ship tobacco, free of charge, into Germany as part of the Marshall Plan. Twenty four thousand tons were shipped in 1948, followed by another 69 000 tons in 1949. The net cost to the US government was around 70 million dollars; the benefit, at least for American tobacco firms, was a gradual shift in German tobacco tastes from the traditionally favoured black tobacco to the milder, blond Virginian blend (the latter being purportedly more popular among women).1

Two other factors may be mentioned, both of which indicate that tobacco consumption may have been somewhat higher than indicated in official figures. The first is that, by contrast with later years, cigarettes in the immediate postwar period were often smoked down to the very end. Discarded cigarette butts were gathered and smoked, and one has to conclude that the amount of tar, nicotine, and ash inhaled per cigarette produced or smuggled was significantly higher than in less desperate years (cigarette butts contain a disproportionately high quantity of harmful substances). Such things can be important in calculating the cancer consequences of the tobacco habit.

The second factor is that many Germans grew their own tobacco for home use or trade. The Tobacco Research Institute in Forchheim actually promoted backyard tobacco cultivation in the 1940s, providing detailed instruction on how to grow and cure your own.2 Home cultivation continued after the war, and popular memory records many a soldier returning home from the east to transform gardens being used to grow vegetables into tobacco plots.

It is difficult to say how much home cultivation, the black market trade, and the smoking of discarded butts added to overall cigarette consumption. It is unlikely, however, that even all of these factors combined made up for the shortages imposed by the collapse of the German tobacco trade. Recall that German domestic tobacco production in the immediate postwar period was only a tiny fraction of prewar production, that much of the home grown variety was eventually sold to tobacco companies (and therefore counted in official sales statistics), that post war rations were only about 30–40% of early war era rations, and that women, even after the war, continued to receive half rations.3 Recall also that, at 100 marks or more per pack and in a time of extreme shortages, American brand cigarettes were more often traded than smoked. Taking such things into account, we should probably conclude that the decline in tobacco consumption was real—though it is difficult to sort out the separate contributions of Nazi policy and the coincident pressures of the war and post war poverty. Tobacco consumption in several other European nations declined from 1940–50.

Gender differences
The Nazi anti-tobacco campaign was not gender neutral: women were much more aggressively targeted than men. When tobacco rationing was implemented early in the war, women received 74 cigarettes a month. Two thirds of all tobacco supplies were diverted into the military for the duration of the war. It is therefore not surprising that German women born in the periods 1911–20 and 1921–30 show a much higher annual prevalence of smoking than subsequent birth cohorts.4 Equally intriguing is the fact that female age adjusted lung cancer rates in Germany are low for the period 1952–90, when one would expect the tobacco policies of the 1930s and 1940s to have borne fruit. In 1952, the annual rate of death from lung cancer among German women was a mere 4 per 100 000; that same year, the mortality rate for German men was 22 per 100 000. By 1990 the mortality rate for Germans had climbed to only 8 per 100 000, while the rate for men had increased to 49 per 100 000 (see table 2). In Germany today, more men die from lung cancer than from any other kind of cancer. Among women, by contrast, lung cancer is still in third place, behind breast and colon cancer. The difference in lung cancer mortality between the sexes is so great that, if this particular difference were somehow to vanish, most of the difference in overall cancer mortality between men and women would also disappear.

How can we explain the relatively slow rise of female lung cancer mortality in Germany, in comparison with that of the United States? I would suggest that Nazi efforts to discourage women from smoking, together with the shortages imposed by the war and postwar poverty, combined to slow the rate of rise of female smoking and (therefore) the rate of rise of female lung cancer mortality.

Indeed, it is possible to calculate how many women’s lives may have been saved by what ever caused the dramatic reduction in smoking in Germany over the period 1940–50. We are obviously moving here in the realm of speculation, but it is perhaps worth noting that many more women would have died of lung cancer had German rates continued to grow as rapidly as they did in the United States. As we can see in table 2, American women’s lung cancer mortality rates increased by more than a factor of six between 1952 and 1990. German women’s rates, by contrast, only doubled. Had the German rate increased as rapidly as the American rate, roughly 20000 more women would have died than actually did. One can only speculate that whatever prevented German women from taking up smoking as rapidly as American women eventually prevented the lung cancer deaths of some 20 000 German women.

