International Agency for Research on Cancer (IARC) epidemiological study on passive smoking, which it was feared would give an impulse to smoking restrictions in Europe. Under the GEP guidelines, odd ratios

of 2 or less would not be considered strong enough evidence of causation to justify regulatory action. This would, in the same vein as confounders, invalidate in one sweep a whole family of research results. However, confronted with the prospect that no epidemiological organisation would agree to such a standard, the GEP programme was gradually scaled back[32].

8. Controlling the agenda

Finally, the tobacco industry has complemented its attacks on the research on ETS done by independent scientists with the "making" of its own science on the subject, by commissioning research over which it had a high degree of control. These research projects all produced results that showed no harmful effect of passive smoking, or attributed diseases to other factors than ETS. One advantage for the industry of these studies was to reduce the relative importance of significant research results in meta analyses. There are numerous instances of such types of tobacco-directed projects – which were in most cases published without full disclosure of the involvement of the industry. We will mention two notable examples.

The first example is provided by a study intended to counter Hirayama's results. Not satisfied with its massive denigration campaign against the study by Hirayama (see above), the tobacco industry directed and produced an alternative Japanese spousal study which was published under the name of a consultant, hiding the contribution of "ghost" authors, and omitting to fully describe its own involvement in the study[33]. The second example is the more recent study by J.E. Enstrom, (a "long-time paid scientist"[34] of the tobacco industry) and G.C. Kabat, which was published in the *British Medical Journal* in May 2003. Enstrom and Kabat used the data from a longitudinal cohort study started in the USA in 1959 and concluded that passive smoking does not increase the risk of lung cancer and heart disease. Their result was widely publicised in the media. However, it was soon discovered that the methodology used by the authors was deficient, since the data they used did not have a proper control group of unexposed subjects. The data collected in the original study had not been intended for the kind of analysis done by Enstrom and Kabat. Although acknowledging some financial support from the tobacco industry, the authors did not reveal the full extent of their relationship with this industry and did not mention that the study was actually an industry's "directed project" under the close supervision of tobacco executives[35]. The industry continues as of today to refer to the Enstrom-Kabat article as the authoritative result on passive smoking.

To consider only those studies that were published without full disclosure would, however, provide an incomplete picture. Equally important was the research that was undertaken but not published. One of the most notorious examples was that undertaken by Philip Morris in its biological research facility, INBIFO, in Cologne, Germany. Acquired in 1971, it was managed at arms length by its Swiss subsidiary. For many years its existence was secret even to many of those working for Philip Morris, with its work coordinated by Ragnar Rylander, who corresponded with Tom Osdene, Philip Morris' Scientific Director, via letters sent to each other's homes[36]. It was seen as "a locale where we might do some of the things which we are reluctant to do in this country [the USA]"[37]. In addition to a wide range of work undertaken to inform the commissioning and design of confounder studies, INBIFO was the setting for at least 800 studies of the effects on animals of inhaling sidestream smoke. Among them were ones showing how the effects of such exposure were three to four times more harmful than directly inhaled smoke[38], a finding explained by the greater toxicity of combustion products produced at the low temperatures found in cigarettes smoldering in ashtrays. The research undertaken at INBIFO is important because it demonstrates clearly that, despite its denials, the tobacco industry has been well aware of the harmful effects of tobacco smoke for many years.

9. Bringing it together

We have so far presented a fairly extensive sample of the catalogue of methods used by the tobacco industry to counter science on ETS and prevent legislation. In the 1970s, these methods were used on an ad-hoc and the level of coordination was low. As the ETS threat increased, the industry started to give a high priority to this activity and dedicated important financial and human resources to it. The methods became more sophisticated and were integrated in comprehensive ETS strategic plans which were evaluated and revised on an annual basis. These plans were global in scope, with regional and national implementation, coordinated among the main tobacco transnationals. Sensitive parts of the work were farmed out to various partners: law firms such as Shook, Hardy and Bacon (coordination of ETS-related scientific activities) and Covington & Burling (recruitment of consultants and "development" of witnesses), public relations firms such Burson-Marsteller (e.g. development of the accommodation strategy). Although their foundation was the scientific argument, the strategic plans covered many non-scientific subjects: indoor air quality standards, ventilation standards (the industry tried to infiltrate standard setting bodies to downgrade air quality and ventilation standards), lobbying of the hospitality industry, promoting the accommodation concept, whereby courteous smokers should cohabit harmoniously with tolerant non-smokers, the promotion of ventilation as the

technical solution for any possible irritation (never harm) caused by exposure to second-hand smoke, the conduct of surveys to support the industry's positions, etc. In recent years, the tobacco industry has entered into alliances with the hospitality industry, in some cases establishing ostensibly independent trade organisations that will argue against the introduction of smoking bans. In these cases the focus has been on economic arguments, suggesting that a ban will reduce bar and restaurant takings. Inevitably, the research produced to justify this argument has been highly suspect. A systematic review of 97 studies looking at the economic consequences of smoking bans found that every one of the 37 studies that reported a fall in sales had been funded by the tobacco industry or was written by consultants known to have industry links. Few of these studies had appeared in a scientific journal. None of the 60 independent studies found an adverse economic impact[39].

