

RICHARD M HARDING, BSc, MB BS (London), PhD

CURRICULUM VITAE

EDUCATION

PhD	Doctor of Philosophy (Human Physiology) St. Bartholomew's Hospital Medical College University of London	1985
	Associate of the Faculty of Occupational Medicine Royal College of Physicians (London)	1981
	Diploma in Aviation Medicine Royal College of Physicians (London)	1981
MB BS	Bachelor of Medicine, Bachelor of Surgery (United Kingdom MD Equivalent) London Hospital Medical College University of London	1974
BSc	Bachelor of Science, Physiology (1 st Class Honors) London Hospital Medical College University of London	1971

POST-GRADUATE STUDIES

Traffic Accident Reconstruction Northwestern University Traffic Institute, Evanston, Illinois	1995
Aerospace Medical Association Board Certification in Aerospace Physiology	1989
RAF Initial Medical Officers Course, RAF Institutes of Community Medicine and Aviation Medicine (Certificate of Aviation Medicine, UK Civil Aviation Authority and Ministry of Defense)	1976
United States Educational Commission for Foreign Medical Graduates (ECFMG) Certification (0-237-223-3)	1975 Valid Indefinitely

PROFESSIONAL EXPERIENCE

Principal Consultant	1997-Present
Consultant	1995 - 1997
Biodynamic Research Corporation San Antonio, Texas	
Senior Medical Officer	1981-1995
Deputy Department Head & Head of Aircrew Systems Division Department of Aeromedicine and Neuroscience	
Defense Research Agency's Centre for Human Sciences	1994-1995
Head of Aircrew Systems Division	1991-1994
RAF Institute of Aviation Medicine	
RAF Exchange Medical Officer	1988-1991
Chief, Acceleration Effects Function,	1989-1991
Aerospace Research Branch, Crew Technology Division, United States Air Force School of Aerospace Medicine, Brooks Air Force Base, San Antonio, Texas	
Senior Medical Officer (Specialist, Senior Specialist, and Consultant in Aviation Medicine) Breathing Systems Research Section, Altitude Division, RAF Institute of Aviation Medicine, Farnborough, Hampshire, United Kingdom	1981-1988
Medical Officer Instructor	1978-1981
RAF Specialist in Aviation Medicine	1980
RAF Aviation Medicine Training Center RAF North Luffenham, Rutland	
Unit Medical Officer	1976-1977
Acting Senior Medical Officer	1977
RAF Marham, Norfolk	
House Physician in Acute Medicine, Geriatrics and Dermatology	1976
The London Hospital (Bethnal Green)	
House Surgeon in Accident and Emergency Medicine	1975
The London Hospital (Whitechapel)	
House Physician in Acute Medicine	1975
Southend General Hospital	

Student Research Fellow 1971
Cardiovascular Research Institute
University of California at San Francisco

PROFESSIONAL REGISTRATIONS

Consultant in Aviation Medicine 1987-1995
General Medical Council, Registration #2249854 1976-Present

PROFESSIONAL AFFILIATIONS

British Medical Association 1994-Present
Royal Aeronautical Society 1982-Present
· Aviation Medicine Group Committee 1981-1992
International Academy of Aviation and Space Medicine 1984-Present
Aerospace Medical Association (Fellow) 1997) 1988-Present
· Aerospace Physiology Society, (Awards Committee, 1988-Present
1990)
· Life Sciences and Biomedical Engineering Branch 1988-Present
SAFE National Organization 1988-2000
Society of Automotive Engineers 1995-Present
Association for the Advancement of Automotive Medicine 1996-Present
NATO Military Agency for Standardization
· Aeromedical Working Party 1991-1995
Air Standardization Coordinating Committee
· Working Party 61 1991-1996

HONORS AND AWARDS

National Aeronautics and Space Administration 2008
Group Achievement Award to Spacecraft Crew
Survival Integrated Investigation Team for Outstanding
Completion of the Columbia Crew Survival Investigative Report
Welcome Trust Foundation Award 1992
Mackenzie Lecturer 1984
Edith Forbes Memorial Scholarship [Awarded by the 1971
London Hospital Medical College]
BSc Scholarship [Awarded by the Medical Research Council] 1969
Ford Travel Scholarship [Awarded by the Ford Motor Company] 1967

