

EIGHTY YEARS OF OCCUPATIONAL DISEASES

R. Murray

« 80 anni di malattie professionali ».

Il 1906 è stato fecondo per la medicina del lavoro. Non solo venne fondata la Commissione Permanente, ma fu anche adottata la Convenzione di Berna che proibiva la fabbricazione e l'importazione di fiammiferi a base di fosforo giallo, ponendo così fine alla necrosi fosforica. Un Comitato ministeriale britannico per l'indennizzo delle malattie professionali aprì quell'anno un'inchiesta sulle malattie professionali. I risultati dell'inchiesta offrono un interessante confronto con la lista delle malattie professionali ufficialmente riconosciute ("prescribed diseases") ai fini dell'indennizzo dal regolamento 1985 della Sicurezza Sociale del Regno Unito. Nel 1906 gli effetti dell'esposizione professionale alle radiazioni ionizzanti non sono conosciuti in Gran Bretagna e ci si chiede se si debba classificarli fra le dermatiti. Sono frequenti le cataratte dei vetrai e le malattie da aria compressa sono ben conosciute. I crampi muscolari da movimenti ripetitivi, come il crampo degli scrivani, non sono citati. Sono frequenti fra i minatori le "beat diseases" (borsiti) e il nistagmo. Di quest'ultimo avrebbe sofferto anche Michelangelo, come testimonia un sonetto tradotto in inglese da John Addington Symonds. Le malattie da vibrazioni sono ignorate mentre la sordità professionale è frequente. Delle malattie infettive e parassitarie, l'anchilostomiasi e il carbonchio erano ben conosciute all'epoca ma poco frequenti nel Regno Unito. Relativamente frequente la morva ma praticamente sconosciute la leptospirosi, la brucellosi, l'epatite virale. La tubercolosi era allora invece molto diffusa. Nell'inchiesta, ultimata nel 1907, si trovano molti riferimenti al dinitrobezolo, all'intossicazione acuta da anilina, alla demenza acuta da solfuro di carbonio, all'edema polmonare da gas nitrosi ed anche al nichelcarbonile (ma non al carcinoma nasale). Si discute la possibilità dell'ossicarbonismo cronico. Nel 1906 ha luogo la prima osservazione di un cancro dello scroto in un filatore di cotone, e l'autore ricorda di aver contribuito alla stesura della regolamentazione che ha proibito in Inghilterra l'uso di olio di scisto per la lubrificazione nei filatoi. Varie forme di pneumoconiosi risultano complicate dalla tubercolosi polmonare ed a quegli anni risalgono pure le descrizioni dei primi casi di asbestosi. L'asma da cereali era già conosciuta. Pur senza mezzi diagnostici sofisticati, i medici di allora seppero riconoscere correttamente molte malattie professionali e lottarono contro di esse nello spirito della migliore tradizione medica.

My Lord Mayor, Your Excellencies the Chancellor of the University and the Dean of the Faculty, Distinguished Past Presidents of this Commission Sven Forssman and Enrico Vigliani, colleagues and friends.

An eightieth birthday for an individual

of flesh and blood is a great occasion, in many ways a triumph at having roundly defeated the biblical span of three score years and ten. It is a time, too, for reflection and indeed nostalgia, for remembering those who have gone before and appraising the

young with a critical and sometimes disapproving eye. It is not a time for looking forward at least not very far.

For an institution, however, it is the full flush of youth. Compared to some of the ancient bodies in our various countries, an 80th anniversary in evidence only of the beginnings of early maturity and it is properly a time to take stock and to look forward into the future.

1906 was a vintage year. Not only did it see the birth of our Commission, but it was the first occasion on which there was an international agreement on the control of an occupational disease. The Berne Convention prohibited the manufacture, and the import of matches made with white phosphorus, thereby putting an end to one of the most disfiguring of occupational disorders. In the social climate of the time, death from accidents and infections was accepted with tolerant resignation, but the destruction of the beauty of a young woman was not acceptable.

