



We would like to thank all of our current staff who have contributed to the continuing success of the IOM.

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PHIL WOODHEAD MISS SELIMA ARGOUB MR ANDY STELLING MS FATIMA WILLIAMS MS SUSAN SCARISBRICK MS LYNN ROGERS MR FRASER ELDER MR STEVEN IVES MR STEVEN WHITEFORD MRS DENISE BADDELEY DR MARTIE VAN TONGEREN MS MICHELLE WALKER MS JEAN TENNANT MS BRYONY ROSS DR YVETTE CHRISTOPHER MS LAURA MACCALMAN DR LESLEY WYLIE MR ROBERT MCKAY DR STEVEN HANKIN MS VICTORIA MIR DR JOANNE CRAWFORD DR SALIM VOHRA MR KIRK SMITH MS EMMA MICHALSKI MR GAVIN TURNER MRS SALLY O'CONNOR MS JEAN FORBES MR CHRIS BEACH MR ADAM LOMAS MR CHRISTIAN DOLPHIN MS JULIE REID MR WARREN SMITH MR CHRISTOPHER POWELL DR LISA BIRRELL MS CHERYL CHETWYN MR EBRAHIM PANDOR MR JASON TURNER DR JAMES PRESTON MISS JENNIFER GRAY MS DONNA SCOTT MR MICHAEL BARLOW MS LUCY COUGHLAN MR CRAIG LAWTON DR JULIA VARET MR STEVEN TEMPRELL MS EMMA DOUST MISS JESSICA OAKLEY MS JOWITA KARBOWNIK MR BRUCE ORMISTON MS DAWN CHENNANE MS ARACELI JIMENEZ MISS FRANCES SHAW MR PAUL BROWN MISS CHRISTINA SCOTT MISS SHEONA PETERS MISS GEMMA BURNS MRS GILL JOYNER MR JEREMY GILLIS MS LINDA COX MR DAVID TODD DR SALLY SPANKIE MS AMY SHAFRIR MISS JENNA POLLOCK MR ADAM TAYLOR MISS REBECCA PEARCE MS GIFTY AMO-DANSO MR SHAHZAD RASHID PROFESSOR ANTHONY SEATON PROFESSOR KEN DONALDSON DR SEAN SEMPLE MR GILBERT ARMSTRONG DR ALASTAIR ROBERTSON MR FINTAN HURLEY DR ROB AITKEN DR ALAN JONES MR KEITH SINCLAIR DR BRIAN MILLER MISS CAROL MCINTOSH MR CRAIG LEWIS MS CAROLYN MCGONAGLE MRS SHEILA GROAT MR STUART GODDARD MRS MARLYN DAVIS MR MALCOLM KIDD MRS MARION BREBNER DR RICHARD GRAVELING MR STEVE CLARK MR TOR SODERGREN MR BRIAN STEVENTON MS HILARY COWIE DR LANG TRAN MR SCOTT DEMPSEY MR PETER RITCHIE DR ALISON SEARL MR PHIL GEORGE MRS SHEILA BALLANTYNE MR GEOFF SMITH MR MIKE BEVERIDGE DR ANNE SLEEUWENHOEK MR KEN DIXON MR ALAN BOYD MR CHRIS OWENS MR CRAIG MAIR MR MALCOLM MACDONALD MR TOM CHARGE DR KAREN GALEA MR COLIN MACKENZIE MS JANE TIERNEY MRS SHARON CROCKER MR JERRY SLANN MS CATHY CRAWFORD MR CHRIS BOLTON MR DAVID COLLINS MR NEIL ELLSMORE MR DAVID FLOWER MR TIM PARROTT 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# INTRODUCTION

## From coal to carbon nanotubes

The IOM celebrates its 40th anniversary in 2009.

To mark the occasion, this booklet looks back on some of the IOM's achievements over a period that has seen many changes in the world of work. The IOM story is one of research and innovation, of setting standards and informing policy, and of providing service to customers – all within the context of protecting and improving human health, and thereby delivering social good.

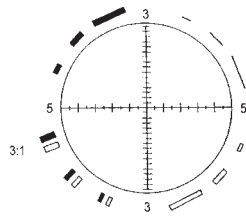
# IOM - from past...