PROFESSIONAL APPOINTMENTS

Clinical Adjunct Professor, USAF School of Aerospace Medicine, San Antonio, Texas.	2008
Member, Spacecraft Crew Survival Integrated Investigation Team, NASA.	2003-2006
Co-Chairman, Aerospace Medical Association Panel on “Aerospace Medicine in a non-traditional setting: the physiology & safety of amusement rides and racing.” 74 th Annual Meeting, San Antonio, Texas.	May 2003
Visiting Consultant in Aviation Medicine to the Department of Aeromedicine and Neuroscience, Center for Human Sciences, Defence Research Agency Farnborough, United Kingdom.	1996-Present
Lecturer in Aerospace Medicine US Department of Transportation, Federal Aviation Administration.	1995-Present
Member of the Editorial Advisory Panel <u>The Journal of the British Interplanetary Society</u>	1988-1992
Member of the Editorial Advisory Panel <u>Aviation Medicine Quarterly</u>	1986-1989
Member of the Microgravity Panel and Life Sciences Sub-Committee British National Space Center.	1986
Aviation Medical Adviser to Dan Air Medical Services and to International Aeradio Ltd, United Kingdom.	1985-1988
Lecturer in Human and Applied Physiology University of London MSc and Intercollegiate BSc courses (Core lectures)	1985-1988 & 1991-1995
Medical Officer to the Farnborough and Aldershot Branch of the British Sub-Aqua Association.	1984-1988
Lecturer in Human Physiology Royal College of Nursing Diploma Farnborough College of Technology, United Kingdom.	1982-1983

Examiner, DHSS Health and Safety Executive First Aid Courses Farnborough College of Technology, United Kingdom.	1982-1986
Local examiner in First Aid, St John's Ambulance Brigade NE Hampshire, United Kingdom.	1982-1988
Examiner, National Road Transport First Aid Association	1981
Local examiner in First Aid, St John's Ambulance Brigade Leicester, United Kingdom.	1979
Locum Medical Officer British Medical Association Deputizing Services Leicester, United Kingdom.	1978-1981

PUBLICATIONS

Thesis (Dissertation)

Human respiratory responses during high performance flight. PhD Thesis, University of London, 1985.

Textbooks

Banks RD, Brinkley J, Allnut RA, Harding RM. "Human Reponse to Acceleration." In: Davis, JR, ed. Fundamentals of Aerospace Medicine 4th Edn, Lippincott Williams & Wilkins: 2008, 83-109.

Harding RM. "Pressure changes and hypoxia in aviation." In: Textbooks of Military Medicine - Special Environments Section, Environmental Stress Volume. Office of the US Army Surgeon General & the Borden Institute, Washington DC: 2002, 995-1023.

Banks RD, Harding RM, Smith HS. "Assessing injury potential in rear-end vehicle collisions." In: Yoganandan N, Pintar FA, eds. Frontiers in Whiplash Trauma: Clinical and Biomechanical. IOS Press, The Netherlands: 2000, 25-40.

Harding RM. "Health problems associated with air travel." In: Lockie C, Walker E, Calvert L, et al, eds. Travel Medicine and Migrant Health. Churchill Livingstone, Edinburgh: 2000, 99-106.

Harding RM. "Recent Developments in Aerospace Medicine." In: Scagell R, Wasserman E, eds. The New Illustrated Science and Invention Encyclopedia: How It Works. HS Stuttman Inc, West Port, Connecticut, 1993.

Harding RM. "Aviation medicine." In: Smith A, ed. The British Medical Association Complete Family Health Medical Encyclopaedia. Dorling Kindersley, London: 1990.

Harding RM. "Man in space – physiological constraints." In: Dutton L, ed. Military Space. Brasseys, London: 1990, 121-139.

Harding RM. "Survival in space: the medical problems of manned spaceflight." Routledge, London 1989.

Harding RM. "Units of measurement" (Appendix). In: Ernsting J, King P, eds. Aviation Medicine. Butterworths, London 1988: 716-723.