In that year too a Departmental Committee on Compensation for Industrial Diseases in the United Kingdom heard evidence from employers, trade unions, doctors and scientists on a wide range of problems which must have been familiar to many of the progenitors of the Commission already referred to by Professor Vigliani. Dr. Thomas Legge, later Sir Thomas, whose daughter Sylvia graces this occasion by her presence, was one of the "inquisitors". They asked eleven thousand and sixty-nine questions over a period of eight months and the Report of the Commission gives a vivid and often tragic account of occupational disease as it was at that time, at least in the United Kingdom. A recent publication,

the Social Security (Industrial Injuries) (Prescribed Diseases), Regulations, 1985, gives a list of "prescribed occupational diseases" at the present time, so it is a useful opportunity to compare the situation over the life span of the Commission.

The Regulations of 1985 divide occupational diseases into four groups: physical agents, biological agents, chemical agents and miscellaneous. The most appropriate way to make the comparison would seem to be to look retrospectively using the current list as a point of reference.

PHYSICAL AGENTS

The first disease on the list is the effect of electromagnetic radiation or ionising particles and here comes the first surprise. Although Roentgen had discovered X rays in 1895 and Becquerel radioactive substances in 1896 and although cases of erythema of the skin had already been described, there is only one reference in the 1907 Report to "Roentgen rays". During the questioning of Dr. Oliver (the author of "Dangerous Trades" and a considerable expert at the time), there was some reference to electric welding and electroplating. Dr. Legge asked (10625) "Do you include the effect of the Roentgen rays under this heading of electricity; do you regard it as a dermatitis? You get the best illustration, perhaps, from that. (10626) There is a considerable increasing industry now, is there not, in connection with it? That I have no experience of. (10627) I have read about what you speak of as occurring in France, but I have no knowledge of it in this country? Quite so". What a change in 80 years.

Conversely, there is a mountain of evidence in the 1907 Report on glassworkers cataract

from exposure to infra-red radiation while glass industry, the condition, though still prescribed, is excessively rare.

nowadays, with the mechanisation of the

Compressed air illness was well recognised in 1907 and it is fascinating to read the evidence of scientists of the calibre of J.S. Haldane and Leonard Hill. They were fully aware of the physiopathology of the disease, except that they had no knowledge of nitrogen narcosis or osteonecrosis.

The next disease on the present list is cramp arising from writing, typing or repetitive movements. I have not found any mention of this in the 1907 Report. It appears that it was not recognised as an occupational disorder in the United Kingdom until 1918 and later, so far as "twisters" in the cotton industry very concerned until 1921. The present interest in repetitive strain injury makes a startling contrast.

The "beat" diseases of the hand, elbow and knee receive a great deal of attention in the 1907 Report and were obviously very common and well recognised, no doubt in view of the large number of miners and the low level of mechanisation. While the diseases are still prescribed they are rare, though I remember my father suffering from 'beat knee', a severe bursitis and cellulitis which took several weeks to recover. There is a reference to "beat buttock" among miners which reminded me of a mediaeval occupational disease of weavers, an ischial bursitis called 'weavers bottom'. I like to think that William Shakespeare knew of it as his weaver in "The Midsummer Night's Dream" is called Bottom. I believe that this is the only reference, however oblique, to an occupational disease in Shakespeare's works.

Tenosynovitis is now widely recognised,

but there is only one reference to the condition in the Report and that among miners. The most important disease among miners in 1906, or at least the one which engaged the attention of the committee to the greatest extent, was nystagmus. I remember having seen it myself in the 1930s, but it was very common indeed at the beginning of the century. My father referred to it as the "Glenny blink", a corruption of the word Clanny, which was the name of the inventor of the very inadequate lamp by which Scottish mines were lit at the time. The introduction of the miner's electric cap lamp was a revolution which has put an end to this distressing condition.