Table 1 Cigarette consumption, per capita per year

<table>
<thead>
<tr>
<th>Year</th>
<th>Germany</th>
<th>USA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1930</td>
<td>490</td>
<td>1485</td>
</tr>
<tr>
<td>1935</td>
<td>510</td>
<td>1564</td>
</tr>
<tr>
<td>1940</td>
<td>1022</td>
<td>1976</td>
</tr>
<tr>
<td>1945</td>
<td>743</td>
<td>3039</td>
</tr>
<tr>
<td>1950</td>
<td>460</td>
<td>3552</td>
</tr>
<tr>
<td>1955</td>
<td>866</td>
<td>3597</td>
</tr>
<tr>
<td>1960</td>
<td>1280</td>
<td>4171</td>
</tr>
<tr>
<td>1963</td>
<td>1523</td>
<td>4345</td>
</tr>
</tbody>
</table>


Cigarette consumption
From 1940–50, German per capita cigarette consumption fell by more than half, from 1022 per person to 460 per person. The decline is notable, given that in the US over this period the decline in the cigarette consumption nearly doubled, from 1976 per person to 3552 per person. It is important to recognise, of course, the possible sources of bias in such figures. In both the German and the American case, the numbers indicated are domestic sales figures recorded for taxation purposes (both therefore exclude production for export). In the German case, and perhaps several reasons official records may have underestimated actual tobacco use in the immediate post war period. For one thing, official statistics could not take into account the flourishing black market trade in foreign tobacco. American cigarettes (“Amsis”) were highly prized in the post war period, with single cigarettes selling for as much as 5 or even 7 marks (compared with several pfennigs for German brands). Tobacco smuggling was rampant: in 1949, an estimated 400 million American cigarettes found their way into Germany every month. As late as 1954 two billion Swiss cigarettes—a quarter of that country’s production—were estimated to have been smuggled into Germany and Italy.5

Smuggling was fostered by the fact that German cigarette manufacturing had sunk to only about 10% of prewar levels, mainly due to the inability to secure raw tobacco from outside Germany. Shortages remained so severe that American authorities decided to...
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Reply

Robert Proctor's contribution to the debate on Nazi anti-smoking activities is to be welcomed, since he has made important contributions to the understanding of this issue. He suggests that the anti-smoking measures implemented in Nazi Germany, discussed in our article, had more impact than we, and others, have implied. This point is made by comparing the cigarette consumption and lung cancer rates of Germany and the United States. Proctor attributes this finding to a fall in cigarette consumption in Germany after 1940 to the Nazi anti-smoking measures, with the consequent shortfall in lung cancer rates thus being attributed to these measures.

Cigarette consumption in postwar Germany

This analysis depends upon the acceptance of data on cigarette consumption coming from the devastated terrain of post 1945 Germany. As Proctor acknowledges, there was certainly an extensive contribution of smuggling and home production to post war German tobacco consumption, which is not reflected in these figures. Equally importantly, the comparison between Germany and the United States is surely not the most appropriate one. If reductions in smoking are taken to be long term consequences of Nazi anti-smoking policies then they should not be seen in other countries which suffered similar post war disruption, but without the anti-smoking activities. In Japan, where we can find no evidence of intensive anti-smoking propaganda before and during the war, cigarette consumption per adult collapsed from around 1150 per adult per year at the time of Japan's entry into the war to 310 per year in 1947 and only returned to the prewar level in 1950. In Germany prewar levels had been reattained by 1953. Indeed the ratios for cigarette consumption per adult per year in Japan compared with Germany remained remarkably consistent: 1927 – 1.23; 1937 – 1.21; around 1947 – 1.33; 1957 – 1.23; and 1967 – 1.19. Thus it appears that postwar disruption may have produced simple shortages, together with extensive black market trading and home production, which reduced the official cigarette consumption data. This fall cannot be attributed to the anti-smoking campaigns and policies.

Comparing cigarette smoking in Germany to that in the United States clearly com- paring countries with very different long term attitudes and behaviours relating to cigarette smoking. As the data reproduced by Proctor show, per capita consumption in 1930 – before the Nazi ascendency to power – was 1485 cigarettes per person per year in the US and 490 in Germany, a ratio of 3.03. In 1963 consumption was 4345 in the US and 1523 in Germany, a ratio of 2.85. Comparing Germany with its European neighbour France again demonstrates that there was no great deviation from the general trends in cigarette smoking in Germany. In 1932 (the first year with data from France) the per capita consumption of cigarettes was identical in France and Germany, at 570. By 1939 French consumption had increased to 630 while that in Germany – which had already begun implementing its anti-smoking campaigns – had risen to 900. Cigarette consumption in France showed a lesser postwar collapse than in Germany, as would be expected from the level of disruption which existed, but by 1957 the Germans had overtaken the French in terms of per capita cigarette smoking, a position which was maintained over the succeeding decades. It is implausible that the short German occupation of part of France can be thought of as having exported Nazi attitudes to smoking to France, to account for this pattern.