Harding RM, Bagshaw M and Turner JCD, "Medical aspects of special types of flight." In: Ernsting J, King P, eds. Aviation Medicine. Butterworths, London 1988: 471-489.

Harding RM. "Oxygen equipment and pressure clothing." In: Ernsting J, King P, eds. Aviation Medicine. Butterworths, London 1988: 72-111.

Harding RM. "Hypoxia and hyperventilation." In: Ernsting J, King P, eds. Aviation Medicine. Butterworths, London 1988: 45-59 (revised).

Harding RM. "The earth's atmosphere." In: Ernsting J, King P, eds. Aviation Medicine. Butterworths, London 1988: 3-13.

Harding RM. "The early symptoms of cerebral hypoxia." In: Amery WK, Wauquier A, eds. The Prelude to the Migraine Attack. Ballière Tindall, London 1986; 54-58.

Harding RM. "Air travel." In: Dawood R, ed. Travellers' Health. Oxford University Press, Oxford 1986; 195-205. [2nd edn 1989; 221-232] [3rd edn 1992; 186-195] [4th edn 2002; 250-264]

Other Open Publications

McConnell WE, Guzman HM, Krenrich SW, Bomar JB, Harding RM, Raddin JH, Funk JR and Smith DA. Human kinematics during non-collinear low velocity rear end collisions. 47th Annual Proceedings of the Association for the Advancement of Automotive Medicine 2003; 47:467-494.

Banks RD, Harding RM and Hatsell CP. Letters to the Editor: Roll vs Pitch Rotation Under Orthostatic Stress. *Aviat Space Environ Med*, September 2000; Vol 71, No 9, Section 1, 966-968.

Howard RP, Harding RM and Krenrich SW. "The biomechanics of whiplash in low velocity collisions." In: *The Proceedings of the International Body Engineering Conference*. Detroit, MI, September 1999.

Harding RM, Miller RL, Ernsting J, Tedor JB, Ikels KG and Harris DJ. "Current molecular sieve oxygen generation systems." In: Ernsting J, Miller RL, eds. Advanced Oxygen Systems for Aircraft. Advisory Group for Aerospace Development and Research, AGARDograph 286, April 1996.

Harding RM. "High altitude breathing systems and requirements." In: Pilmanis AA, Sears WJ, eds. *Raising the Operation Ceiling: A Workshop on the Life Support and Physiological Issue of Flight at 60,000 Feet and Above*. Brooks Air Force Base, Texas: The Armstrong Laboratory, June 1995, AL/CF-SR-1995-0021, 67-73.

Harding RM. "Some physiological problems associated with air travel." In: Lockie C, ed. Course Notes for the Diploma in Travel Medicine. Module I, Unit 6(c), Dept. of Public Health, University of Glasgow, 1995.

Harding RM. "Aeromedical aspects of commercial air travel." *J Travel Med* 1994; 4: 211-5.

Harding RM, Pedersen OF, Miller MR, Sigsgaard T, and Tidley M. "Portable peak flow meters: physical characteristics, influence of temperature, altitude, and humidity." *Eur Respir J*, 1994; 7: 991-7.

Harding RM. "Cabin air quality in aircraft." *Br Med J*, 1994; 308: 427-8.

Harding RM. "Aviation Medicine." In: Baron C, ed. Distance Learning Course in Occupational Medicine. Centre for Occupational Health, University of Manchester, October 1993.

Harding RM and Lupa HT. "Medical in-flight incidents: RAF fixed-wing experience 1981 - 1992." Abstracts of the 1993 Annual Scientific Meeting of the Aerospace Medical Association. Aviat Space Environ Med, 1993; 64: 434.

Harding RM. "Respiratory tract problems and the air traveller." Scottish Medicine, 1993; 13 (1): 7-8.

Harding RM. "ENT problems and the air traveller." Travel Medicine International, 1992; 10(3): 98-100.

Harding RM. "Future high altitude operations." In: Pilmanis AA, ed. The Proceedings of the 1990 Hypobaric Decompression Sickness Workshop. Brooks Air Force Base, Texas: The Armstrong Laboratory, June 1992, AL-SR-1992-0005, 537-538.

