

## Chapter 5. Labour Force & Working Conditions

*'Although working in a furniture factory could be difficult and dusty work, it was like being part of a big family, and I have happy memories.'* Thoughts from the late Raymond Peach<sup>1</sup>

The Literature Review outlined the changes that occurred in the furniture industry during the war years with regard to divisions of labour. However little has been written in any detail about the role women played in the furniture industry in High Wycombe, with furniture manufacturing being a male dominated industry. Additional evidence of the type of work women did during and after the war years was shown mostly in photographic images. The Literature Review also discussed the working conditions in furniture factories during the war years, and the subsequent poor state of Health and Safety. Changes were evident in the factory layouts and manufacturing methods since the widespread introduction of the National Grid, in the 1930s and 1940s. This chapter investigates the changes in working conditions in the High Wycombe furniture industry, and the impact of better working conditions on the health of the workers, especially the industrial disease nasal adenocarcinoma. The Literature Review identified Health and Safety as being a driver for change in the furniture industry, a main objective of this study. As discussed in the introduction, this chapter is quite different to the others. The section researching the link with dust and nasal cancer is work carried out in partnership with John Capper. This collaboration emerged from the research already being undertaken and has proved a vital link with the decline of the industry.

The union records provided evidence of the importance of High Wycombe to the furniture industry's Health and Safety issues. In the late 1950s High Wycombe and London were the only two sponsored areas to attend a conference:

...it was agreed that the Union sponsor four delegates from London and two from High Wycombe regarding a one day conference on Safety, and that factories be encouraged to appoint additional delegates, whose costs would be chargeable to their own funds (NUFTO, 1958).

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<sup>1</sup> speaking to the author 1 February 2007.

This chapter will address the following main aims of the research:

- To identify the changes in the Health and Safety of the workers in the High Wycombe Furniture industry, especially looking at the implications of dust in the workplace and the link to nasal adenocarcinoma.
- To complete a study of the decline of nasal adenocarcinoma in High Wycombe woodworkers comparing it to the decline of employment in the High Wycombe furniture industry.
- To identify the main changes of women working in the High Wycombe furniture industry.
- To collate relevant archival images and industry reports, enhancing the knowledge of this area and completing the history of this subject area previously unstudied.

### **5.1 Divisions of Labour**

Edwards (2006) investigated the role women played in arts and crafts during the eighteenth and nineteenth centuries. His findings were that ‘self-expression’, ‘household duty’ and ‘entertainment and pastime’ all played a part in the development of gender roles in this area. Women were encouraged to use their spare time productively on such past-times as painting and sewing rather than making furniture. Kirkham described furniture design and production as, historically, a male dominated profession (Kirkham, 1995, p.109). The Literature Review showed that women workers in the furniture industry initially worked at home, matting and caning chair seats. This possibly would have been to help out fathers, husbands and brothers who produced the chair frames in the woods. Machinery and the increase in production meant the decline of the bodgers in the woods turning parts or producing a complete chair, and much of the chairmaking in the area was manufactured in purpose built factories. Men and women worked together, but their roles were clearly defined, and the men outnumbered the women by far, as Chapter 4 highlighted (4.3.2). It was considered acceptable for working class women to continue working in the area that they had worked in traditionally and so the move from home to factory was fairly straightforward.

There is also reference to the unions themselves promoting the stereotypical role of women, to stay at home and look after the children, even as late as the 1980s. The Furniture, Timber and Allied Trades Union produced a Christmas card in 1986 picturing a mother holding her child and stating ‘with dad in a regular job, they’ll keep smiling through 1987’. There were a number of complaints from women members and one such complaint was reported in the FTAT Record by Val Patterson (1987, p3) She stated that the card insulted women members but women in general too, as it enforced all the old sexist stereotypes – that is men as breadwinner and women at home with the children.

### **5.1.1 The First World War**

The issue of division of labour in the furniture industry has been prevalent for many years. The nineteenth century saw women working as French polishers. They were though given the smaller items to work on as the men were believed to have greater stamina (Kirkham, 1995, pp. 118-119). Change came about with the outcome of War: before the First World War women were mainly employed in polishing and upholstery. Although the scope of the study is from 1952, it is useful to look at the similarities of the work women carried out during the First World War, and the effect this had on the furniture industry, and indeed on expectations of women themselves.

Figure 165 shows women workers in the High Wycombe furniture factory, William Birch & Co. They would have been employed for the war effort and taken over the roles of the men because of conscription. The men either side of them seem to be in a position of foremen. The women would have probably been working in the factory machine shop and assembly line, a role which would have seemed unheard of some five years or so earlier.

The employment of women as furniture workers was not only in High Wycombe. London company Harris Lebus also employed women during both world wars. Figure 166 and 167 are from the Bruce Castle Archives and show the poor working conditions across the industry. The dusty conditions that many furniture factories endured before legislation was introduced can be seen in Figure 166, indeed it would seem that no extraction was evident at all. These images also show evidence of the

diverse type of work the women carried out during the early part of the twentieth century, including skilled machining (Figure 166), and assembly (Figure 167), typically male only occupations.

Although not a furniture factory, High Wycombe's engineering company Broom & Wade Ltd, Figure 168, was employing both men and a minority of women after the First World War in the engineering workshop. This may have been because there was surplus work, or that the skills the female workforce had learnt during the war was necessary to keep. It is difficult to imagine that the women would be working in this department if there was a surplus of male workers available, such was the division of labour. It was, in many cases stipulated during the war that the women could only work in these departments if the jobs were given back to the men on their return.

It would have been more usual for the female workers to be in the minority, as seen in Figure 169, It is not clear what the role of the women workers was in this photograph, but a couple of them seem to be wearing overalls indicating that they were carrying out manual work. The traditional gender specific role that women were more likely to carry out is shown in Figure 170. This image shows a group of women sewing cushion covers. Many people at this time thought that women should be in the home, as a wife and mother. But it was an easier pill for many to swallow if women had to work, that they should do so amongst other women and in an occupation more likely to be thought of as feminine. Men in the furniture industry were the owners, managers, designers, foremen, makers and polishers. This was to continue up to the start of the Second World War, where in 1944 one in four workers in the furniture industry was female (Kirkham, 1995, p.121).

### **5.1.2 Dilutees**

The NAFTA minutes also verify that women were employed throughout the furniture industry in the UK. The fact that women were going to work in the male sections was not taken lightly, and indeed they were referred to in the derogatory term as a 'dilutee' (a non-indentured tradesman):

[It was reported] that some firms were beginning to talk of the eventual necessity of the employment of women labour on woodwork and after a lengthy discussion it was resolved: 'that as a matter of policy we cannot agree to the employment of women dilutees except it can be proved that alternative male labour is no longer available in the trade (NAFTA, 1940).

The Amalgamated Society of Wood-cutting Machinists (ASWM) were also reporting on the use of 'dilutees' in the workplace and that they should not be accepted into the workplace if there was unemployment (ASWM, 1939). The term dilutee would suggest that the women workers were not welcome into the male dominant sections of the factory, but rather they were accepted during the war years as a necessity, but were not seen as competent workers. The employment of women was reluctantly accepted and consequently the union was keen to make sure they became union members, as happened during the First World War:

Consideration was given to the ever increasing employment of women, and that particular attention be given to the influx of women into the industry, and that every effort made to organise them and to enrol them in the present branches (NAFTA, 1941)

Equality in the workplace was still not evident in earnings by women, as discussed in the Literature Review. The union records confirm that women workers were paid considerably less than the male workers doing a similar job:

The supplementary cost-of-living allowance to be paid to women workers shall be two-thirds of the supplementary cost-of-living allowance due to be paid at any time to adult male workers (ASWM, 1952).

Women are seen working alongside men in High Wycombe furniture factories assembling wing spans for the Mosquito aircraft (Figures 171, 172 and 173). War contributions of this type have often been attributed to High Wycombe and its furniture industry, as the Literature Review portrayed, but have yet to be attributed to the many women who worked in the factories and became highly skilled (yet were still classed as un-skilled in terms of pay). Women proved themselves to be up to the task, and were a valuable part of the war effort. In 1960 the NAFTA minutes record that women members were asked to join a delegation to attend an annual conference, and 'an invitation to nominate two vacancies was published' (NAFTA 1960c). The union's attitude had changed since the derogatory remarks in Chapter 1, and maybe women were just about up to the job in the eyes of the union.

### 5.1.3 A Woman's Place

The return of the gender division of labour in the furniture industry did not occur straight after the war it would seem: Figure 174 shows that at Harris Lebus women were still being employed in the spray shop. Lewis agreed that after the Second World War, women found themselves subject to conflicting pressures both to leave and to stay in the labour market (Lewis, 1992, p.70). Yet as many women vacated the male jobs and returned to the home there was still a high union membership of 15 percent, as opposed to only 4 percent in the 1920s (Reid, 1986, p.160).

There was no evidence found of women staying in 'male dominated' sections in any of the High Wycombe factories. Indeed the images held in the archives of SWOP and the HWeFA show the same 'feminine skills' of the sewing machine as was reported by Edwards in the 1920s. After the war, as mentioned, women lost the right to work in the 'male' jobs of machining and assembly work, in which they had proved their capabilities. Their defining role in the High Wycombe furniture industry was at the sewing machine (Figures 175-177).

It is hardly surprising that many women did not stay in the furniture industry, when there was so much pressure on them for not doing so. A report in the ASWM commented on the role of 'wives and mothers' going out to work. The conflict of looking after children and responsibilities of work were frowned upon (this portrayal of the 'house wife and mother' were often portrayed in company advertising, as seen for Ercol in Figure 178). The typical view portrayed by men at that time was that, 'a woman's place is in the home to look after the house, the children and me' (ASWM, 1958b). The issue was seen as hugely controversial, and the gulf enormous between women who think, 'that no one has the right to condemn a woman to a domestic life which she may find quite unsustainable to her make-up' (ASWM, 1958b).

This issue has continued, but thankfully women in paid employment as a whole has been increasing over the years, even if the shift is still slow from the perceptions of what job is appropriate for a woman. During the war years it would seem that the traditional notions of what were 'men's work' and what was 'women's work' was set aside. But the notion that women were not strong enough for the physically demanding work in the factory soon emerged as the war ended. The images from the

archives show that women were also engaged in other activities, but this would primarily be within the upholstery workshop and the clerical office, as seen in Figure 179.

The division of labour continued into the 1990s. Parker Knoll in 1992 had only one female employee in furniture production, in addition to the author working on a placement at its High Wycombe factory.<sup>2</sup> The majority of its female production workforce was at Chipping Norton in the sewing department, and this department was made up only of women.

There was no reference found during the course of this research to any female designers, although most furniture designers in High Wycombe were anonymous. Kirkham reiterated that this was true for the rest of the UK, with women designers never featuring prominently and the majority of firms were run by men (Kirkham, 1995, p.109). Figure 180, shows an Ercol management meeting, made up almost entirely of men; the female in the image is Lucian R. Ercolani's daughter Roma, who seemed to accompany her father and brothers on overseas trips. It should also be noted that there was no reference to any female factory owners or managers in the industry, with one exception. A report in the Times Review mentions 'Harper-Wycombe' a company that 'has the only woman managing director in the town. Her company dealt with church and school furniture and her other company Millbourns, which make only chairs, employ 15 craftsmen (Anon, 1964b, p.50).

## 5.2 A Dusty Workplace

It was not until the 1940s that more equipment was fitted with pneumatic/hydraulic feed units that made more cutting and sanding machines semi-automatic, increasing efficiency. Before that, most machines were fed with levers on gears and ratchets powered by hand.<sup>3</sup> Unfortunately, these improvements were not matched by the methods for dust extraction in the workplace, and consequentially working conditions were poor and dust levels were often described as intolerable (Rourke *et al.*, 2013). Highly combustible liquids, dust and other materials enabled fires to

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<sup>2</sup> The author worked at Parker Knoll 1992-1993, BSc Furniture Production 'sandwich' year. The author was the only female on the course at High Wycombe College of Higher Education in 1990.

<sup>3</sup> Author interview with Martin James, Director of Didac Ltd (was Managing Director of Rye Machinery in High Wycombe), 16 February 2009.

spread incredibly fast. Indeed the factory fires that had been commonplace at the beginning of the twentieth century were still being reported into the 1970s (Figure 181), and in 1970 ‘one of the biggest most disastrous fires in the history of High Wycombe’ (Vernon, 2013) occurred, and was reported in the union minutes:

The General Secretary reported that a disastrous fire wrecked the Parker Knoll premises at High Wycombe on Wednesday night, but that the Managing Director and other of the Executive Staff had been present outside the building at the time of the fire, when they made all the arrangements to deal with the matter of the retention of all employees on the pay roll and, in fact, by the next morning had posted notices giving details of the methods of wage payment, the deployment of the difference sections, the taking over of the Dancer & Hearne, Penn Street, factory and there was every reason to expect as a result of this initiative all our members would be re-employed within a few days, although they would be working under very difficult conditions (NUFTO, 1970a).

The improvements of machinery in the furniture industry by the introduction of electric motors, better design and ball bearings fitted to improve precision, accuracy and speed, as well as the use of compressed air to raise spindle speeds, all had an impact on the worker. From one or two men making most of the chair parts at the beginning of the twentieth century, the 1950s onwards had division of labour on the factory floor. Mechanisation led to workers using high-speed machinery all day, every day. In the years after the Second World War, the conditions in the furniture factories often remained difficult, with poor lighting and uneven floors. Housekeeping in most plants was not of the high level we know in this country today (Edwards, 1994, p.71).

High speed sanding was a highly automated area in the furniture factory. There were a number of years in which dust extraction and safe working conditions in the furniture industry were not a priority. However, the Factories Act 1961 ensured the correct definitions of factory and working conditions relating to the safety, health and welfare of employed persons. This was followed by the Health and Safety at Work Act 1974. Up to this date, legislation had been passed piecemeal to deal with dangers affecting specific groups of workers. The objective of the 1974 Act was much broader; it called for every employer to ensure, so far as is reasonably practicable, the health, safety, and welfare at work of all his employees. Figure 182 shows two images taken at the Ercol Furniture factory in the 1960s and 1970s: they show the sanding operation of what look like Windsor chair backs. The operators are



not wearing any protective equipment against the sanding dust, although dust extraction is part of the sanding equipment. These conditions were possibly much better than other furniture companies in High Wycombe at this time. Gordon Gray described working at Forward and Donnelly in the late 1960s, ‘conditions were cold, very dirty and dusty, a real shock, depressing, but I had no choice’.<sup>4</sup> Gray went on to comment that there were some companies in Wycombe that were better than others for Health and Safety.

It was not until the Control of Substances Hazardous to Health (COSHH) regulation (1989) that standards were set for dust in the atmosphere. The main objective was to reduce occupational ill health in the furniture industry, including conditions associated with dust exposure such as asthma and skin rashes, by setting out a simple framework to control dust levels in the workplace. Dust extraction was therefore implemented in the late 1980s (also known as Local Exhaust Ventilation, LEV) at all woodworking machines to remove dust before it could be inhaled. Levels of hardwood and softwood dusts now have a Workplace Exposure Limit (WEL) of 5mg/m<sup>3</sup> (Rourke *et al.*, 2013). Personal protective equipment (PPE) was also provided by the employer, and can be seen in Figure 183, showing an employee cleaning the work area of dust wearing a mask. There had already been however, 40-50 years of high speed sanding operatives working in a dusty environment which was not measured prior to the introduction of this legislation.

It had been reported that, before mechanisation of the industry, dust produced in chair manufacture was coarse, too coarse to cause nasal disease. However, mechanisation brought with it high-speed sanders that aerosolised fine dust particles. As a consequence, maximum wood dust exposure was during the period 1920–39, after mechanisation had taken place but before exhaust ventilation was installed following the Second World War (Whiteside *et al.*, 2010).

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<sup>4</sup> Author interview with Gordon Gray, 8 December 2010 (Gordon Gray carried out an apprenticeship at Forward and Donnelly, before working for Ercol and then starting his own business at the age of 25, G M Gray Furniture (1972-1997)).

### 5.2.1 Nasal Cancer

The Literature Review discussed the link between adenocarcinoma in furniture workers and wood dust, and particularly the papers written by Acheson and Hadfield. This section continues this area of research and verifies whether this disease had reduced in line with the decline of the industry. Research was also carried out to discover if there were any contributing factors to the reducing numbers contracting this disease with the decline of the High Wycombe furniture industry.

A further study carried out by Acheson analysed the high occurrence of nasal cancer in the Northamptonshire boot and shoe industry. Another possible link suggested in this study was the vegetable infusions from wood, bark, fruit, leaves, and the gall used in tanning leather for soles and heels (Acheson *et al.*, 1970, p.390). No research had been carried out to verify this, or indeed to confirm the true link to dust, although research carried out by Black *et al* suggested that nasal mucociliary<sup>5</sup> function is significantly impaired in workers who had been exposed to wood dust in the furniture industry for more than 10 years (Black *et al.*, 1974, p.10). Working with Capper, the author has been able to determine the extent of the disease present in the furniture industry in High Wycombe.

Manufacturing chairs and cabinets produces dust, but chairs require an increased amount of hand finishing. The various curved and shaped chair components would be less likely use hand machines with dust extraction. For a predominantly flat surface in cabinet work, machines with dust extraction would be used more extensively. There was therefore a high level of ill health, especially nasal cancer (adenocarcinoma) in the furniture industry in High Wycombe, because it was a chairmaking town and it was thought that this is linked directly to the dust in the atmosphere.

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<sup>5</sup> The Mucociliary Clearance System is part of the body's natural defence mechanism which provides protection against mild upper respiratory tract infections. It is the first line of defence against inhaled pollen, dust, germs and allergens.

As mentioned in the Literature Review, adenocarcinoma of the paranasal sinuses became a prescribed disease in 1959, but was not identified as an industrial disease at this time. The Amalgamated Society of Woodcutting Machinists reported in the 1960s that this particular disease was exceedingly common amongst all sections of society and therefore classed as a common risk and not an industrial disease. It was therefore given no recognition as an industrial disease (ASWM, 1963).

Since the association of adenocarcinoma of the ethmoid sinuses with the woodworkers of the Wycombe area, many things have changed. The Furniture Manufacturer's Association set up regular screening clinics for the workers, increasing awareness and with the hope of leading to earlier diagnosis. The disease was identified as an Industrial Disease (D6) by the Department of Health and Social Security (DHSS) and therefore worthy of compensation. Both employers and employees have become aware of the risk of dust in the atmosphere and the possible significance of nasal symptoms.

Dust extraction systems were common in the machine shop, but the 'benchman' whose role was to do nothing else but shape and sand the chair components, all by hand, had no extraction. According to Peter Batchelor,<sup>6</sup> working in the furniture industry at this time was not pleasant:

Hands would become very sore and often bleed and when working with timbers such as rosewood could be quite irritating to the skin and nose. Dust and shavings would be everywhere, the workshop floors and benches would be swept once a week but that did not include the windows and walls with all the templates and moulds hung up which would be thick with dust.

The association of adenocarcinoma of the ethmoid sinuses (Figures 184 and 185) in hardwood workers in the furniture industry was first identified in the 1960s by Esme Hadfield, an ear, nose and throat (ENT) consultant working at the War Memorial Hospital in High Wycombe, now Wycombe Hospital (Figure 186). Together with her mentor, Ronald Macbeth and Donald Acheson, an epidemiologist, they described the association between hard wood dust exposure and the development of this disease (Acheson *et al.*, 1976). Hadfield explained that the link occurred just 'by chance'. She was appointed Ear Nose and Throat surgeon at High Wycombe in

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<sup>6</sup> Author interview with Peter Batchelor, 30 September 2009.

1965, and ‘realised that there were more cases of cancer of the nasal sinuses especially the (eastpoint) sinuses than should have been; there were very small numbers, there was not an epidemic of cancer, it did not stick out a mile (*Patterns in the dust*, 1991). This was a rare disease with an annual incidence<sup>7</sup> at that time in the UK of around 0.06 per 100,000. In the Wycombe area, however, Hadfield found that the incidence was 95 times greater at 70 per 100,000 (Whiteside *et al.*, 2010). The link was apparent, but there were still more questions than answers at that time:

There must be more than one factor that causes the cancer, if this dust is so lethal why does not everyone get cancer, must be a second factor and I suppose that’s really in your genes. We still do not know what in the wood is at fault (*Patterns in the dust*, 1991).

Unfortunately, despite research into various agents including potential wood carcinogens and substances within related products including sand paper and glue, the cause or origin of the disease remains elusive. At this time it was thought to be caused by fine hardwood dust, but may not have been the whole story.

### **5.2.2 Reporting of Nasal Cancer in Woodworkers**

The industry journals and the furniture union reports were researched as part of this study; information was gathered relating to nasal cancer in woodworkers. This information was difficult to collate as the union reports were not catalogued. The only reference to Health and Safety issues in the NUFTO reports were relating to the issue of dermatitis (NUFTO, 1953). Dermatitis was also referred to the Furniture, Timber and Allied Trades Union (FTAT) record, as a Health & Safety issue in the 1980s, although no mention to other diseases was mentioned. The report highlighted the ‘rash’ caused by substances used at work, and the need to avoid irritants including dust and fumes (Executive, 1987). The Amalgamated Society of Woodcutting Machinists union minutes in 1953 were the first to mention inhalation of wood dust and links with possible illnesses. The same article is re-printed five years later in 1958 (Grover, 2012). At this time Hadfield had not made the connection, and so the industry was not taking the disease seriously at all:

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<sup>7</sup> The incidence of a disease is the number of new cases arising in a given period of time in a specified group of people.

It is questionable whether wood dust, to an extent worth mentioning, is able to force its way into the deeper parts of the respiratory organs. Generally wood particles are too big to be inhaled...protective masks and filters, therefore, are not necessary...Dust, whether it is wood, paper or coal dust, is most annoying to the workers, even when it does not cause any industrial disease (ASWM, 1953).

The article went on to say that if you do suffer irritation; ‘the result is that there is nothing to be done but to find such employment where they are not exposed to that particular kind of wood dust’ (ASWM, 1953). Peter Batchelor<sup>8</sup> recalls that in his early years in the furniture industry (1960s) machines had no guards and no-one wore masks.

The first coverage of nasal cancer of woodworkers in *The Cabinet Maker* was in February 1967, where it was reported that breathing in sawdust might cause cancer. The article discussed the investigation by Hadfield of the link between the workers in the furniture industry and the incidence of the disease. The article noted ‘that most of the patients affected were directly associated with the manufacture of wooden chairs’. The article also brought to the attention of its readers that ‘far from being a rarity as in other people, nasal cancer in woodworkers is about as common as lung cancer in men’ (Anon., 1967a). The next article on the disease came over a year later discussing the paper that Hadfield had published in the *British Medical Journal* investigating the link of the disease with the Wycombe woodworkers. The article reiterated that this particular type of cancer in this area was much higher than the general level in Britain. ‘The higher incidence of the disease is only found among workers in hardwoods, softwood workers being unaffected...the size of dust particle could also be important, as the particle size produced by sanding hardwood is much smaller than anything coming from softwoods’ (Anon., 1968b). The article also suggested that the patients were those who had worked in the industry before the Second World War, and they had worked in their early years without dust extraction. The article also states that no conclusions were drawn for the type of wood species or any fungicide treatments or glues as possible causes. ‘The outbreak of cases is thought by the author [Hadfield] to have reached its peak...and that further efforts should be made to reduce the concentration of wood dust in furniture factories and to encourage the use of masks’ (Anon., 1968b). At this time as mentioned above it was

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<sup>8</sup> Author interview with Peter Batchelor, 30 September 2009.

thought to be caused by fine hardwood dust, but as mentioned above in the 1990s there was no known cause.

*The Cabinet Maker* announced nearly a year after reporting on the findings of the research that nasal cancer was to be included in the schedule of prescribed diseases which would mean that an employee would be entitled to industrial injuries benefit. It again stated 'the condition of nasal cancer is comparatively rare and is associated with exposure to wood dust in the manufacture of wooden furniture' (Anon., 1969b).

The final reporting's from *The Cabinet Maker* relating to this disease was an article relating to the High Wycombe company William Bartlett. The company was defending itself against allegations 'that its factory working conditions contributed to an ex-employee's (Edward Secker) death of nasal cancer.' *The Cabinet Maker* also went on to quote the chairman William Bartlett, 'I refute any suggestions that he died because of working here, what's four years?' (Anon., 1969b). It was also stated that the company had dust extraction at the time and there was no link between the disease and cancer established then. His recollections were very different to the statement read out that was written by Secker twelve days before his death:

Working conditions were hot and dusty and there was dust in the air and on the machinery. The floor was dusted regularly causing more dust...if I opened the windows when it was windy I would have got shouted at and therefore I would have to close them...masks were not provided and we were not encouraged to wear masks (Anon., 1969b).

An article in the Timber Trades Journal suggested that as recently as the 1990s, companies were still not controlling high-risk dust levels (Seabright, 1993). The article reiterated the Maximum Exposure Limit (MEL) of 5 mg/m<sup>3</sup> from the 1988 Control of Substances Hazardous to Health (COSHH) regulations. The Health & Safety Executive (HSE) carried out a survey in a number of typical woodworking factories to assess the standards of control being achieved across all sectors of industries using hardwood, and to identify specific processes where problems of dust exposure occurred. The results were alarming and concluded that much had to be done to ensure compliance and protection of employees; 'in only five of the 41 factories surveyed were all the levels below the MEL' (Seabright, 1993). The survey also found that dust hazard was not just confined to machine operators, but that those

engaged in general factory duties also contributed to dust in the working environment. A much higher standard of general housekeeping and a more effective method of dust and dirt removal were required and air-borne dust levels could be reduced by the use of industrial vacuum cleaners (Seabright, 1993). There was no mention in the furniture trades union reports on nasal cancer, as mentioned in the Literature Review the only Health issue referred to is dermatitis.

### 5.2.3 Disease Incidence and Decline

The association of adenocarcinoma of the ethmoid sinuses and woodworkers in the furniture industry was first described in the 1960s. In a subsequent paper, the cumulative lifetime risk of developing nasal adenocarcinoma in woodworkers working in the Buckinghamshire furniture industry between 1945 and 1981 was estimated at least to be 1 in 120 (Acheson *et al.*, 1982).

It is certain that there is latency<sup>9</sup> between wood dust exposure in woodworkers and presentation of the disease. One paper recognised that no woodworkers presented with nasal adenocarcinoma before 25 years from the date of first exposure to wood dust.<sup>10</sup> Another paper, examining wood and leather workers in Italy, noted that the median latency of the disease was 31 years. They also went on to identify that median exposure time was 11 years.<sup>11</sup> However according to Capper there does not appear to be any correlation between the length of exposure time and disease latency. In contrast, one paper has described that the risk of nasal adenocarcinoma in woodworkers does increase if exposure time is greater than five years (Rourke *et al.*, 2013).

Capper had been aware of a decrease in cases, particularly since 2006, with only two further cases presenting over the past six years when he would have anticipated up to twelve new cases. The loose assumption by the clinicians as to why there was such a reduction in numbers, was that the COSHH initiative had been successful, coupled with a reduction in woodworking in High Wycombe (Rourke *et al.*, 2013).

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<sup>9</sup>Latency is the time between exposure to a disease-causing agent and the onset of the disease.

<sup>10</sup> Author interview with John Capper, 20 April 2010.

<sup>11</sup> Author interview with John Capper, 20 April 2010.

This research links with Capper's record of 146 woodworkers presenting with a diagnosis of adenocarcinoma of the ethmoid sinuses at High Wycombe Hospital between 1950 and 2012. Although data on the disease incidence dates back to 1950, for the purposes of statistical analysis only cases after 1965 were included. The cases identified prior to this almost certainly were sourced retrospectively by Hadfield and may therefore not be an accurate representation of the true incidence. In addition, for statistical analysis the latency period of the disease was initially taken as 15 years (Rourke *et al.*, 2013).

Between 1965 and 2011, 105 cases of adenocarcinoma of the ethmoid sinuses in wood workers were diagnosed at High Wycombe Hospital. Figure 187 demonstrates the incidence of the disease over this time period.

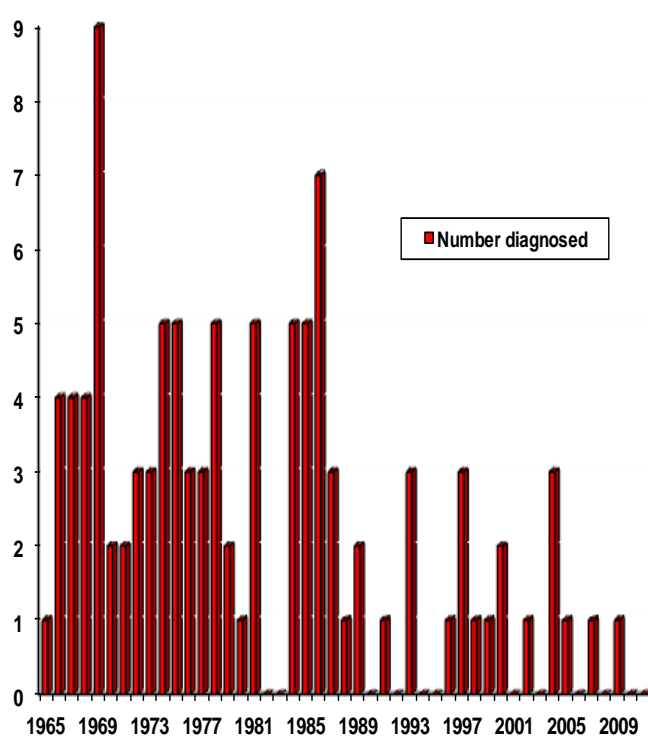


Figure 187 The numbers of new diagnoses of nasal adenocarcinoma in woodworkers in the High Wycombe area between 1965 and 2011



#### 5.2.4 Relationship between Disease and the Industry

Work carried out by Capper and Grover (2013) analysed the relationship between the numbers of people working in the furniture industry and the number of new cases of adenocarcinoma diagnosed. This revealed a very significant positive relationship between these two, which seemed to indicate that approximately 80 percent of the explained variance in number of new cases of nasal adenocarcinoma was associated with the number of people working in the industry (Capper and Grover 2013). Importantly, Figure 188 demonstrates that the growing decline in the number of people employed in the furniture industry was associated with a considerable decline in the number of new cases of nasal adenocarcinoma.

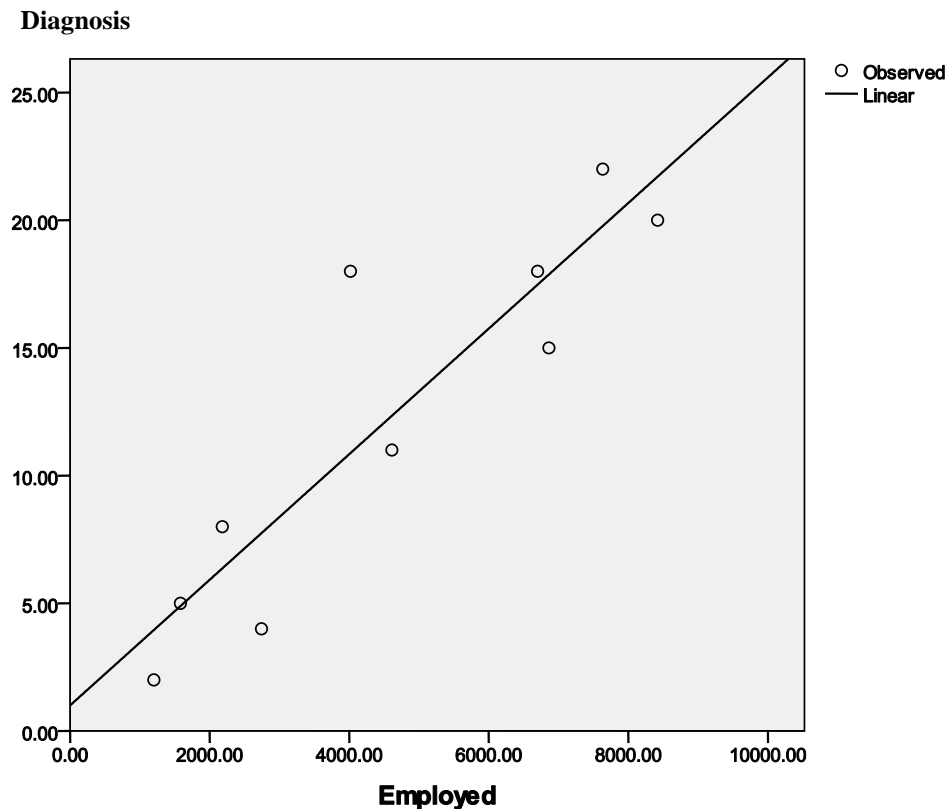


Figure 188 Industry population size and number of new cases of nasal adenocarcinoma

The analysis was then re-run incorporating a fifteen year latency between the time of diagnosis and exposure to a pathogen<sup>12</sup> (Figure 189). This again revealed a significant positive relationship between these two factors. However it indicates that approximately only 57 percent of the explained variance in number of new cases of

<sup>12</sup> A pathogen (germ) is the agent that causes the disease.

nasal adenocarcinoma is associated with the number of people working in the industry.

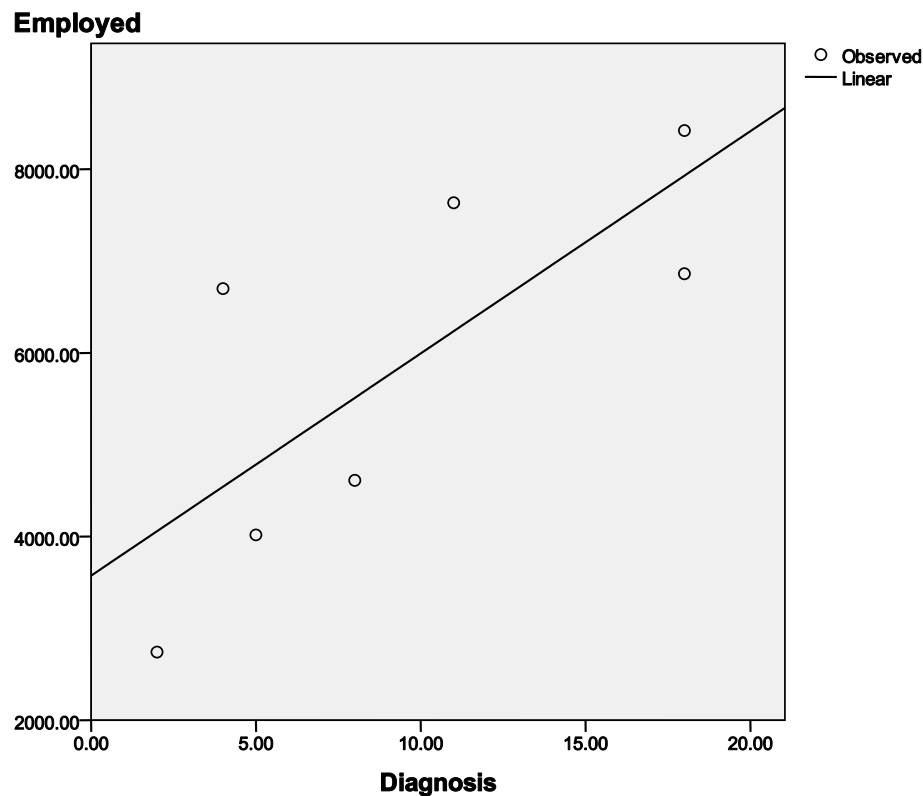


Figure 189 Industry population size and number of new cases of nasal adenocarcinoma incorporating a 15 year latency.

The analysis was then re-run to incorporate a 25 year lag between time of diagnosis and exposure to a pathogen (Figure 190). This again revealed a borderline positive relationship between these two factors, which indicates that approximately 56 percent of the explained variance in number of new cases of nasal cancer was associated with the number of people working in the industry.

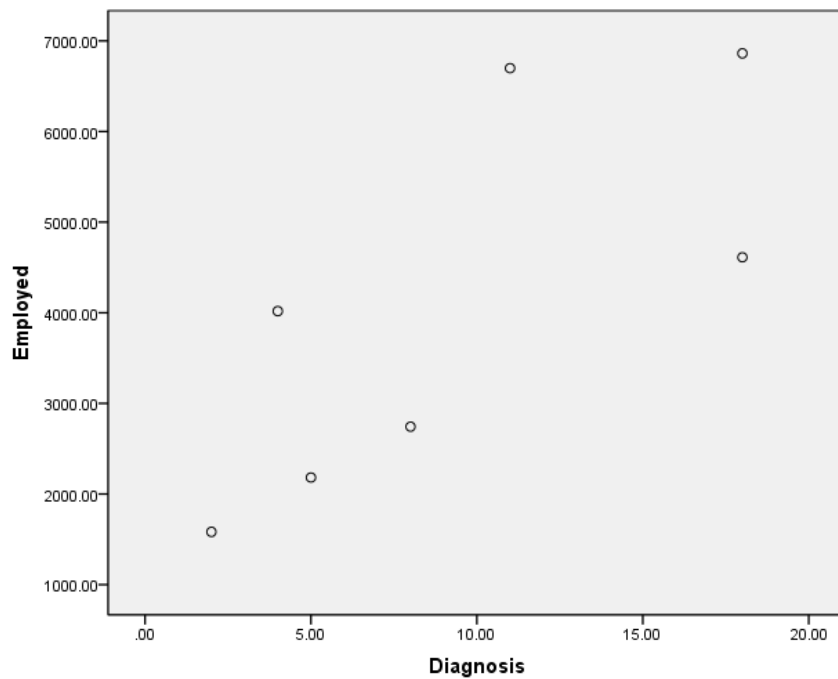


Figure 190 Industry population size and number of new cases of nasal adenocarcinoma incorporating 25 year latency

Linear regression analysis<sup>13</sup> was computed for data from 1965 to investigate the degree of association between the time period and the number of new cases of nasal adenocarcinoma. This produced a statistically significant finding, indicating that the incidence of nasal adenocarcinoma reduced considerably over the years (Figure 191).

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<sup>13</sup> Nadia Wager (former lecturer in Psychology at Bucks New University) conducted the statistical analysis for this research. Linear regression analysis was decided to be used, as it is a simple statistical tool used to model the dependence of one variable on another variable. By looking at the scatter plots (Figures 140-143) it can be seen that variables have a close relationship that may be reasonably represented by a straight line.

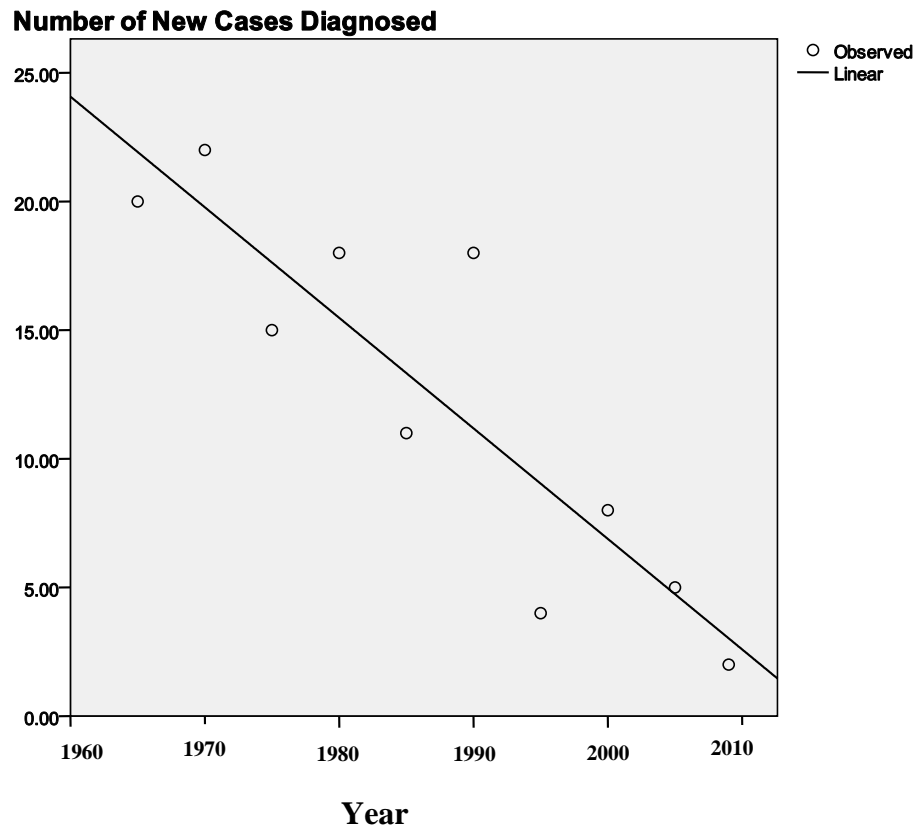


Figure 191 New cases of nasal adenocarcinoma per five-years

### 5.2.5 Reasons for Decline

The results confirm that the incidence of nasal adenocarcinoma of the ethmoid sinuses is significantly reducing in High Wycombe and, just possibly, disappearing as with the rest of the UK. As seen in Figure 187 from the early 1990s there has been a dramatic decline in numbers presenting with the disease with only two new cases diagnosed in the last six years. It is still possible that isolated cases of High Wycombe workers with the disease are appearing elsewhere in the country but according to Capper this is unlikely. Contact was made with regional cancer centres, and any other hospital which could have seen any of these patients, particularly those who could have seen Wycombe residents, with no sign of woodworkers with adenocarcinoma. There was no evidence from the National Cancer Registry of an increase of cases elsewhere. Figures from the Department for Health & Social Security (DHSS) for disease D6 were researched with no evidence of extra cases although information from this source, in theory, the most useful of all, was difficult to break down. Anecdotal evidence within the industry seems to support ex-woodworkers changing trade rather than migrating to other distant factories.

The latency of onset of disease after critical exposure is very difficult to assess. Precise data cannot be obtained because of a lack of pre-malignant histological evidence. The disease presents with no preceding or co-existing conditions. Calculations were made using both 15 and 25 year latencies, but according to Capper this may be conservative.

Although reducing numbers of woodworkers employed in this area would have an effect on the number of cases seen, once the latency of dust exposure to disease presentation was taken into account, it was obvious there had been another factor at work. It appears to be almost certain that the timing of the reduction of the carcinogenic effect of the wood dust precedes the COSHH initiative and any large reduction in the work-force. Taking a latency of 15 years as conservative and 25-30 years being more realistic, all cases were exposed to dust well before the 1970s, and would suggest that between the 1960s and the 1980s the effect or the exposure to the carcinogens of hard wood dust decreased. It may take a further decade to confirm this absolutely. Change may have occurred at least as early as the 1970s.

Hadfield started working in High Wycombe in 1957 and the link between hardwood dust exposure and nasal adenocarcinoma was first identified by her in the early 1960s. Data on patients presenting with the disease was collected by her retrospectively back to 1950 when it appeared that the disease began to become prevalent. It seemed unlikely that this disease had been present in large numbers in and around the Wycombe area prior to this. It can be assumed that five cases a year from a population of a lot less than the present 100,000 should have been an obvious aberration if the disease was widespread in the 1930s and 1940s. Equally, there is no folklore evidence of this disease. The end stage of untreated disease with the ‘frog-eye’ deformity is very distinctive and distressing.<sup>14</sup> Taking both these dates suggested a time period of between the 1930s to the 1970s as to when dust exposure was particularly hazardous.

It was known for many years that dust levels in the workshops and factories were very high. Once the link between hardwood dust exposure and nasal adenocarcinoma

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<sup>14</sup> Author interview with John Capper, 7 January 2010.

was established in the 1960s, health and safety legislations began to be introduced. It is believed that whilst these improved working conditions, the effect of change was variable amongst the Wycombe woodworking factories. It was not until the COSHH regulation in 1989 that dust level limits were strictly set and enforced. However, we know that ventilation began to improve during the 1960s and 1970s from the original 'choking' levels, also mask-wearing became more commonplace and these factors may have contributed to the reducing incidence of the disease that had been seen, either by reducing the total exposure time to high hardwood dust concentration or lowering the levels of a specific carcinogen within the working environment.

As far as onset of this disease is concerned, the introduction of high-speed machinery in the 1930s and 1940s could have been crucial. This would have increased overall dust levels, which without adequate ventilation in the many small and cramped factories would only worsen working conditions with greatly increased dust levels in the factory atmosphere. It is also likely that the high-speed machinery would have increased the temperature at which the wood was cut and treated. This may lead to burning of the dust and production of volatile by-products of the wood, glue or polish. However, it is less obvious why this should decrease over time.

In summary it seems almost certain this disease is reducing considerably, hopefully to extinction. Assuming this is correct, it might be easier to identify the possible carcinogen in this unique and unusual disease. There is no obvious change in woods used, sand paper and its construction, varnishes, polishes, glues or other chemicals used. The suspicion is that high speed machinery might have increased the risk initially or even been the catalyst for the carcinogen but, other than excellent ventilation now, little else appears to have changed in the relevant time-frame to suggest why the incidence of this disease is decreasing or, perhaps, even disappearing.



Figure 165 Workers engaged in Munitions Work at the factory of Birch and Co, Leigh Street, High Wycombe, December 1918

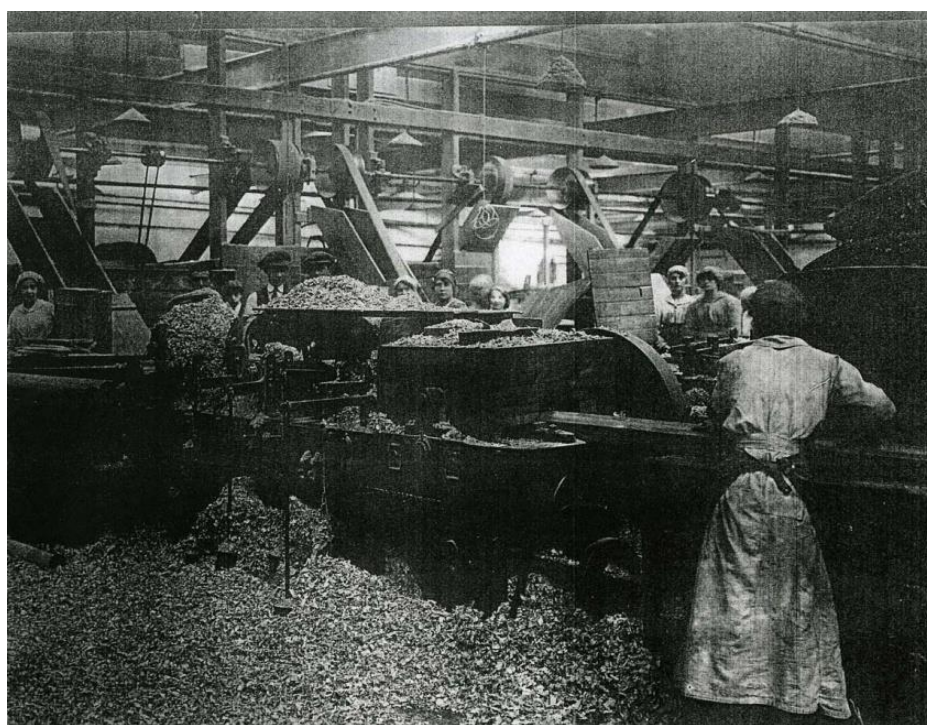


Figure 166 Making tent poles, probably at Harris Lebus





Figure 167 Making 600 round ammunition boxes and shell cases, probably at Harris Lebus

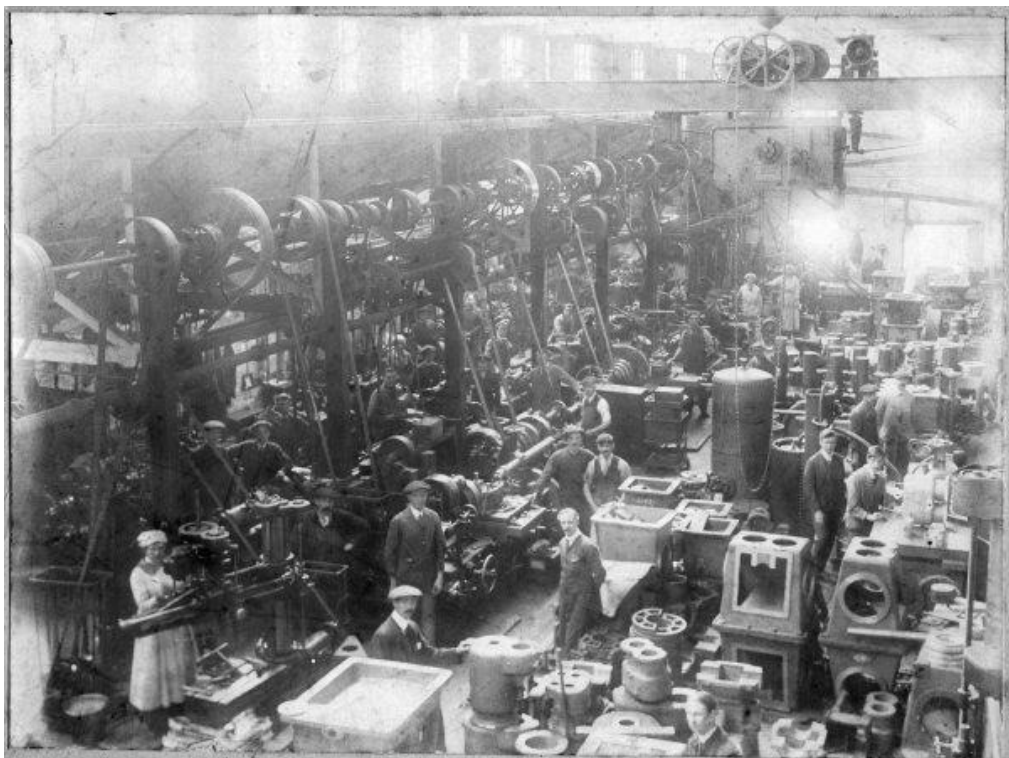


Figure 168 View of the inside of a machine shop at Broom and Wade Ltd, with men and women workers. Lindsay Ave, High Wycombe. c.1920s





Figure 169 A group of some 39 men and a small number of women workers outside the premises of Walter F. Baker, High Wycombe, 1930



Figure 170 View of eleven women working at trestle tables to make cushions for the furniture industry. location unknown. December 1935

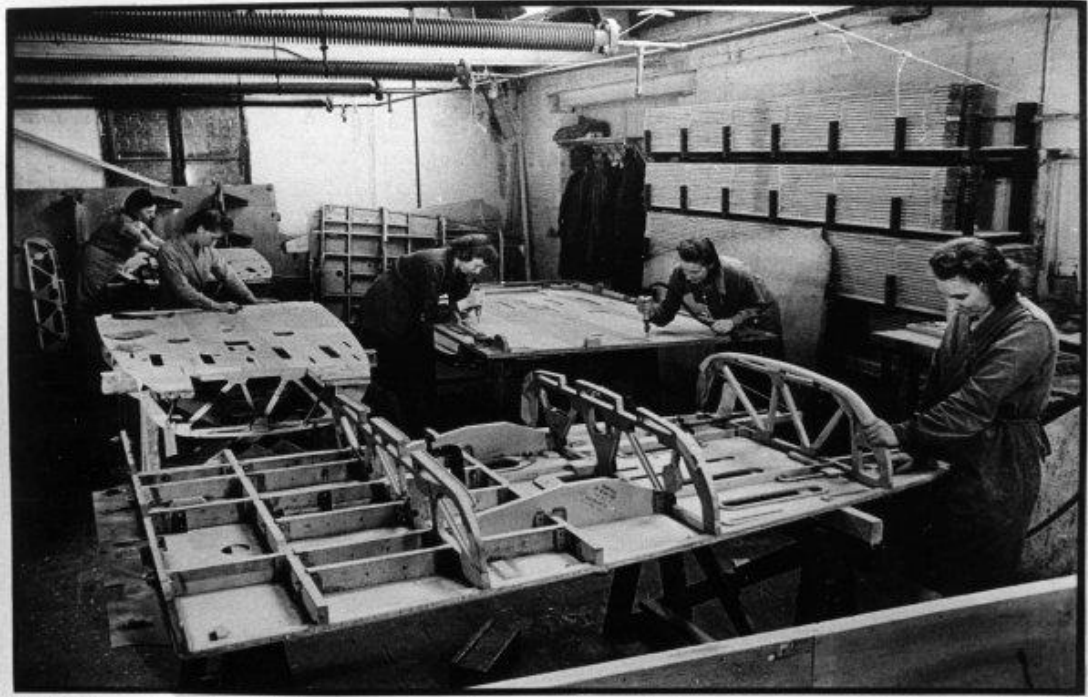


Figure 171 Team of 5 women workers assembling Mosquito aircraft parts at Dancer and Hearne, Lindsay Ave, High Wycombe. c1940



Figure 172 Gluing of wing spar plies for De Havilland Mosquito aircraft at J.B. Heath (Heathland) Furniture Ltd, High Wycombe, c.1942-45



Figure 173 View of both men and women workers manufacturing wooden components for Mosquito aircraft at Dancer and Hearne, Lindsay Ave, High Wycombe, c. 1944



Figure 174 Women on the polishing line 1950s Harris Lebus, Tottenham





Figure 175 Sewing shop E. Gomme (G-Plan) Nelson



Figure 176 Sewing Machinists at Ercol Furniture



Figure 177 Left: Sewing machinist at Ercol Furniture Ltd, 1970s. Right: View of a woman at an industrial sewing machine making cushion covers Parker Knoll factory, High Wycombe. c 1988

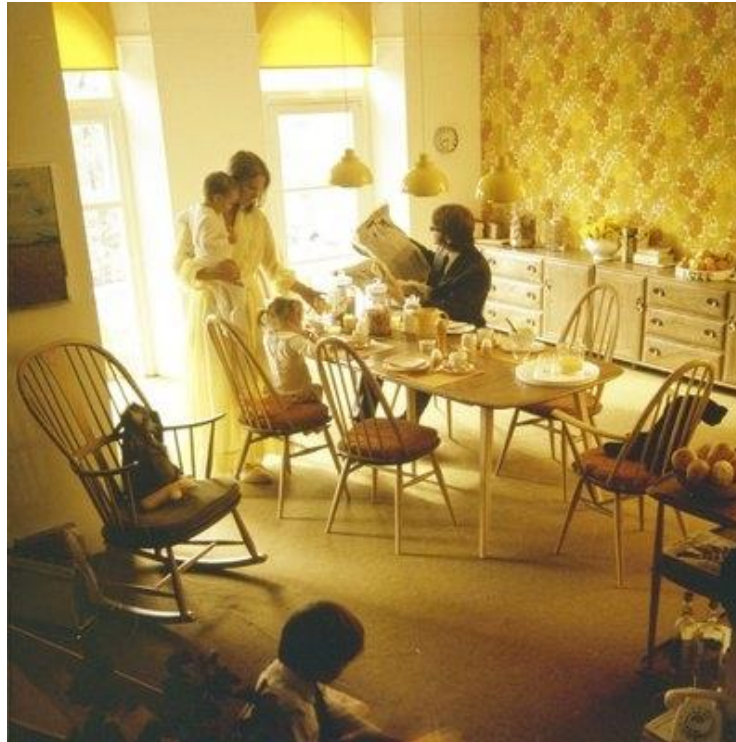


Figure 178 Ercol room set showing a family having breakfast, 1973



Figure 179 Left: Cushion filling at Ercol Furniture, 1965s. Right: Computer Room & Drawing Office at Ercol Furniture, 1970s





Figure 180 Ercol management meeting, 1960s



Figure 181 Parker Knoll after the biggest and most disastrous fires in the history of High Wycombe on 17 February 1970



Figure 182 Left: Image showing Ercol employees using sanders 1960s Right: Image showing Ercol employees on the drum sander 1976



Figure 183 Furniture worker, wearing a mask, using an industrial vacuum cleaner to remove dust and dirt

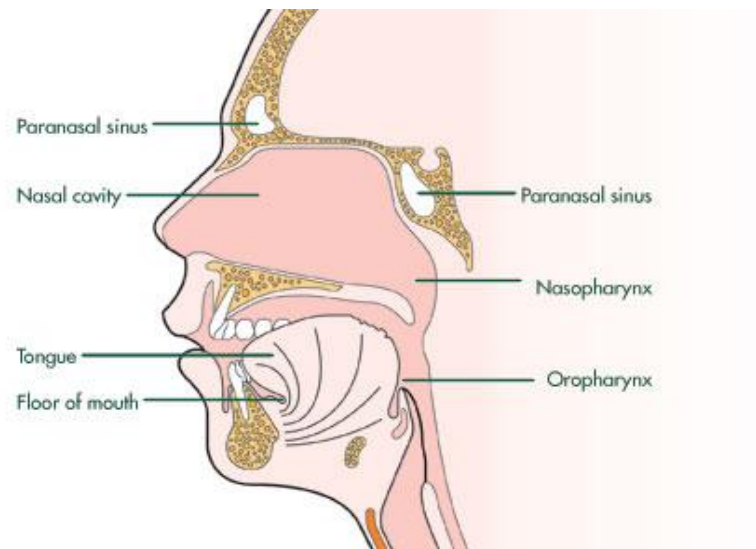


Figure 184 Side view of the structures in the head and neck showing paranasal sinuses [The ethmoid sinuses are located within the human skull between the eye sockets and above the nose]

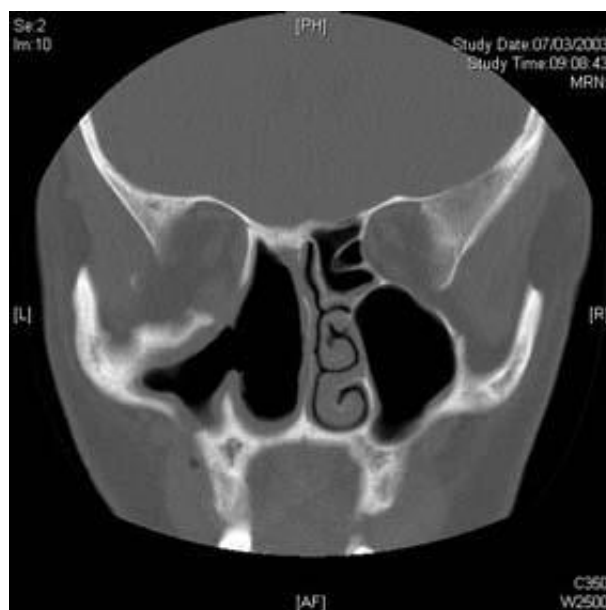


Figure 185 CT Scan demonstrating the extent of bony resection in a patient with woodworkers adenocarcinoma of the ethmoid sinus





Figure 186 Portrait of Esme Hadfield from the Consultants Gallery, John Radcliffe Hospital, Oxford  
(Presumably taken before the link between cigarettes and cancer was accepted!)