

Core skills

Construction materials and elements
Expert witness
Expert reporting
Forensic investigations
Materials assessments
Geomaterials
Construction in aggressive conditions
Research appraisal
Technical reporting

Details

Qualifications

BSc (Hons) Geology
PhD: Chemical instabilities of concrete
Chartered Engineer
Chartered Geologist

Memberships (full list at end of CV)

Fellow of Institute of Materials, Minerals and Mining
Fellow of Geological Society, London (Engineering Group)
Member of Institute of Concrete Technology
Chartered Quality Professional - Member (MCQI CQP)
Member of Expert Witness Institute

Other

Geological Society Engineering Group Award 2003.
Coke Medal, 2013
CSCS: Managers and Professionals
UK Register of Expert Witnesses: Edition 27, 2014/2015, No 1075 (vetting renewed 2011)

PROFILE

Ian is a director within RSK's Materials and Structures division (formerly part of STATS Limited). He has particular responsibility for materials consultancy and expert witness services, including a panel of specialist consultants. He was previously with Sandberg Consultancy LLP.

Most advisory work with modern materials is prepared for actual or potential use as evidence in litigation or arbitration, and Ian has been engaged as an expert witness for numerous, mainly civil and some criminal, cases variously in the UK, Europe and overseas. He has variously represented both claimants (plaintiffs) and defendants, participated in innumerable experts' meetings and given evidence in Court (and the equivalent) on frequent occasions, including 'hot tubbing'. Ian is familiar with the Civil Procedure Rules (CPR 35) and has attended single joint expert training.

From 1964 to 1972, Ian participated in archaeological excavations and, in the last few of those years, was an assistant director on a major Roman villa site. He subsequently analysed the Roman concretes and mortars from the site and this marked the beginning of a continuing interest and expertise in historic and traditional building materials. In more recent times, he has specialised in applying modern investigation techniques to these materials.

Ian represents RSK on several authoritative working parties and professional committees, in some cases serving as a committee officer. As well as publishing a number of technical papers, book reviews and substantive contributions to edited books, he has co-authored a book on concrete petrography (a second edition was published in 2015) and, among other things, is currently involved as co-editor and chapter author with a revised edition of a book on the alkali-aggregate reaction (due in 2016).

Although fully involved in a comprehensive range of construction and building materials, including their properties, performance, specification and installation, Ian has also developed a number of specialities, including

- aggregate and fill (natural and synthetic): quality and suitability
- alkali-aggregate reaction in concretes
- building stones: properties, performance and durability
- cements and concretes: durability and performance
- concrete materials and construction in hot desert conditions
- geomaterials: properties, performance and application
- high-alumina cement concrete: conversion and chemical alteration
- historic and traditional building materials
- mortars, floor screeds, plasters and renders
- roofing, flooring and wall cladding materials and performance.



Key project experience

EXPERT WITNESS including giving oral evidence and technical investigation and/or assessment (case titles and dates approximate)