Harding RM. "Decompression sickness experience outside North America." In: Pilmanis AA, ed. The Proceedings of the 1990 Hypobaric Decompression Sickness Workshop. Brooks Air Force Base, Texas: The Armstrong Laboratory, June 1992, AL-SR-1992-0005, 467-471.

Harding RM. "Aerospace Medicine Research in the 21st Century - Aircrew Protective Equipment." Abstracts of the 1992 Annual Scientific Meeting of the Aerospace Medical Association. Aviat Space Environ Med, 1992; 63: 438.

Lyons TJ, Harding RM, Freeman JE, and Oakley CJ. "G-induced loss of consciousness accidents: USAF experience 1982-1990." Aviat Space Environ Med, 1992; 63: 60-66.

Harding RM. "The use of pressure breathing in modern fighter aircraft (Pt 2)." Bulletin of the Asociacion Iberoamericana de Medicina Aeroespacial 1991; 2(3): 3-4.

Harding RM. "The use of pressure breathing in modern fighter aircraft (Pt 1)." Bulletin of the Asociacion Iberoamericana de Medicina Aeroespacial 1991; 2(2): 3-4.

Lyons TJ, Harding RM, Freeman JE and Oakley CJ. "G-induced loss of consciousness accidents: USAF experience 1982 - 1990." In: High Altitude and High Acceleration Protection for Military Aircrew. Neuilly sur Seine, France: NATO Advisory Group for Aerospace Research and Development, 1991, AGARD-CP 516, 5.1 - 5.9.

Harding RM, Blick M, Krock LP, Hopper N and Munson RA. "Echocardiographic changes during positive pressure breathing." Abstracts of the 1991 Annual Scientific Meeting of the Aerospace Medical Association. Aviat Space Environ Med 1991; 62: 448.

Harding RM, Thomas P and Milledge J. "Peak expiratory flow at altitude." Thorax, 1990; 45: 620-622.

Harding RM and Bomar JB. "Positive pressure breathing for acceleration protection and its role in prevention of in-flight G-induced loss of consciousness." Aviat Space Environ Med, 1990; 61: 845-849.

Harding RM, Chopp CS, Bomar JB, Holden RD and Bauer DH. "Rapid decompression to 50,000 feet: effect on heart rate response." Aviat Space Environ Med, 1990; 61: 604-608.

Harding RM "Molecular sieve oxygen concentrators in military aircraft." Aeromedical & Training Digest, 1990; 4(1): 47-54.

Harding RM and Robertson K. "Simultaneous respiratory responses during flight in a two-seat high performance aircraft." Abstracts of the 1989 Annual Scientific Meeting of the Aerospace Medical Association. Aviat Space Environ Med 1989; 60: 481.

Harding RM, Stone BM, Brown GA, Nicholson AN, and Smith PA. "Hypoxic ventilatory responses and sleep at altitude." Proceedings of the Birmingham Medical Research Expeditionary Society Symposium on Acute Mountain Sickness, Birmingham 1988.

Harding RM. "Medical support for manned spaceflight." Aviat Med Qtrly, 1988; 2: 43-55.

Harding RM, Cresswell G, McPhate D, and Farmer EW. "Positive pressure breathing with and without chest counterpressure - an assessment in air combat manoeuvring flight." Abstracts of the 1988 Annual Scientific Meeting of the Aerospace Medical Association. Aviat Space Environ Med, 1988; 59: 480.

Harding RM. "The role of molecular sieves in modern fighter aircraft. DHSS Health Service Estate, No 61, December 1987: 50-53.

Harding RM and Cresswell G. "Royal Air Force flight trials of positive pressure breathing." Proceedings of the RAeS Symposium on High G and High G Protection, October 1987.

Harding RM. "Human respiratory responses during high performance flight." Advisory Group for Aerospace Development and Research, AGARDograph 312, 1987.

Harding RM, Ernsting J, Harmer P and Tonkins WJ. "The laboratory assessment of the advanced oxygen system for the Harrier GR Mk5 aircraft." Abstracts of the 1986 Annual Scientific Meeting of the Aerospace Medical Association. Aviat Space Environ Med, 1986; 57: 512.