IOM formed  
by National  
Coal Board.  
**(1969)**



IOM inhalable  
dust sampler  
invented.  
**(1978)**



Walton  
Beckett  
graticule  
invented.  
**(1977)**

Paper in Nature  
on coalworkers'  
pneumoconiosis.  
**(1971)**



Landmark  
IOM paper  
on silicosis  
published.  
**(1981)**



IOM awarded  
the Sir Frederic  
Bartlett Medal  
for Ergonomics.  
**(1983)**

IOM  
becomes  
independent  
from British  
Coal.  
**(1990)**



# Coal, silica and other dusts

The IOM was founded in 1969 by the then National Coal Board (NCB) as an independent charity. Dr John Rogan, the Chief Medical Officer of the NCB, who had initiated the Pneumoconiosis Field Research (PFR), persuaded the Chairman, Lord Robens, to found a scientific institute to take over the running of this research. Thus the IOM was formed, under Rogan's leadership, with headquarters in Edinburgh and several outstations in the main coal mining areas of Britain.



UNDERGROUND COAL MINING

The early history of the IOM is inextricably bound up with the NCB and the PFR. The PFR had started in the early 1950's with the objective of determining how much and what types of dust caused pneumoconiosis and what dust concentrations should be maintained in order to prevent miners from becoming disabled by the air they breathed. These ambitious and clear objectives were remarkably far-sighted, implying a requirement to measure both exposure to airborne dust and health outcomes in a large cohort of miners over a prolonged period, and to use these quantitative data to set protective health standards in the industry. Between 1953 and 1978, fifty thousand coalminers were recruited into the study from 25 collieries representative of conditions across Britain, and in addition to the main study results many major methodological advances were made and reported.

The early work involved measuring dust exposure by counting the number of particles collected from the air by sampling devices. A substantial advance was achieved with the measurement of exposure by weighing the dust collected by MRE 113A respirable dust samplers, which were invented specifically for the research.

The first results from the PFR were reported in 1970 in the scientific journal *Nature* (1), and these data showed a clear relationship between dust exposure and the risk of pneumoconiosis. The research underpinned recommendations for more stringent airborne dust standards in British coalmines and ultimately the PFR was used as the basis for many national dust standards around the world.

(1) *Nature*. 1970; 227 (5257): 445-447.



ASSESSMENT OF CHEST X-RAYS FOR PNEUMOCONIOSIS

IOM's research in coal mining continued until about 1990, with many important scientific papers on respiratory diseases amongst miners having been published. In 1985, an important association between risk of pathological emphysema and dust exposure was demonstrated, leading ultimately to recognition of this disease as a quantifiable risk of coal mining. Recent analysis of the mortality of a subset of the miners originally studied has found an association between the risk of lung cancer and quartz exposure, and increased mortality from chronic lung disease and pneumoconiosis associated with increasing dust exposure.

In the 1980's the IOM's epidemiological expertise was used in three original studies into the effects of polyvinyl chloride dust, wool dust and shale mining on the lung health of workers. All showed positive associations and the results were used in regulatory standard setting in the UK and USA. There were also major studies of dust-related morbidity and mortality in the British coke and steel industries.

During the 1990's IOM carried out an important series of studies on exposures to silica in quarrying, brickworks and other industries, and was able to define exposure response relationships for silica with good precision (2). This work demonstrated the need for very low limits on exposure to airborne crystalline silica because of the high risk of disease from even relatively brief exposures to high concentrations.

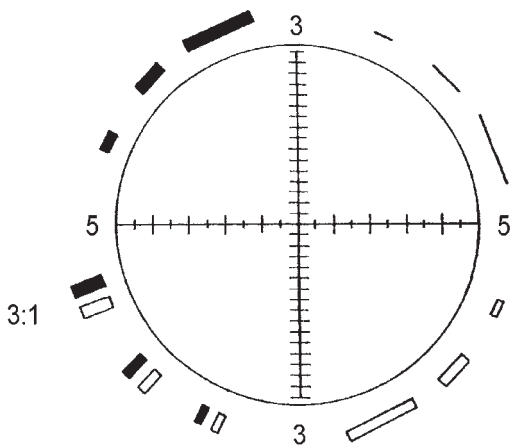
By developing and validating mathematical models of accumulated lung dust burden and resulting inflammation, IOM research has shown that the toxicity of several insoluble dusts of different compositions can be predicted from their surface area, findings which later proved highly relevant to the estimation of risks from exposure to nanoparticles.