The smoking data from France and Germany are matched by lung cancer mortality rates, which have been consistently higher in the latter. Proctor considers that German women may have especially benefited from the anti-tobacco campaign, since smoking among women was more actively discouraged than among men. However, comparisons between France and Germany give no support for this. Table 1 documents lung cancer mortality rates by birth cohort and age. In each cohort and at each age group lung cancer mortality rates are higher in Germany than in France and there is no suggestion that women of any age during the Nazi campaign have benefitted in the subsequent years. Male data present essentially the same picture, although there is a weak and inconsistent suggestion that those who would have been teenagers during the Nazi period had slightly lower lung cancer rates than expected. The basic picture, however, is one of higher lung cancer mortality rates in Germany than France, which is seen for women as well as men.

Diet

As Proctor has pointed out elsewhere, Nazi health promotion involved the encouragement of increased fruit and vegetable consumption, the use of wholegrain bread and the avoidance of fat. Hitler's vegetarianism is widely known while an important figure in Nazi medicine, Erwin Liek, predicted that cancer would come to be seen as a product of diet. The consumption of whipped cream seems to have been a particular target of enthusiastic Nazis. The SS paper Schmarres Korps reported on German tourists seen in Austrian coffee houses and suggested that anyone who "think Greater Germany was only created so that this raving Philistine rabbite can wolf whipped cream." In 1938 the same paper considered the audience at the 1938 Nuremberg rally as consisting of "those who pretend starvation staves them in the face unless they have their regular supply of tol-au-vent and whipped cream." A prominent pamphletist slogan read, " Fighting power or whipped cream?" Germany was, however, a "passionately carnivorous country" and changing the diet was difficult. There was a change in bread consumption,

![Table 1 Lung cancer mortality by birth cohort and age (age specific death rates per 100 000)](http://jech.bmj.com/Downloaded from http://jech.bmj.com/ on July 9, 2017 - Published by group.bmj.com)
Fertility
Proctor also comments on our reference to Martin Gumpert, who intimated that the Nazi campaigns to increase fertility were failing. Gumpert managed to escape from Germany before 1940 and did much to advertise the level of misery in Hitler's state. His book "Hail Hunger" was an attempt to demonstrate that a popular contemporary view—that the Nazis had improved health in Germany—was incorrect. The book was widely quoted outside of Germany and appears to have been an effective intervention. When discussing the fertility campaign Gumpert was referring to the later stage of the "battle for births", rather than its early days. As Proctor points out there was an increase in the birth rate and marriage rate immediately following the imposition of the Nazi rule. The birth rate increased from 15.1/1000 in 1932 to 19.9/1000 in 1936. But, this should be seen against the decline which preceded it. From a rate of 35.6/1000 in 1900 the fertility rate declined to 31.6/1000 in 1910, 26.8/1000 in 1914, 20.2/1000 in 1920, and 17.5/1000 in 1925. And by the early 1930s it had reached an all-time low. Seen in this light the "success" of the pronatalist campaign was modest.*

Interest-free marriage loans were offered from 1933, but 95% of German babies born in 1939 had passed the tests of political and eugenic reliability. Family allowances, with one-off payments at the birth of each child, were followed by the introduction of recurrent grants, intended with each child, and propaganda intended to encourage working women to return to the home to raise children.*

Increasing legal sanctions against abortion were imposed, culminating in the death penalty for any abortion introduced for habitual assistance at abortions.*

In the light of these activities, the last of which would increase the birth rate by far rather than winning the propaganda war, the cessation of any sustained rise in fertility can be seen as the basis for Gumpert's consideration that German mothers "had gone on strike". Gumpert commented cynically on many Nazi policies of Nazi social policy. He considered that attempts to claim that poor health was due to bad lifestyle was serving as a smoke screen, to cover up for the genuine decline in health due to the inadequacies of Nazi policies. Thus he considered the then campaigns to reduce fat consumption during a period of hunger were particularly insidious, stating, "there emerge today health authorities and hyenas who proclaim to the public that butter is poison."

Legacies of Nazism
The legacies of Nazism in contemporary Germany are complex and contradictory.* A motivated systematic rejection of the Nazi period can be seen in everything from functional architecture, the staid and apolitical nature of universities and television, the desire for press freedom even when it produces the embarrassment that is "Fidel (Europe's biggest selling newspaper, which can on occasions make the English Sun read like New Left Review), and consensus Government, through to the more extreme and obvious counter-reaction to the Nazi past by the Baader-Meinhof Group and Red Army Faction,* or the alternative living situations in squats of many German cities of the Autsinger and Spontis. Some commentators consider that through it all an intense sense of formality remains.* With these contradictions, the direct translation of policies enacted during the Nazi period into what has happened in Germany since the war is problematic, but then again so is simply ignoring history.*

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Cigarette smoking and health promotion in Nazi Germany.

R N Procter

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