One very curious piece of information on the subject of nystagmus emerged from the Report. During the questioning of Dr. Simeon Snell, Professor of Ophthalmology at Sheffield University, he was asked if he had ever had complaints with regard to the plasterers or decorators of ceilings. His reply was a classic: "Yes I have referred to this in my book and in my papers. It is historically true, I believe, that Michael Angelo suffered from a weariness of his eye muscles if not nystagmus. Michael Angelo after his great work of decorating with frescoes the vault of the Sistine Chapel, which he accomplished in eighteen months, suffered from the discomforts attendant on the strained attitude he then assumed, and from looking upwards at the vault. He worked on a special platform and he wrote a sonnet describing his position. The artist drew a caricature of the position he had to occupy on the scaffold. I have not been able to get a copy of the drawing, but this is the sonnet from Mr. John Addington Symonds' translation:

I have grown a goitre by dwelling in this den,
 As cats from stagnant streams in Lombardy,
 Or in what other land they hap to be —
 Which drives the belly close beneath the chin.
 My beard turns up to Heaven: my nape falls in
 Fixed on my spine: my breast-bone visibly
 Grows like a harp; a rich embroidery
 Bedews my face from brush-drops thick and thin.
 My loins into my paunch like levers grind:
 My buttock like a crupper bears my weight;
 My feet unguided wander to and fro;
 In front my skin grows loose and long; behind
 By bending, it becomes more taut and straight;
 Crosswise I strain me like a Syrian bow:
 Whence false and quaint, I know
 Must be the fruit of squinting brain and eye
 For ill can aim the gun that bends awry.
 Come, then, Giovanni, try
 To succour my dead pictures and my fame,
 Since foul I fare, and painting is my shame.

This may not throw much light on whether Michael Angelo had nystagmus, but it does represent an ergonomist's nightmare.

It is only in relatively recent years that deafness has been recognised in the United Kingdom for compensation purposes. Nevertheless the condition was well known at the beginning of the century. One doctor said that "every boilermaker is deaf". Another said that "they stoically accept it". Vibration is brushed aside as of little importance. There is one reference to neurosis and insomnia produced by vibration but no reference at all to the Raynaud phenomenon.

BIOLOGICAL AGENTS

Anthrax and ankylostomiasis were already compensatable diseases in 1906 and so there is little reference in the Report to these infections and infestations. The only reference to ankylostomiasis concerns three Scottish miners who had returned from India. This contrasts vividly with the reference made by Professor Vigliani to the 10,000 miners who suffered from ankylostomiasis during the construction of the St. Gotthard tunnel. There was indeed some ankylostomiasis

L'ho già fatto un gozzo in questo stento,
 Come fa l'acqua a' gatti in Lombardia
 Ovver d'altro paese che si sia,
 C'a forza 'l ventre appicca sotto 'l mento.
 La barba al cielo, e la memoria sento
 In sullo scrigno, e 'l petto fo d'arpia,
 E 'l pennel sopra 'l viso tuttavia
 Mel fa, gocciando, un ricco pavimento.
 E lombi entrati mi son nella peccia,
 E fo del cul per contrappeso groppa,
 E passi senza gli occhi muovo invano.
 Dinanzi mi s'allunga la corteccia,
 E per piegarsi addietro si raggroppa,
 E tendomi com'arco soriano.
 Però fallace e strano
 Sorge il giudizio che la mente porta,
 Ché mal si tra' per cerbottana torta.
 La mia pittura morta
 Difendi orma', Giovanni, e 'l mio onore,
 Non sendo in loco bon, né io pittore.

among the miners in Cornwall but, so far as I know, the condition has now disappeared, though it still remains on the current list.

One of the infections which took up a great deal of the time of the Commission was glanders, a disease of horses which went under a variety of names e.g. "duke", "farcy" or "mange". The disease may still occur because it remains on the lists, but the generation of grooms, ostlers, cabmen and other drivers of horse-drawn traffic have disappeared with the advent of the motor car with a series of new and probably more serious dangers.