(2) Occupational and Environmental Medicine, 2003; 60: 159-164.

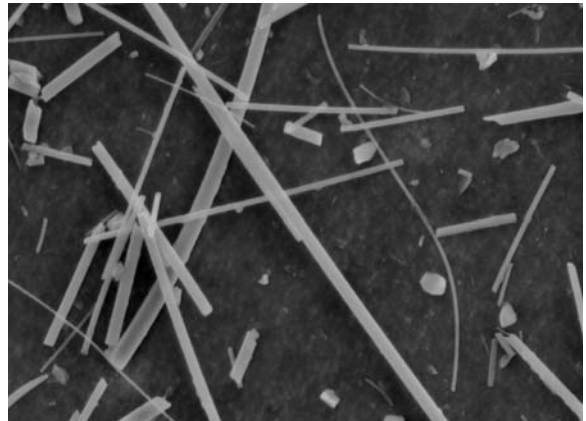
# Asbestos and other mineral fibres

In 1971, a new Pathology Branch was established at IOM, to study dust toxicity and mechanisms of disease, initially in relation to coal mining. Studies of disease mechanisms were also central to the IOM's next major research programme, on asbestos-related diseases.

An extensive programme of research on the toxicology of fibres showed that persistence of some asbestos fibres in the lung as a result of their insolubility was an important determinant of carcinogenicity and fibrogenicity, and that fibre length was also critically important in determining toxicity (3). This research expanded to consider fibres and other materials introduced as substitutes for asbestos, such as calcium silicate and aramid fibres. From 1990, the Colt Foundation, relevant industries and the Health and Safety Executive (HSE) supported a programme of laboratory research into the health effects of man-made mineral fibres that helped to clarify the quantitative relationships between health risks and fibre dimensions and biopersistence (4). The British Occupational Hygiene Society awarded the prestigious Bedford Prize to the IOM for this work.



THE WALTON-BECKETT GRATICULE INVENTED AT THE IOM



MAN-MADE MINERAL FIBRES SEEN ON IOM'S ELECTRON MICROSCOPE

Research on measurement methods led in 1977 to the development of the Walton-Beckett microscope eyepiece graticule for counting asbestos fibres (5). This device was designed to improve the reliability of the measurements and it has since become part of the international standard methodology for fibre measurement. An investigation ensued on the measurement of fibrous aerosols such as asbestos, raising important issues in comparability of counts by different laboratories, and leading to the establishment of quality control schemes for asbestos. In 1979 the IOM was appointed by the HSE as the British Central Reference Laboratory for asbestos fibre counting, and the following year the World Health Organisation similarly appointed IOM as its central reference laboratory for man-made mineral fibre counting.

From 1985 IOM collaborated with the International Agency for Cancer Research in a major European epidemiological study of the carcinogenicity of mineral wool fibres. As part of this work IOM helped develop novel methods to estimate retrospectively the exposure of workers in the study, work that ultimately helped demonstrate that there was no evidence of a carcinogenic effect of these fibres on the lung. IOM scientists also led a multi-centre study of the respiratory health of workers manufacturing refractory ceramic fibres in Europe, showing small though inconsistent effects on respiratory health associated with inhalation of these fibres.

(3) British Journal of Industrial Medicine, 1989; 46: 271-276.  
(4) Annals of Occupational Hygiene, 1999; 43: 155-166.  
(5) Annals of Occupational Hygiene, 1977; 20: 19-23.

# Workplace exposure, measurement and modelling

From its earliest years, IOM has had a tradition of using quantitative exposure measurements to explore links between the working environment and health and has pioneered the development of new methods to measure the concentration of aerosols in ways that are relevant to human biology.

The MRE 113A respirable dust sampler developed for use in our pneumoconiosis research was the first landmark and led to greater insight into the causes of this disease. An innovative research programme, aimed at designing new sampling instruments for coarser aerosols, culminated in the development of the IOM inhalable dust sampler, which has become established as the device of choice for measuring the part of an aerosol that penetrates beyond the larynx (6). IOM scientists played a key role in defining the internationally agreed size fractions of dust relevant to human lung disease, i.e. inhalable, thoracic and respirable. New methods of laboratory analysis of the mineral content of coal dust also helped clarify the role of quartz and other components.

Research on chemical exposure has focussed more recently on exposure modelling, data management and studies for regulatory risk assessment. Studies have been carried out in relation to metals, including dermal exposure to nickel, zinc and lead. Work on the measurement of exposure to oil mist aerosol and vapour has been undertaken for offshore oil workers. In collaboration with other leading European human exposure scientists, IOM has been developing a new generation exposure model for use in connection with the European REACH (7) Regulations – the model is known as the Advanced REACH Tool or ART.



MEASUREMENT OF INHALABLE DUST EXPOSURE IN A BAKERY

IOM scientists have developed a strong interest in the assessment of dermal exposure, leading to the articulation of new principles of exposure assessment, the development of predictive exposure models, and investigations into dermal exposure under specific working conditions. Estimating historical skin exposures of farmers dipping sheep in pesticide solutions for an epidemiological study proved particularly challenging, but this research demonstrated a strong association between concentrated organophosphate pesticides and neurological symptoms (8). As a consequence the UK government withdrew these pesticides from the market until safer handling systems were devised. Other achievements include the development of new sampling instruments to measure dermal exposure to chemicals and new theoretical models to help understand how skin exposure may arise. These instruments and models may in the future help provide more reliable assessments of the risks to the skin from chemicals.

(6) Annals of Occupational Hygiene, 1987; 32(Supp11): 423-434.

(7) Registration, Evaluation, Authorisation, and Restriction of Chemical substances.

(8) Occupational and Environmental Medicine, 2001; 58: 702-710.

# Human sciences and personal protective equipment

Early ergonomic research at IOM helped to promote greater safety of coal miners and to increase the cost-effectiveness of production (9). One of the IOM's most important contributions in ergonomics was in machine and system design, work that was passed to the manufacturers and contributed widely to worker safety and efficiency. Multidisciplinary work on back pain in coalminers was followed by other major studies of musculoskeletal disorders, including upper limb disorders in keyboard workers.

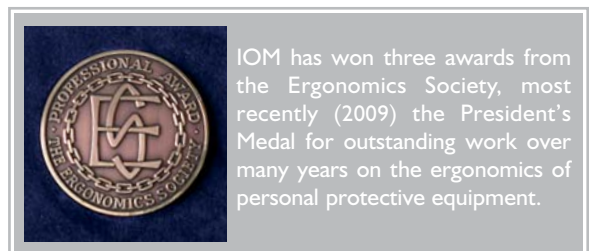
Work on human factors and personal protective equipment (PPE) at the IOM started in the early 1970's, with studies of the impact of resistance to breathing caused by respiratory protective equipment, resulting in guidance criteria that form part of respirator product standards to this day. In the 1980's and 1990's work continued with investigation of the utility of cooling garments such as ice jackets in hot environments, studies of the use and effectiveness of hearing protection, of the effectiveness of respirators in reducing workplace exposure, and of heat strain imposed by breathing apparatus. This latter work resulted in the development of permissible work times consistent with safe use of breathing apparatus, standards currently used by the UK Mines Rescue service.

The PPE research has used ergonomic principles to design protective clothing and equipment that impose fewer demands on those required to use them. For example, IOM scientists helped develop improved powered helmet respirators following research that showed existing devices to be heavy, cumbersome, uncomfortable and intrusive.



TOTAL INWARD LEAKAGE TESTING OF PROTECTIVE SUIT

In the 1990's, on behalf of the Fire Service, studies were carried out of the physiological and ergonomic impacts of breathing apparatus, fire hoods and protective clothing. The studies on fire hoods showed that, contrary to common belief, they did not affect the ability of fire fighters to localise sound. This led to a recommendation by the Home Office that all fire fighters should routinely be issued with such hoods, advice which is now followed throughout the UK. The IOM is now part of a consortium helping to assess Chemical, Biological, Radiological and Nuclear (CBRN) protective clothing for the Home Office, and has recently assisted London Fire Brigade in ergonomic assessments for the selection of new protective clothing.



(9) Ergonomics, 1984; 175: 1-6.

# Environment and health

In the early 1990's, the IOM became involved in a series of European research projects that addressed, amongst other things, the public health effects of air pollution from fossil fuel power stations. These first steps in quantitative environmental health impact assessment (HIA) led over time to further work, including involvement in the cost-benefit analysis of the European Commission's Clean Air for Europe (CAFE) programme, and some ground-breaking work on the use of life table methods to estimate the impacts of air pollution on mortality and life expectancy.

This HIA work has expanded into health effects of other occupational and environmental pollutants and into public health more generally, leading in 2007 to the establishment of the IOM's Centre for Health Impact Assessment in London. IOM scientists have investigated exposure of bystanders living or working near to fields that have been sprayed with pesticides, and have undertaken a study to model the exposure of the British population to selected pesticides from food and other sources. This work demonstrated that although it is likely that most people are exposed to low levels of a wide variety of pesticide compounds it is unlikely that such exposure would have measurable effects on the health of the population.

In 1995 the Soufriere Hills volcano on the Caribbean island of Montserrat erupted, spewing volcanic ash containing large amounts of the crystalline silica mineral cristobalite (10) over the surrounding area. IOM scientists investigated exposure amongst people who lived on the island and carried out assessments of their respiratory health. In general the exposure of the residents was low, because most people lived well away from the area of highest ash falls, and the ash proved of relatively low toxicity. The studies of the population showed no impairment of the islanders' respiratory health.

More recently, IOM has been involved in a series of studies of the health effects of environmental tobacco smoke and other indoor combustion sources. This, like much of IOM's research, has been collaborative, in this instance principally with colleagues at the University of Aberdeen.

Environment and health is now a well-established area of the IOM's work, involving health impact assessment, chemical monitoring, laboratory analysis, consultancy, literature reviews and collaborative primary research. It covers exposures to and health effects of a wide range of environmental hazards, including outdoor and indoor air pollution, ionising and electromagnetic radiation, dioxins and pesticides.



APPLICATION OF PESTICIDES IN AGRICULTURE



THE SOUFRIERE HILLS VOLCANO ERUPTS  
SPREADING ASH OVER THE ISLAND

(10) Science, 1999; 283(5405): 1142-1145.

# Consultancy



NOISE MONITORING IN AN ENGINEERING WORKS



IOM'S LABORATORY STAFF ANALYSE SEVERAL THOUSAND SAMPLES EACH YEAR

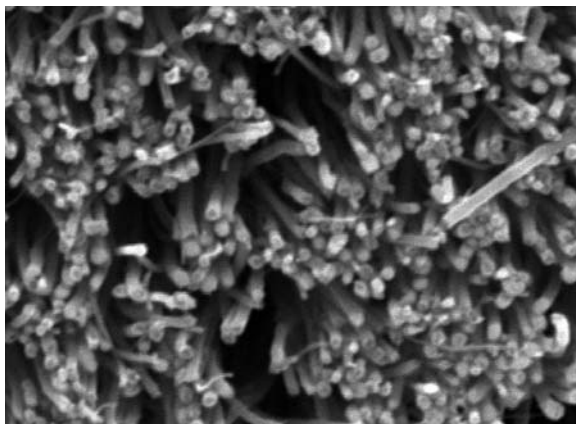
IOM's research has helped to set standards and inform regulatory processes over the years, and this created the opportunity to offer consultancy services to customers in industry and elsewhere, to help them achieve best practice and comply with the law. Over the years, this advice has often been based on knowledge gained during our research work.

We have provided consultancies to a wide range of customers since the mid 1970's, initially through the building up of capabilities in occupational hygiene and laboratory analysis in Edinburgh and in our regional offices (then in South Wales, the Midlands and Tyne and Wear). Then, as now, a substantial proportion of the work was related to asbestos sampling and analysis in buildings, industrial plant and contaminated land. We were amongst the first to introduce asbestos clearance indicators – a practice later endorsed by the HSE.

We went on to develop our occupational hygiene business in a variety of other directions. Countless surveys of occupational exposures to hazardous gases, liquids, fumes, dusts and fibres have been undertaken. We have advised on control methods for hazardous agents, from elimination or substitution, to organisational changes or the introduction of personal protective equipment. Through the 1980's our consultancy work developed to include ergonomics and occupational medicine. By the time IOM became independent from British Coal in 1990, the consultancy work accounted for about 45% of the business.

The consultancy work grew steadily after independence, increasingly centred on the Edinburgh office. In 1998, the IOM's Board of Management decided to expand this sector of the business. A key element of the business plan was to expand geographically, and we opened regional offices in Chesterfield, London and Stafford; all have been successful. By the end of 2008-9, this type of work had grown substantially, accounting for over 70% of the IOM's turnover. Our consultancy work now covers asbestos management, occupational hygiene, occupational medicine, stress management, ergonomics, advice on the safe use of nanoparticles, expert witness reports, environmental studies and many laboratory analyses. We work for government agencies, universities, the NHS, local authorities, private healthcare providers, large industrial concerns and small businesses, mainly within the UK but also across the world, from Chile to Kazakhstan, from Zimbabwe to the United States and from St Helena to Montserrat. All of our consultancy work is aligned with our mission of health protection, and is complementary to our research tradition. We believe in delivering pragmatic solutions, expressed in plain language, underpinned by scientific evidence and our core values of independence, impartiality and integrity. Any profit from our consulting activities is used to support other areas of our work.

# Nanomaterials



A BUNDLE OF CARBON NANOTUBES SEEN IN CROSS-SECTION

Since 2002, IOM has drawn on its long tradition of research on particles and fibres in pioneering the assessment and management of potential risks arising from nanomaterials. These are new materials at the nanometre scale with novel properties and applications. Nanomaterials have been the subject of massive financial investment worldwide. However, it has been recognised that they may also represent hazards to the health of workers, consumers or the environment.

Together with partners at Edinburgh, Napier and Aberdeen Universities, and at the Central Science Laboratory, IOM formed the SnIRC initiative (Safety of nanoparticles Interdisciplinary Research Centre) and with these and other parties has embarked on a programme of fundamental research, funded by the European Commission and others, on questions related to toxicity, exposure and risk. The IOM and its partners have published a series of influential reviews on aspects of safe usage of nanoparticles, sponsored by UK government departments to inform policy in this area. Independently we have co-authored research strategies (11) designed to address the many complex challenges to be faced. IOM now leads a large international study on the toxicology of nanoparticles involving 21 partner organisations from across Europe and the USA.



IOM'S ELECTRON MICROSCOPE IS USED FOR PARTICLE AND FIBRE ANALYSIS

The development of new products containing carbon nanotubes has raised concerns that such materials may present risks similar to mineral fibres. With our partners at the University of Edinburgh we have published data showing one type of nanotube with similar toxicological responses to asbestos, implying that exposure to some types of carbon nanotube could carry similar hazard (12). While more research is needed on the toxicology and potential exposures to these materials, action has already been taken by regulators to reduce possible risks to workers.

With UK Government support IOM has established SAFENANO (13), the most comprehensive free information resource on these issues available today. Using all available information, we provide industry and others with state-of-the-art services in toxicology, exposure and risk assessment to help understand and mitigate potential risks to workers, consumers and the environment.

(11) Nature, 2006; 444(7117): 267-269.

(12) Nature Nanotechnology, 2008; 3: 423-428.

(13) [www.safenano.org](http://www.safenano.org)

# Current challenges and a look to the future

Exposure to asbestos continues to be a concern in the UK despite extensive efforts by the HSE and others to tighten up the regulation of work with these materials.

Over thirty years ago, when IOM consultancy work in this area was beginning, it was expected that the problems would be adequately controlled within a matter of a few years, yet today the management of asbestos risks is still a major part of our business. There are increasing concerns about the potential risks from occasional low-level occupational exposure to asbestos and the difficulty in identifying and appropriately controlling such exposures. There is also some concern about potential risks from non-asbestos elongated mineral particles in the environment and we believe that further work is necessary to quantify any such risks. The International Agency for Research on Cancer recently reaffirmed asbestos as a human carcinogen and it is clear that rigorous control of this material in buildings and in contaminated land continues to be essential. Internationally, the control of workers' exposure to asbestos remains a major priority for the World Health Organisation.

There is a need for clear regulation of nanomaterials to minimise possible risks. The somewhat haphazard commissioning of research into the human and environmental hazards associated with nanomaterials has left many questions unanswered and a paucity of specific regulation and guidance. This leaves industry unsure of how to meet its obligations to protect the health of employees and consumers, and has allowed potentially hazardous products to enter the marketplace, often without rigorous testing. There is a compelling need for clear action in this respect.



NANOPARTICLES MAY BE FORMED IN COMPLEX SHAPES (14)

The regulation of chemicals in Europe through the REACH regulations is a significant development that places new obligations on thousands of organisations in relation to the production and distribution of hundreds of thousands of chemicals. Questions remain about whether industry, the service sector and the regulatory bodies have the capacity to deal with the sheer volume of work that will be necessary to achieve compliance with this new regulation. IOM is actively contributing to the development of new tools to help industry evaluate the likely exposures but further efforts will be necessary if we are to achieve the goal of substantially reducing the burden of disease from chemical use in Europe.

It is widely recognised that stress and musculoskeletal disorders now account for the majority of work-related sickness absence. As yet, these health conditions, their causes, and the interventions to treat them, have not been studied as rigorously as some of the more traditional workplace diseases that were the subject of the IOM's landmark epidemiological studies. At the same time, it should be recognised that the prevalence of many traditional workplace diseases, for example occupational cancers, asthma and dermatitis, are still higher than they should be. There is considerable scope to improve the control of exposure to some of these more traditional workplace health hazards. IOM believes, for example, that it is possible to eliminate occupational cancer in Europe over the next 25 years. However, this will require a sustained commitment from all stakeholders.

(14) Photograph courtesy of Professor ME Welland, University of Cambridge.

Reducing sickness absence has become a high profile priority for government, and whilst we recognise the importance of early interventions and the change of emphasis from 'sickness' to 'fitness', we believe there should be much greater focus on prevention through proper risk profiling of workplaces, the creation of safer, healthier workplaces, and the promotion of healthy lifestyles.

In recent years, the amount of new occupational health research being commissioned in Britain has declined, and with it the academic base. As a result, the number of occupational health professionals coming out of university has diminished, yet it is widely recognised that about 80% of employers have no proper occupational health arrangements in place. It is important that a way is found to reverse this decline and IOM would welcome greater UK investment in the future of the occupational health professions.

The past 40 years have seen many major changes in occupational and environmental health. Throughout this period, the IOM has remained true to an ethos of using science with independence and integrity to help provide practical evidence-based guidance to protect and improve health. We have been fortunate over the years to have many scientists of high international reputation on our staff, and we are continually looking to develop the next generation of talented scientists and technical experts. With these resources, and with the assistance of many outstanding collaborators, we believe that the IOM is well equipped to face whatever challenges are around the corner, and we look forward to the next 40 years with confidence.



ASSESSMENT OF LUNG FUNCTION

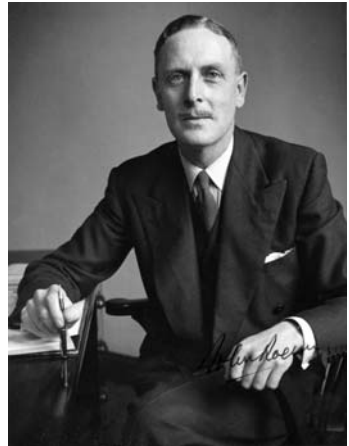
A host of talented scientific and professional staff have contributed to the achievements of the IOM's first 40 years. They are literally too numerous to mention. I would, however, like to pay tribute to the exceptional leadership of my predecessors, Dr John Rogan, Professor David Muir, Henry Walton, Professor Anthony Seaton and Dr Colin Soutar. It is a privilege to follow in their footsteps.

A handwritten signature in black ink, appearing to read 'Phil Woodhead'.

DR PHIL WOODHEAD - CHIEF EXECUTIVE

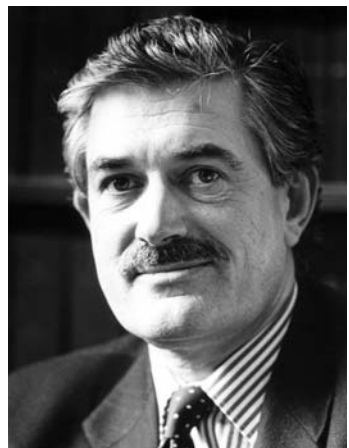
# IOM DIRECTORS AND CHIEF EXECUTIVES

Past and present



**DR JOHN ROGAN**  
(1969-1973)

Independence  
Integrity  
Authority



**PROFESSOR ANTHONY SEATON**  
(1978-1990)

The photographs of John Rogan and Henry Walton are courtesy of the British Occupational Hygiene Society.



**PROFESSOR DAVID CF MUIR**  
(1973-1976)



**HENRY WALTON**  
(1976-1978)



**DR COLIN SOUTAR**  
(1990-2005)



**DR PHIL WOODHEAD**  
(2005-DATE)



WORLD HEALTH ORGANISATION  
COLLABORATING CENTRE  
FOR OCCUPATIONAL HEALTH

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