This approach is made explicit in the ETS 3 year plan for 1994–1996 of Philip Morris Corporate Affairs Europe, which has the following objectives:

> Objective #1: Maintain the social acceptability of smoking
>
> → Develop communications and ally-building programs to favorably affect perceptions about smokers and the notion that they can happily co-exist with non-smokers
>
> […]
>
> Objective #2: To prevent unreasonable legislation
>
> → Develop preemptive legislation with acceptable solutions in member states in order to:
>
> - prevent adverse national legislation
> - delay/prevent EC legislation
> - lay the ground-work to forestall EC legislation through subsidiarity
> - if EC legislation inevitable, use moderate member state legislation as basis
>
> […]
>
> Objective #3: Prevent unreasonable private sector smoking policies
>
> → Provide private sector with reasonable and practical solutions to accommodate smokers at the workplace[40]

10. Pre-empting effective action

To close this chapter, we will illustrate these objectives with a concrete example of what Philip Morris calls "pre-emptive legislation". Philip Morris gives the following explanation of this concept: "In some markets, the adoption of voluntary workplace smoking policies may alone be sufficient to prevent or substitute national legislation. In other cases, reasonable national legislation may be sought to lock in favorable terms in markets where smoking remains socially acceptable and the legislative timing is right to make that sentiment a statutory requirement."[41] Philip Morris cites the case of Belgium as a model of this approach.

The 1993 Royal Decree adopted in Belgium to "protect workers against nuisances due to tobacco smoke in the air" indeed offers a good example of pre-emptive legislation. This decree was prepared with the close involvement of the Belgian tobacco manufacturers' association, whose strategy was to "have an active attitude towards the Minister of Labor and […] propose to the Minister to regulate smoking in line with the courtesy campaigns of the industry."[42] The resulting decree lived up to the industry's expectations, as can be judged by its main article: "The employer must take the necessary measures to establish the conditions of tobacco use during work hours, including rest breaks and meal breaks taking into consideration reciprocal needs of smokers and non-smokers. These measures must be based on mutual tolerance, respect of individual liberties and courtesy."[42] The decree obliged the employer to have a **smoking policy** regulating smoking in the company, as opposed to a smoke-free policy. Its close collaboration with the government brought additional benefits to the industry. The publication of the Royal Decree was accompanied by the publication by the Ministry of Labor of a brochure, which stated that "scientifically it hasn't been proven that passive smoking increases the possibility of developing lung cancer."[42]

11. Conclusion

In summary, we have illustrated various facets of the way that the tobacco industry reacted to the growth of evidence that exposure to second-hand smoke was deleterious and a serious public health concern. From the outset, the industry has considered this evidence as even more damaging to its business interests than was the discovery of the link between active smoking and lung cancer two decades earlier[43], as it logically implied the promulgation of smoke free policies and legislation – measures that would be essential to protect people against exposure to tobacco smoke effectively. It has responded by staging an extraordinary

campaign of deception, denial and obfuscation. Was this a judicious decision? Certainly it was not good from a public health point of view, since this campaign has clearly succeeded in delaying smoke free policies and legislative actions, which could have been initiated in the early 1980s, shortly after the research of Hirayama, Trichopoulos, White and Froeb, and others provided convincing and reliable evidence that second-hand smoke was a killer. Based on the conclusions of the first EU wide report to assess the effect of second-hand smoke exposure, "Lifting the Smokescreen: 10 reasons for a Smoke Free Europe" published in 2006, second-hand smoke kills 79,000 EU citizens each year. Acting in a timely manner could have prevented hundreds of thousands of premature deaths. In other words, a public health disaster which was unfolding under everybody's eyes could have been avoided.

From the tobacco industry's point of view, however, the campaign has been highly successful, and has probably even exceeded its expectations. The industry knows that it cannot win the war on health grounds and that it is fighting what it itself considers a lost cause. Its only chance is to "gain time", ensuring that money continues to flow into its coffers for as long as possible while giving itself the means to elaborate an alternative strategy from which it hopes to rebound, as it has done with incredible success in the past (for example, when it introduced cigarette filters to counter the "cancer scare" and when it proposed "light" cigarettes as an alternative to quitting). It is therefore not surprising that today the industry is sticking to its policy of deception, denial and obfuscation, which it often disguises behind the window dressing of "corporate social responsibility". In particular, it has been successful at intimidating and manipulating politicians and decision makers – its ultimate target – in many countries, who have shied away from assuming their fundamental responsibility to enact laws to protect the health of their citizens but who have instead given unjustified priority to the specific interests of the tobacco companies.

There is hope, however, that this action by the tobacco industry may have reached its limits. The process of ratification of the WHO Framework Convention on Tobacco by the European Union and many of the WHO's other member states is one clear sign. The decisions of Ireland, Italy, Norway, Sweden, and others, to ban smoking in public indoor places is another such sign. In particular, the Irish example provides a model that works very well and enjoys the overwhelming support of the population[45]. For politicians, it is a win-win decision. Let us hope that this will be the source of inspiration for any politicians and decision makers throughout Europe who may still be hesitant.

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