There is no reference in the Report to the currently prescribed diseases leptospirosis, brucellosis, viral hepatitis or streptococcus suis. There is however a great deal of reference to tuberculosis, not as an occupational disease which is now recognised among people who are likely to be exposed to the tubercle bacillus in hospitals or laboratories, but as a complication of "fibroid phthisis". Indeed the ever present nature of tuberculosis pervades the entire Report. It is difficult to imagine, looking back from

this distance, what a scourge this disease was and how successful we have been in its virtual eradication, certainly in the industrialized countries

CHEMICAL AGENTS

Perhaps not surprisingly there are no references to manganese, beryllium, cadmium, chlorinated hydrocarbons, dioxan or acrylamide. It is surprising however that there is no reference to benzene, to the study of which our distinguished Past President Enrico Vigliani made such a significant contribution. There are many references to dinitrobenzol but none to benzene itself.

The chemical substances which took up the main attention of the Committee were aniline, carbon disulphide, oxides of nitrogen and nickel carbonyl. Aniline poisoning tends to be regarded as a gassing accident rather than as an occupational disease, but the descriptions of aniline black dyeing present an almost unbelievable picture of bad working conditions. The same is true of carbon disulphide which was used in the cold cure process of vulcanization of rubber in the manufacture of tobacco pouches, balloons and, most particularly, the waterproof cloth called after its inventor, 'Mackintosh'. I remember seeing when I was Medical Inspector in Manchester the factory which was said to be Mackintosh's original factory where the danger of men throwing themselves out of the window as a result of carbon-disulphide-induced insanity had been overcome by the provision of iron bars at the windows: Happily now the cold cure process is prohibited, although carbon disulphide continues to be used as a basic constituent in the manufacture of viscose rayon.

The effect of oxides of nitrogen in producing delayed pulmonary oedema was well recognised and so was the almost forgotten effect of sulphuretted hydrogen in producing symptoms of eye irritation. Nickel carbonyl was well recognised as a cause of poisoning

from carbon monoxide, but there is no reference to the cancers of the nasal sinuses which did not appear until the 1920s.

There is a great deal of reference in the Report to carbon monoxide poisoning and the possibility of there being such an entity as 'chronic' carbon monoxide poisoning. I recollect that one of our much respected former colleagues, Aage Grut, still believed in the 1960s in the existence of chronic carbon monoxide poisoning. I doubt if many people would subscribe to such an opinion to-day and certainly the condition is not recognised in the current list of prescribed diseases.

The only cancers which were recognised were those arising from chimney sweeps and patent fuel manufacturers. Curiously enough it was in 1906 that Dr. Wilson, a young house surgeon at Manchester Royal Infirmary, first noted that the cases of scrotal epithelioma coming into the infirmary were not chimney sweeps as he had been taught but mule spinners. It was the work of my much respected former colleague Sydney Henry which demonstrated that the disease had started in 1851 with the introduction of Scottish shale oil for the lubrication of the spindles of the cotton spinning mule. Mule Spinners Cancer, as an entity, was not recognised until Wilson finally published his results in 1922 and one of my first duties as a Medical Inspector in Manchester, where I saw hundreds of cases of mule spinners cancer, was to assist in the development of Regulations requiring the use of technical white oil for mule spindle lubrication. It is a salutary lesson that the disease disappeared, not because of the introduction of these Regulations but because of the obsolescence of the mule as a spinning machine with the introduction of man-made fibres and the reduction in the demand for fine cambric handkerchiefs because of the introduction of paper tissues.

Oddly too, although Rehn had described cancer of the bladder among aniline workers in 1896 there is no reference to bladder

cancer. It was our distinguished former Secretary Luigi Carozzi who, in his capacity as chief of the Industrial Hygiene Division of the ILO, first recognised in the early 1920's the role of dyestuff intermediates in the development of cancer of the bladder.

MISCELLANEOUS

The current list of diseases under this heading includes pneumoconiosis, byssinosis, mesothelioma, inflammation and ulceration of mucous membranes, dermatitis, nasal cancer from wood dust or footwear, asthma, cancer of the lung associated with asbestos and diffuse bilateral pleural thickening. The feature which presents most dramatically in the 1907 Report, as previously indicated, is the extent to which tuberculosis was a confounding factor in the diagnosis of the various forms of silicosis, called by a variety of names 'grinders phthisis', 'potters rot', 'stone masons phthisis', 'knife grinders phthisis', 'slate workers disease', and 'ganister disease'. It is curious how little reference there is to coal worker's pneumoconiosis. Miners are alleged to suffer from bronchitis, but there seems to be a generally held opinion that miners were much more fortunate in terms of fibrotic disease of the lung than stone masons, potters and others. This general opinion remained in fact until the 1940's when the investigations in South Wales revealed the true nature of coal worker's pneumoconiosis.

One of the most interesting sections of the Report is the first reference to a fibrotic disease of the lung produced by asbestos. I am naturally intrigued by the fact that the doctor who presented this information was called Murray. He was Dr. H. Montague Murray, a Senior Physician at Charing Cross Hospital. He described a man of 33 years of age who was an asbestos card room worker. He saw him first in 1899 and did a post mortem on him in April 1900. The man had volunteered the statement that of

the ten people who were working in the room when he started he was the only survivor. With the wisdom of hindsight it is curious that Dr. Murray did not publish his findings and only reported them to the Committee some six years later, but in the circumstances of chest disease in the early years of this century such a finding could be regarded more as a medical curiosity than a matter of social concern. Many years later Sir Thomas Legge said what an opportunity had been missed to intervene in the prevention of asbestos related disease.

Naturally none of the other asbestos related diseases were recognised by the Committee. They did however recognise a form of asthma among grain handlers and the descriptions of these cases have a very modern flavour about them. It is curious that it has taken nearly eighty years for the asthma of grain handlers to be recognised together with asthma arising from a variety of other materials.

One of the conditions in the miscellaneous area is 'inflammation or ulceration of mucous membranes'. The only example I can find in the Report of a condition resembling this is one described by Dr. Oliver as 'stamp licker's tongue'.

For those interested in the history of occupational medicine this Report is a gold mine. The variety and the clarity of the descriptions, the evidence of working conditions as they were at that time and the evidence of social attitudes among workers, employers and doctors make it a most revealing publication. One thing which it is clear has not changed is human nature. Employers tried then as they do now to minimize the nature and extent of risks. Workers, as they do now, attempted to maximize the nature and extent of risks. Doctors, I am sorry to say, appeared in some cases to be frankly dishonest, though it may have been a dishonesty of ignorance rather than malevolence. At the highest level,

however, the quality of the scientific thought was as high as can be found anywhere to-day.

One of the great changes which has taken place in the last eighty years is the revolution in communication. So far as I can find there was no social concern expressed as a result of the publication of the 1907 Report. Had such a document been published to-day the media, as they still do, would have gone mad.

CONCLUSION

I have been practising occupational health for only half of the life time of the Commission, but the more experience I have the greater is my respect for my predecessors, who, without the sophisticated equipment now available and in a medical and social climate vastly different from the present time, were nonetheless capable of making shrewd judgements and taking effective action in accordance with the best traditions of the health professions. In my time I have seen the development of occupational health nursing, occupational hygiene, ergonomics and epidemiology. The Commission now has scientific committees covering these and many other topics.

As I look forward, not with my own failing vision, but with the presidential futuroscope, I see my successor in another 80 years look back at us and say, I hope, that

in spite of our ignorance we did the best we could with the means at our disposal to achieve the objectives of the Commission, the protection and promotion of the health of workers.

SUMMARY

The author, who was for many years medical inspector of factories in Manchester, quotes a very interesting report of a special committee published in England in 1907, and compares the occupational diseases known at that time with those included in the recently published List of Occupational Diseases for the U.K.

While many diseases which were then frequent, such as necrosis of the jawbone due to exposure to phosphor, cancer of the scrotum in chimney sweepers and cotton spinners, ankylostomiasis, tuberculosis, etc., have now completely disappeared, or nearly, many new diseases have appeared in the last 80 years due to technological progress, to the enormous number of new chemical substances, to the introduction of vibrating and percussion tools, and also because of a better understanding of the causes, then only vaguely perceived, of certain occupational diseases, like asbestosis, occupational asthma.

The presentation is rich in interesting quotations and even recalls the possibility that Michelangelo may have suffered from nystagmus as a result of his long work decorating with frescoes the vault of the Sistine Chapel.