Harding RM. "Physiological problems of ascent to altitude." Int J Av Safety, 1985; 3: 242-245.

Harding RM. "Human problems of space travel." Spaceflight, 1985; 27: 254-256.

Harding RM. "Human respiratory responses during high performance flight." Abstracts of the 1985 Annual Scientific Meeting of the Aerospace Medical Association. Aviat Space Environ Med, 1985; 56: 483.

Harding RM. "In-flight respiratory responses in high performance aircraft." Preprints of the 54th Annual Scientific Meeting of the Aerospace Medical Association, 1983, 104-105.

A series of 19 articles on Aviation Medicine was commissioned by the British Medical Journal and published between April and August 1983. The collected articles were published in book form in November 1983, reprinted in 1985, and a revised second edition was published in November 1988. An extensively updated third edition was published in October 1993. Journal citations are as follows:

Harding RM and Mills FJ

"Problems of altitude I: Hypoxia and hyperventilation." 286: 1408-1410.

"Problems of altitude II: Decompression sickness and other effects of pressure changes." 286: 1498-1500.

"Function of the special senses in flight I: Vision and spatial disorientation." 286: 1728-1731.

"Function of the special senses in flight II: Motion sickness, and noise and communication." 286: 1808-1808.

“Is the crew fit to fly? I: Licensing requirements for aircrew.” 287: 114-116.

“Is the crew fit to fly? II: Specific medical considerations.” 287: 192-195.

“Medical aspects of airline operations I: Health and hygiene.” 286: 2041-2043.

“Medical aspects of airline operations II: Aircrew schedules and emergency considerations.” 287: 37-39.

“Special forms of flight I: Balloons, gliders and hang gliders.” 287: 277-278.

“Special forms of flight II: Helicopters.” 287: 346-349.

“Aviation medicine: a valediction.” 287: 543.

Mills FJ and Harding RM

“Acceleration I: Long duration acceleration.” 286: 1557-1559.

“Acceleration II: Short duration acceleration.” 286: 1630-1631.

“Medical emergencies in the air I: Incidence and legal aspects.” 286: 1311-1312.

“Medical emergencies in the air II: Equipment and prevention.” 286: 1204-1206.

“Fitness to travel by air I: Physiological considerations.” 286: 1269-1271.

“Fitness to travel by air II: Specific medical considerations.” 286: 1340-1341.

“Special forms of flight III: Supersonic transport.” 287: 411-412.

“Special forms of flight IV: Manned spacecraft.” 287: 478-482.

Closed Publications

Banks, RD, Harding, RM and Smith, HL. Injury Analysis of the Crew Members of STS-107 Space Shuttle Columbia. BRC, San Antonio, TX, NASA Contract (USRA Subaward #9930-275), 28 July 2006.

Harding RM. Armstrong Laboratory Sustained Acceleration Technical Area Plan, August 1990.

Harding RM, Brown GA, Gradwell DP and Lupa HT. "An evaluation of counterpressure garments by spirometric measurements of lung volume." RAF IAM Report No 669, 1989.

Harding RM. "USAFSAM Man-rating of the YF-22A life support system." Letter Report, October 1989.

Harding RM. "USAFSAM Man-rating of the YF-23A life support system." Letter Report, August 1989.

Harding RM. "Physiologic effects of positive pressure breathing." USAFSAM Position Paper, November 1988.

Harding RM. "Oxygen installations." Revision of Defence Standard 00-970, Volume 1, Chapter 718, 1987.

Harding RM. "I learnt about integration from that ..." Report of the 26th meeting of the Air Standardization Coordinating Committee's Working Party 61, November 1985; 4: 65.

Harding RM. "Procedures for calibration of in-flight data acquisition equipment." ASCC Air Standardization Agreement 61/41, 1985.

Harding RM. "Respiratory physiology during flight: a review." RAF IAM Report No 642, 1985.

Harding RM. RAF IAM Accident Investigation Report No 6/85 - Hawk T Mk1 XX293, 17 April 1985.

Harding RM and Barwood AJ. RAF IAM Accident Investigation Report No 5/85 - Jaguar GR1 XZ368, 1 April 1985.

Harding RM. "A comparison between the noise-attenuating properties of two flexible mask hoses and the standard oxygen mask hose used in Harrier aircraft." RAF IAM Aircrew Equipment Report No 507, 1984.

Harding RM. "The in-flight assessment of aircrew equipment assemblies for use by Tornado ADV flight test crew." RAF IAM Aircrew Equipment Group Report No 506, 1984.

Harding RM. "RAF medical officers in-flight incident guide and check list." 1983. [Coordinator]

Harding RM. "The in-flight study of respiratory variables: a report on the RAF IAM flight trial at RAF Brawdy." August and September 1983. RAF IAM Altitude Division Report No A19, 1983.

Harding RM. "An in-flight assessment of two visors for use with helmet-mounted displays." RAF IAM Altitude Division Report No A18, 1983.

Harding RM. "Oxygen equipment and assemblies." AP3456, Part 1, Section 2, Chapter 1, 1982.

Harding RM. "A standardization of the numerical conversion of liquid to gaseous oxygen." RAF IAM Altitude Division Report No A5, 1982.

Harding RM and Harrison R. "Assessment of an NBC hose assembly for use in Jaguar aircraft." RAF IAM Aircrew Equipment Group Report No 451, 1981.

Harding RM. "Hyperventilation." Air Clues, May 1981: 188.

Harding RM. "Hypoxia - another fuel crisis." Air Clues, Feb 1980: 60-61.

Formal Presentations

"Involvement of the RAF Institute of Aviation Medicine," Panel on "History of Research at Brooks Air Force Base, TX." 78th Annual Meeting of the Aerospace Medical Association, New Orleans, LA, May 14, 2007.

"Occupant Kinematics During Rollovers", American Bar Association Conference on Emerging Issues in Motor Vehicle Products Liability Litigation, Phoenix, AZ, March 31, 2005.

“Statistics of amusement ride deaths and injuries: why we are here.” Panel on “Aerospace Medicine in a non-traditional setting: the physiology and safety of amusement rides and racing.” 74th Annual Meeting of the Aerospace Medical Association, San Antonio, TX, May 2003.

“On Site Investigation: What Does the Biomechanics Expert Need to Know?” State Bar of Texas, Prosecuting or Defending a Trucking Accident Case, San Antonio, TX, September 2002.

“Injury Causation Analysis” New York Statewide Traffic Accident Reconstruction Society (NYSTARS) Conference, Yorktown Heights, NY, April 2002.

“Back to Basics: Fundamentals of automotive safety engineering and accident analysis”, with Ford-Corrigan, C. American Bar Association Conference on Emerging Issues in Motor Vehicle Product Liability Litigation, Phoenix, AZ, March 2002.

“Impact Biomechanics for the Health Care Professions” Pre-Conference Seminar. 44th Association for the Advancement of Automotive Medicine Annual Scientific Conference, Chicago, IL, October 2000.

“Products over the Pond: is US style litigation invading the UK?” American Bar Association 2000 Annual Meeting, London, England, July 2000.

Banks, RD and Harding, RM. Human Interaction with Deploying Air Bags. 71st Annual Meeting of the Aerospace Medical Association, Houston, TX, 2000.

“Effective retention, utilization and coordination of experts in a trucking case.” American Bar Association, Transportation Mega-Conference III, New Orleans, LA, May 1997.

“Understanding 'Whiplash': Analysis of Low Speed Rear-Impact Testing Using Human Test Subjects.” Society of Automotive Engineers, Inc., Low Speed Collision TOPTEC, Richmond, BC, Canada, August 1996.

“Aviation physiology issues in aircraft accident investigation.” Presentation to the seminar on medical aspects of aircraft accident investigation. Civil Aeromedical Institute, Oklahoma City, OK, June 1995.

“Is there a doctor on board?” Travel Medicine Symposium. Mid Staffordshire Post-Graduate Medical Centre, February 1994.

“Aviation Medicine.” Watford Post-Graduate Medical Centre meeting, September 1993.

“The physiology of positive pressure breathing for G protection.” Panel presentation to the 1993 Annual Scientific Meeting of the Aerospace Medical Association.

“Aviation Physiology.” St Mary’s Hospital Medical School, 3rd year medical students applied physiology course, December 1992.

“Aviation Medicine.” St George’s Hospital anaesthetic department meeting, July 1992.

“Manned Spaceflight.” Department of Air Warfare Senior Officers Course, RAF Cranwell, June 1992.

“Medical Selection of Space Travellers.” Presentation to the 1991 International Space Development Conference, San Antonio TX, May 1991.

“The Role of the RAF Institute of Aviation Medicine.” Presentation to the Alamo Chapter of the SAFE Organization, Brooks AFB, San Antonio TX, April 1990.

“Pressure Breathing in Modern Fighter Aircraft.” Presentation to Rotary Club of San Antonio West, Lackland AFB, San Antonio TX, March 1990.

“The Place and Problems of Pressure Breathing in Modern Fighter Aircraft.” Sixth Annual NATO Flight Surgeons’ Conference, Ramstein Air Base, FRG, March 1990.

“Physiologic Effects of Positive Pressure Breathing.” Panel Session on Research and Development Needs in Aircrew Protection Technology. Annual SAFE Symposium, New Orleans LA, December 1989.

“Advanced Oxygen Systems.” Presentation to the Air Force Test and Evaluation Center (AFOTEC), Kirtland AFB, Albuquerque NM, October 1989.

“Royal Air Force Flight Trials of PBG.” Third Annual Interservice/Industry Acceleration Colloquium. Armstrong Aerospace Medical Research Laboratory, Wright-Patterson AFB, Dayton OH, May 89.

“Historic Background of PPB.” Third Annual Interservice/Industry Acceleration Colloquium. Armstrong Aerospace Medical Research Laboratory, Wright-Patterson AFB, Dayton OH, May 89.

“RAF flight trials of positive pressure breathing.” Panel Session on Breathing Systems and Acceleration Protection. Annual SAFE Symposium, Las Vegas NV, December 1988.

“Medical support for manned spaceflight.” RAeS Symposium on Manned Spaceflight, London, March 1988.

“Aviation medicine in the Royal Air Force.” Leeds University Medical School, March 1988.

“Manned spaceflight.” Department of Air Warfare Senior Officers Course, RAF Cranwell, February & June 1988.

“Recent advances in aircrew breathing systems.” Meeting of the United Services Section of the Royal Society of Medicine, London, December 1987.

“Fit to fly.” VIth Annual Meeting of Senior Registrars in Chest Medicine, Cambridge, September 1987.

“Aviation medicine.” Redhill Hospital British Medical Association meeting, February 1987.

“Aviation medicine.” St Bartholomew’s Hospital post-graduate medical meeting, February 1987.

“Medical problems of manned spaceflight.” RAF Cranwell Branch of the RAeS, January 1987.

“Respiratory aspects of aviation medicine.” Scottish Thoracic Society’s winter meeting, Glasgow, November 1986.

“In-flight incidents.” AGARD Aviation Medicine Refresher Course for NATO Flight Surgeons. Farnborough, October 1986.

“Oxygen systems of NATO fast jet aircraft.” AGARD Aviation Medicine Refresher Course for NATO Flight Surgeons. Farnborough, October 1986.

“Cardiovascular aspects of manned flight.” The London Chest Hospital post-graduate medical meeting, August 1986.

“Aviation medicine.” Royal Berkshire Hospital post-graduate medical meeting, May 1986.

“Respiratory physiology in flight.” University of Nottingham Physiology Department post-graduate meeting, March 1986.

“Aviation medicine.” RAF Hospital Ely post-graduate medical meeting, September 1985.

“Aviation medicine.” Chase Farm post-graduate medical meeting, March 1985.

“Human physiological and mental adaptability to space.” British Interplanetary Society Biannual Meeting, Brighton, November 1984.

“Aviation medicine - the safe passage of an aircraft.” Mackenzie Lecture, May 1984.