- 1984–1987: ASR in Royal Devon and Exeter Hospital, Devon – expert for defendant: large and formal arbitration in court style in London. Settled before award
- 1987: Structural failure in Great Ormond Street Hospital in London (cardiac wing) – specialist expert for plaintiff on relative age of concrete cracking, in court. Went to judgement in plaintiff's favour. Dr Sims' microscopical images from the case are displayed in the Technology and Construction Court (TCC) in London and were presented after the case to the late Judge John Newey QC.
- 1992: Failure of blocks caused by unsound clinker (cinders) aggregate – expert for defendant, in court in Belfast, Northern Ireland. Went to judgement in defendant's favour. Defendant's factory had a coal-burning power station, which produced the clinker (cinders) that was sold to a concrete block-maker (plaintiff). Judge was J Nicholson (judgment available)
- 2001: College in the East Midlands of England – expert for claimant in respect of render and paving issues (also roofing, but that part of the dispute was settled prior to court), at TCC in London. Went to judgement in claimant's favour
- 2004: Plasterwork failures caused by unsound AAC blocks in Oxford – expert for claimant, at TCC in London. Outcome not recalled
- 2005: Excessive cracking and joint-opening of concrete factory floor in Dungannon, Northern Ireland, caused by shrinkable aggregates – expert for one defendant (who had used ready-mixed concrete), in court in Belfast, but settled prior to Dr Sims' evidence
- 2005+: Alleged poor quality of materials and workmanship regarding a stone floor, near London – expert for defendant, in county court in Luton. Went to non-technical judgement in claimant's favour; floor at large house in Broxbourne, instructed by defendant
- 2007: Premature deterioration of artificial roofing slates on building in Birmingham caused by use of an inferior product, in contrast to the apparently similar product specified – expert for claimant, arbitration in court style in Birmingham. Award in favour of claimant; *Birmingham College of Food v Interserve*
- 2008+: Major case of structural damage allegedly caused by pyrite heave within unbound rock fill beneath concrete floors in Dublin area of Ireland – part of the defendant's expert team, in Dublin commercial court, but settled after 100+ days in court and prior to Dr Sims' (or any other defence witness) evidence
- 2009: Another case of structural damage allegedly caused by pyrite heave within unbound rock fill beneath concrete floor in a major building in Dublin – part of the defendant's expert team, in Dublin commercial court. Went to judgement in claimant's favour
- 2010: Murder case in Milton Keynes, in which the victim's dismembered body parts were found encased in a concrete 'grave' – specialist expert for the defendant in respect of the concrete materials, at crown court in Reading. Defendant found guilty, but retained Dr Sims' services for planned appeal
- 2012: Public enquiry concerning the desired extension of a specialist sand pit in Essex – expert for the appellant, at public enquiry in Chelmsford. Went to an inspector's non-technical decision against appellant; instructed by appellant
- 2013: Failure of new plasterwork in a Victorian terraced townhouse in Notting Hill, London, caused by improper work on behalf of the defendant (a developer) in the adjoining property – expert for the claimant (the owner/occupier), county court, London. Went to judgement in claimant's favour. Dr Sims participated in 'hot tubbing' in court
- 2014: Investigation overview and expert interpretation, concrete diaphragm wall issue, major site, near London. Dr Sims participated in the attempted mediation. Case not yet resolved
- 2009–2015: Expert investigation and opinion, proprietary insulated cladding renovation system, Glasgow. Mediation (successful)
- 2014–present: Investigation overview and expert interpretation, dispute relating to grout at leisure facility. Attempted mediation. Case not yet resolved

EXPERT WITNESS including technical investigation and/or assessment (no oral evidence)

- Forensic re-examination of plaster exhibit for defendant in *R v Harvey*, 1979, London
- Inspection of cut exposures to demonstrate misleading borehole evidence in site investigation, 1980, M20, Kent
- Identification and quantification of contaminant debris in ship's LNG tanks and pipes, 1980, UAE
- Materials investigation of a gunite roof failure, swimming pool, 1983, south coast of England
- Unsoundness of new road aggregate material, with quarry evaluation, 1985–8, Scotland
- Materials investigation into ground heave caused by steel slag fill, Redcar
- Quality and compliance of sandstone fill, including quarry evaluation, North Scotland
- Cause of concrete cracking wrongly attributed to ASR, bridge, Eastern France
- Quality of terrazzo floors and rendered walls, hospital, Karachi, Pakistan
- Investigation into deterioration of black marble cladding, shop interior, 1989, Bahrain
- Quality and compliance of sand supplied for a failed floor screed, Liverpool
- Investigation into screed and surfacing failures, kitchen floor, 1994, Stoke Mandeville Hospital
- Colour variations in special-mix external rendering of historic house, Surrey
- Roofing slate and brickwork mortar deficiencies, development, 1994–5, Central London
- Concreting defects wrongly attributed to ASR, Dunkerque, France
- Forensic re-examination of glass debris for defendant in *R v Dunaway*, 1994, England
- Materials investigation into floor screed defects, including site, hospital, 1994, Portsmouth
- Scene of crime visit and forensic examination of soil/debris for police, 'wheelie-bin' murder case, 1995, West Midlands
- Advice in a dispute over liability for mundic concrete deterioration, 1995, Cornwall
- Appraisal of materials and workmanship on a slate roof, shopping complex, London
- Investigation into fibre-cement roofing failure, factory building, 1996 and 1997, Yorkshire
- Investigation into linoleum and vinyl floor surfacing failure, hospital, Oxford, England
- Investigation into ceramic wall tile failure, prison, Northern England
- Investigation into insulated fibre-cement roofing failure, farm-factory, Lincolnshire
- Involvement of reclaimed clinker ash aggregate in concrete block failures, Kent
- Defective slate roofs, Essex and Wales
- Investigation into defects in industrial floors containing steel slag, UK and Europe
- Single joint expert on materials aspects of a plastering failure, East Midlands
- Assessment of causes of soiling of historic masonry, cathedral, London
- Investigation of cement-sand bedding failure, stone floor, shopping centre, London
- Review and deciding advice regarding render failure, children's hospital, Surrey
- Advice regarding alleged foamed concrete failure, Glasgow
- Expert review of quality and performance of gypsum plaster materials, UK
- Investigation into deterioration of concrete hardstanding, Newcastle
- Assessment of stone flooring and paving refurbishment, Hampshire
- Determination of steel slag fill stability, supermarkets, Yorkshire
- Advice on serviceability of new hospital flooring, East Midlands, UK
- Expert opinion concerning cement quality, Libya
- Investigation into stone tiling failures, various properties, Greater London
- Advice and investigation into ASR risks from unintended high-alkali cement, various UK
- Expert opinion and investigation regarding major shop floor, High Wycombe
- Expert opinion and guidance regarding refurbished historic building, Newcastle
- Expert advice on liability for aggregates failure in national pathway, Marston Vale
- Expert opinion regarding suitability of 'equestrian sand' for manège, Essex
- Independent expert advice to loss adjusters, factory floor, Netherlands

- Expert investigation and opinion, defective concrete, Newport, South Wales
- Expert investigation and advice, quality and deterioration of natural slate roof, Whitehaven
- Expert investigation into failure of proprietary grout, power station, Bahamas
- Expert investigation and opinion, brickwork jointing mortars, new house, Essex
- Expert assessment, inspection and advice, glass factory floor, Norwich
- Expert inspection and advice, stone masonry and re-pointing, clock tower, Lancaster
- Investigation into deterioration of asphalt taxiway shoulders, airport, Arabian Gulf
- Advice and assessment, subbase aggregate quality and compliance, Tyne and Wear, UK
- Critical assessment of factors, suspended flooring, major development, Derby
- Assessment and advice, role of building work in blocking drainage, Eaton Mews, London
- Inspection and advice, premature failure of replica traditional clay roofing tiles, Suffolk, UK
- Investigation and opinion, disputed compliance of subbase, Tyneside, UK
- Forensic advice to police on flooring evidence, suspected abduction or murder, London
- Investigation and advice, floor and structure defects, fire station, Berkshire, UK
- Single-joint expert appraisal, external stone paving, Oxfordshire, UK
- Expert investigation into proprietary rendering system failure, Battersea, London
- Investigation and opinion regarding an allegation of pyrite damage in plasterwork, Ireland
- Inspection and investigation, floor screed defects, large school, York, UK
- Assessment and opinion, police forensic evidence on concrete, alleged murder, Essex, UK
- Appraisal and opinions for insurance dispute purposes, demolished building, Yorkshire, UK
- Investigation of wall damage caused by unsound concrete blocks, South London

INVESTIGATIONS (excluding those leading to an expert report)

- Investigation into failure of ceramic tile external cladding, Central London
- Compliance of abrasive rock for road aggregate, with quarry evaluation, Kenya
- Investigation into brickwork deterioration, large housing estate, York
- Cause and resolution of surface failures in under-compacted screed, store, Chelmsford
- Premature deterioration of York Stone paving, Surrey
- Asphalt surface defects caused by oxidation of pyritic contaminants, Stansted Airport
- Deterioration and loss of pigmentation of concrete roofing tiles
- Materials investigation into failed external marble cladding, Jordan
- Investigation into deformation and discoloration of artificial roofing slates
- Investigation into screed and surfacing failures, printworks floor, East London
- Investigation into floor surface failure, sweet factory, Norfolk
- Urgent investigation into potential durability of newly placed concrete, Saudi Arabia
- Investigation into major materials failure of asphaltic airfield runways, UK
- Investigation into durability potential of defective concrete, major sea wall, Caribbean
- Investigation into causes of damp penetration, refurbished basement library, London
- Investigation into apparent concrete block deterioration, Ireland
- Investigation into stone floor slip hazards, shopping mall, Warrington
- Investigation into weathering of stone cladding and damage to windows, City of London
- Investigation into causation of cracking of large concrete silos, Saudi Arabia
- Investigation into hospital floor failures associated with groundwater, Midlands
- Advice and investigation into damage to stone flooring, shopping centre, Derby
- Investigation into failure of resin-based floor surface, Roundhouse, London
- Investigation and advice about tile cladding to concrete building, Hackney, London
- Inspection and investigation into agglomerate floor tiling failures, Milton Keynes and Luton
- Investigation and advice, floor screed defects, hospital, Colchester

- Investigation and advice regarding blistering of floor finish, hospital, Morpeth
- Investigation and advice, concrete deterioration, coal-fired power station, Aberthaw
- Emergency investigation into concrete cracking, wind turbine bases, Europe
- Investigation and advice, high-alumina-concrete cladding, Strand, London
- Overview, condition investigation into AAR-affected dam concrete, Wales
- Study and investigation into degradation of concrete hospital foundations, South London

ASSESSMENTS AND ADVICE

- On-site advice on concrete and road aggregate suitability, Iraq
- Fieldwork and advice on the reactivity of aggregates for concrete, Aden, Yemen
- Examinations and advice on concrete and aggregate durability, GMMR project, Libya
- Assessment of quality of stone for new mansion, including on-site inspection, Suffolk
- Suitability of sandstone for dimension stone production, including quarry, West Yorkshire
- Site appraisal of aggregates and alleged ASR in concrete, Netherlands Antilles
- Assessment of Chinese aggregate for Ting Kau Bridge, HK, with quarry evaluation
- Advice on sandstone soundness and other properties, stone masonry, Central London
- Suitability of Swedish aggregates for UK concrete, asphalt and unbound applications
- Advice on specification and stone selection for floors, major shopping centre, Kent
- Advice on stone performance for masonry, paving and floors, major museum, London
- Advice on stone paving and various flooring materials, prestige building, London
- Advice on slip resistance issues, aluminium decking, prestige footbridge, London
- Advice on stone flooring materials and design, shopping centre, Madrid
- Assessment of condition of warped marble external cladding, Midlands
- Investigation and advice on rendering materials, stately home, Sussex
- Appraisals of shopping centres for floor over-tiling feasibility, various UK
- Assessment of AAR risk with new concrete structures, various UK
- Advice on suitability and condition of magnesite flooring, Denmark
- Advice on stone flooring for new shopping development, Oxford
- Consultancy on stone flooring and cladding, Spitalfields redevelopment, London
- Advice on materials and their installation, shopping centre, Livingston, Scotland
- Independent assistance to RICS (London) regarding update of Mundic guidance note
- Independent expert opinion on causation and remediation, DEF in concrete, Plymouth
- Expert advice and guidance regarding hospital floor failure and repair, Swindon
- Advice on causation of discoloration of stone water feature, Reading
- Inspection and advice regarding deformation of composite panels, Gainsborough
- Assessment and advice in respect of floor finish cracking, Arnolfini Gallery, Bristol
- Independent expert opinion on foamed concrete for stabilising stone mine, Bath
- Assessment and guidance on stone cleaning, bank headquarters, City of London
- Independent assessment and guidance on recycled aggregate compliance, Isle of Grain
- Assessment and advice regarding stone flooring, shopping mall, Leicester
- Investigation and advice regarding floor condition and repair, Selfridges, Birmingham
- Independent assessment and advice, aggregate reactivity potential, Channel Islands
- Independent investigation and advice, DEF in concrete, road/bridges project, Sri Lanka
- Independent advice and assistance with revised mundic guidance, RICS, London
- Contract for advice on construction materials, new nuclear power stations, UK
- Assist insurers in drafting documentation on pyrite, Ireland
- Specialist advice and guidance, cement and concrete for hot desert pipeline, Oman
- Advice and guidance, stone floors, shopping centres, Beijing and Wuxi, China

- Assessment of cause and responsibility, concrete floor defects, events arena, London
- Evaluation of quality and compliance of reclaimed fine aggregate, Oxfordshire
- