

## Chapter 12. The end of a story, but not of the battle

### The shift from research

At the end of Chapter 11, I said that in retrospect we could see that in the 1970s and 1980s British scientific work in occupational hygiene was known to be important by both government and industry. This is shown in the developments reported in BOHS's journal *Annals of Work Exposures and Health* (then called *Annals of Occupational Hygiene*) which was and is an important route for publishing British research papers in this field. Fig 12.1 shows the growth in the number of papers published from round the world, but the different pattern for papers from British sources. To take account of papers with a foreign first author but with British collaboration, Fig 12.2 shows the number of British authors, and also their type of institution. Both charts show a peak in the British activity in the 1980s. Research publications in the field are still growing internationally, as illustrated in Fig 12.1, but the British contribution to *Annals* papers, and in particular the contribution from government sources, has fallen markedly, not just relatively but in absolute numbers.

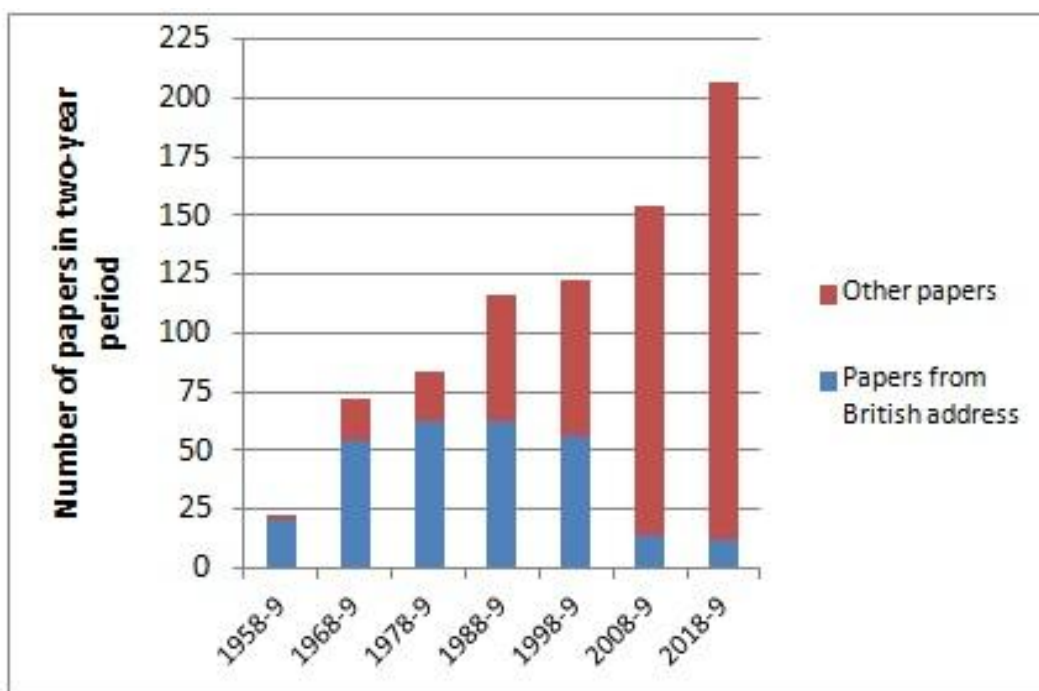


Fig.12.1. The number of papers published in *Annals of Occupational Hygiene* (and its successor, *Annals of Workplace Exposure and Health*) in two-year periods, showing the number of papers with a first-named author with a British address.

Fig 12.2 also shows the reduction in published studies by British industry. This is probably because there are now fewer large industries with in-house occupational hygiene teams who could sometimes do publishable investigations, and instead a pattern of consultancies offering an occupational hygiene service. Perhaps both charts indicate a shift towards solving immediate problems rather than long-term development. The content of *Annals* papers will not usually influence workplace practice this year, but standards which will be applied in five or ten years time, or recognition of new hazards or new approaches. British input to this has markedly decreased.

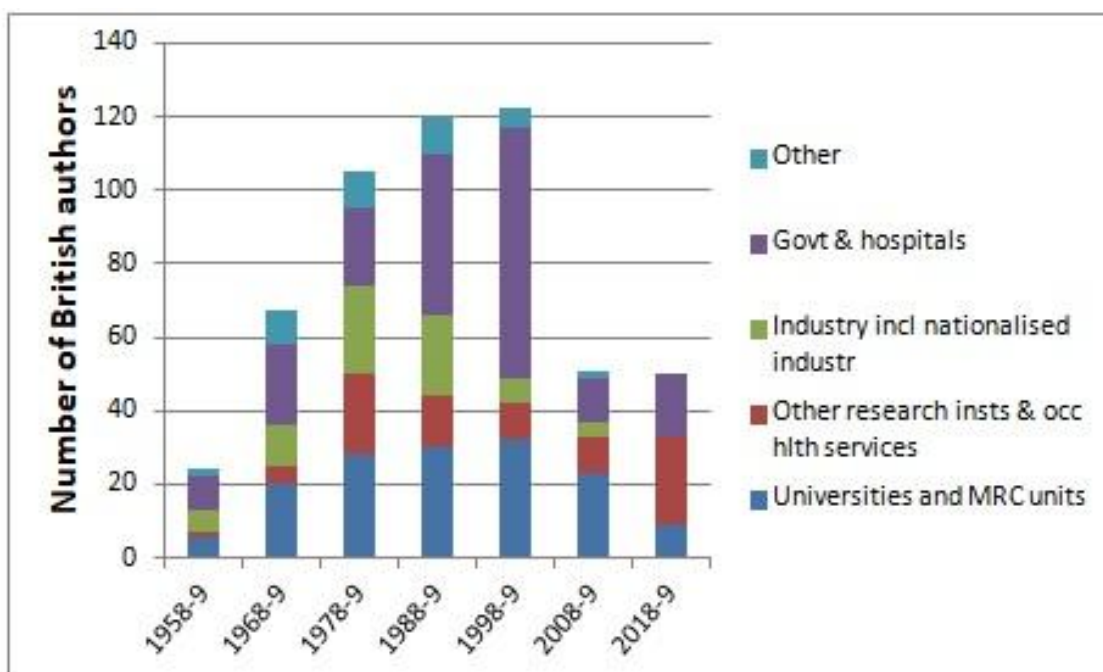


Fig. 12.2. The number of British authors of papers published in the *Annals* in two-year periods. If an author appears on two papers, he or she is counted twice. The largest government source was of course HSE.

### Occupational exposure limits

Chapter 10 left the subject of occupational exposure limits at the establishment of the Health and Safety Executive in 1974. For some years HSE reprinted the ACGIH TLV list with an ever-lengthening Introduction giving different British standards. In about 1983, HSE organised the WATCH committee to derive British limits, and in 1989, following years of negotiation with employers' and employees' representatives, the Control of Substances Hazardous to Health (COSHH) Regulations gave legal force to two types of limit. Occupational Exposure Standards were supposed to be levels which were safe, and if exposure was less than that, no further control was necessary. Hygienists were generally uncomfortable with the assumption that there was a level which was harmless, especially as many of the numbers were copied from the ACGIH list, which was intended as guidance for trained occupational hygiene professionals and explicitly not intended to be dividing lines between safe and unsafe. The other limits introduced by COSHH, Maximum Exposure Limits, were intended to be upper boundaries for substances with no achievable safe limit, and COSHH required exposure to be reduced as far below these as reasonably practicable. For some years WATCH conscientiously discussed effects and achievability and which limit was appropriate, but in 1998 market research for HSE found that only a minority of even heavy users of chemicals understood the difference between the two limits,<sup>1</sup> and in the 2002 revision of COSHH the system was abandoned. Most hygienists were probably relieved.

The limits are now called Workplace Exposure Limits (WELs), and COSHH requires good control practice, and additionally that WELs should not be exceeded. In practice Britain ceased deriving its own limits, but promulgated those agreed by the EU. It is unclear what will happen post-Brexit, but

revision of the Health and Safety at Work Act in 2008 removed the tripartite oversight of HSE by HSC<sup>2</sup>, and WATCH has not met for some years. Thus about a century after Duckering and Legge proposed the first British limit,<sup>3</sup> Britain no longer derives its own. However, COSHH now incorporates Legge's control principles into law, and perhaps that is more important.

### **The practising hygienist and professional societies in the late 20<sup>th</sup> century**

In 1969, David Hickish wrote an explanatory paper in the *Annals* about the establishment of the BEBOH qualifications, which incidentally revealed the tensions between BOHS as a scientific forum and the growing need for professional regulation and structure for practising hygienists.<sup>4</sup> The establishment of BEBOH, described in Chapter 10, had not removed the desire of practising hygienists for a self-regulating professional body. In a contribution to *The First Forty Years*, produced for BOHS in 1992, Hickish described how in 1975 BOHS Council approved a proposal to introduce grades of membership, with practising hygienists to form a majority on Council, and an executive chairman for BOHS who must be a qualified hygienist. However, before this could be put to BOHS membership, some members established an independent Institute of Occupational Hygienists (IOH), and the proposal to restructure BOHS lapsed.<sup>5</sup> For the next 26 years, BOHS and IOH continued in parallel. There was much cooperation. Many members of IOH were also in BOHS, and the societies had a Liaison Committee. When BOHS set up the Derby office, both organisations used it, and from about 1988 they had a joint newsletter. In 2003 they reunited, the Institute becoming the self-governing Faculty of Occupational Hygiene within BOHS. This was undoubtedly a necessary step before BOHS received its Royal Charter in 2013.

Different people have different views of this break and reunion. To speak personally, while I was president of BOHS in 1991-2, I was working in an HSE policy division, and I experienced the problem of explaining to senior colleagues what occupational hygiene was, and why it was very important. And then I had to explain why there were two independent bodies representing occupational hygiene, with different emphases, which together had a membership perhaps 5% that of IOSH, and which might comment separately on proposed regulations. It was hard to avoid leaving the impression that people working in occupational hygiene were a small group who could not agree amongst themselves, and whose opinions were probably therefore not very important. Despite that, occupational hygiene seems to have become better recognised as a speciality in HSE during the years of two organisations

It is hard now to see why the present structure of BOHS could not have been agreed in 1975 or any time after that. Perhaps it needed a younger generation without the background experiences of their predecessors. In any case, in this year 2021-22, 14 of the 15 members of BOHS Board are members of the Faculty of Occupational Hygiene, and the other the Registrar of the Faculty of Asbestos Assessment and Management. Individual practising hygienists have always undertaken publishable scientific investigations, so there is not a hard division between the roles, but taken with the decline in scientific activity shown by Figs 12.1 and 12.2, the present government of BOHS shows that the longterm trend from a scientific forum to a professional association has come a long way!

BEBOH continues to offer its suite of qualifications, but from 2010 the International Occupational Hygiene Training Association developed an international system, with strong input from BOHS members, which gives world-wide access to training and qualifications.<sup>6</sup>

Two other changes are worth remarking. One simply reflects changes in society. Up until the 1970s, occupational hygiene was an overwhelmingly male activity, and the audience at any BOHS conference was almost entirely men, with perhaps one or two women dotted here and there. The first female president was Nicola Cherry in 1998 (Fig.12.3), immediately followed by Alison Wright-Read. In 2021-22, the gender numbers on the BOHS Board are close to equal. Nicola also personifies the other change. BOHS has had sixteen medically-qualified presidents, of which nine were in the Society's first twenty years, reflecting the important contribution that occupational medicine had made to the development of occupational hygiene. Nicola is the most recent president who was a physician, and, looking at the present membership, she was probably the last.



Fig 12.3. Professor Nicola Cherry became President of BOHS in 1998, the 46<sup>th</sup> President of the Society and the first woman to hold the post. This shows her chairing the celebration in 2018 of the life of the distinguished epidemiologist and long-time BOHS supporter Professor Corbett McDonald.

## Stopping the story, but not the battle

2002-3 saw the incorporation into law of the principles of control detailed by Legge 90 years earlier, and the reunion of BOHS and the British Institute of Occupational Hygienists (as it had become), so it seems as good a place as any to stop this look at topics in the history of the subject. However, we can hardly see it as a mission accomplished. There are still an estimated 12,000 lung-disease deaths a year linked to past exposures at work, and 1.4 million workers suffering from work-related ill-health.<sup>7</sup> Most of these are from problems that are recognized but have not been controlled as they should have been. Could occupational hygiene ever completely eliminate occupational disease?

In 2010, Lesley Rushton and colleagues calculated the number of cancer cases in Britain attributable to occupational exposure,<sup>8</sup> and two years later four members of the same team looked at the possibility of reducing this burden over the next few decades.<sup>9</sup> John Cherrie and Martie Van Tongeren provided the occupational hygiene expertise. With such a range of diseases, industries, and exposures, the picture is very complex. The authors concluded that without intervention, Great Britain would still have 10,000 occupational attributable cancers each year by 2060. If exposure decreases, many of the agents still give significant risk at low levels, the ageing workforce increases susceptibility, and of course many agents have effects long after exposure. They concluded that reducing an exposure limit does not have much impact on rates of disease if most people are already exposed at well below the OEL, and there are likely to still be risks below the current WEL. But on the other hand, for a substance like respirable crystalline silica, there is plenty of scope for improving compliance with the present exposure limit in many small companies and amongst the self-employed. They estimate that with modest intervention it might be possible to reduce the annual burden by 2600 cases by 2060, or by 8,200 cases with strict intervention.



Fig. 12.4 John Cherrie making a point. (Photo by courtesy of Heriot-Watt University)

The paper took into account that exposure to many hazards is falling, and this has been going on for many years, by 5-10% a year according to one analysis.<sup>10</sup> This is not necessarily due to deliberate interventions such as exposure limits or risk management tools. John Cherrie has remarked that it can be things like economic pressures and more automated equipment that reduce exposures. He has suggested that it is time to move from thinking of compliance with an OEL, to what the Japanese call “kaizen”, continuous improvement.<sup>11</sup> Cherrie says: “It is plausible that a side-benefit of process development is the reduction in workplace exposures: new equipment may be less noisy than the earlier versions, the emission of dust may be reduced by new machinery with better containment or more effective ventilation, or automation may completely remove the need for direct worker involvement in the production. Continuous improvement emphasises a process of small incremental changes that are continuous, collaborative, and accumulate.” Employers would perhaps measure exposure, pool and publish their data, and society would judge performance. Hygiene without hygienists? Perhaps.

However, in practice many hygienists in their daily work are able to recommend interventions which may reduce disease, and will be aware of other places where they are not yet able to intervene. In 1832, Charles Thackrah, observing the human destruction accompanying the economic success of industrial growth, called for “the attention of those, who are not only much more conversant than I, with contrivance and invention, but more directly obligated by social principle, to improve the state of the operatives, by whose labours they are enriched.”<sup>12</sup> What has happened since shows that short-sightedness and greed may resist the improvement, but that people of contrivance and invention motivated by social principle can make a big difference, including those who read this. The need continues.

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<sup>1</sup> Topping MD, Williams CR, Devine JM (1998) Industry’s perception and use of occupational exposure limits. *Ann Occ Hyg* 42(6) 357-266

<sup>2</sup> The Legislative Reform (Health and Safety Executive) Order 2008.  
<http://www.legislation.gov.uk/uksi/2008/960/contents/made>

<sup>3</sup> Legge TM and Goadby KW, *Lead Poisoning and Lead Absorption*. London, Edward Arnold, 1912, p 207.  
<https://ia600209.us.archive.org/35/items/cu31924003449752/cu31924003449752.pdf>

<sup>4</sup> Hickish DE (1969) Recent developments within the British Occupational Society. *Ann Occ Hyg* 12:171-173

<sup>5</sup> Hickish D (1993) Professional Developments. In: *The First Forty Years* (Peter Isaac, Ed) pp81-91. (Derby, British Occupational Hygiene Society) 1993.

<sup>6</sup> OHlearning.com <http://ohlearning.com/default.aspx>

<sup>7</sup> <https://www.hse.gov.uk/statistics/causdis/index.htm>

<sup>8</sup> Rushton L, Bagga S, Bevan R, Brown TP, Cherrie JW, Holmes P, Fortunato L, Slack R, Van Tongeren M, Young C, Hutchings SJ (2010) Occupation and cancer in Britain. *British Journal of Cancer* 102: 1428-1437

<sup>9</sup> Hutchings S, Cherrie JW, Van Tongeren M, Rushton L (2012) Intervening to reduce the future burden of occupational cancer in Britain: what could work? *Cancer Prevention Research* 5(10): 1213-1222.  
<https://cancerpreventionresearch.aacrjournals.org/content/5/10/1213>

<sup>10</sup> Creely KS, Cowie H, Van Tongeren M, et al (2007) Trends in inhalation exposure – a review of the data in the published scientific literature. *Ann Occ Hyg* 51:665-678

<sup>11</sup> Cherrie JW (2017) Kaizen *Ann Occ Hyg* 61:398-400

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<sup>12</sup> C. Turner Thackrah, *The Effects of Arts, Trades, and Professions, and of Civic States and Habits of Living, on Health and Longevity: with Suggestions for the Removal of many of he Agents which produce Disease, and shorten the Duration of Life*. London, Longman, Rees, Orme, Green and Longman; 2<sup>nd</sup> Edn 1832.  
<https://books.google.co.uk/books?id=ennv5jq4FbEC> .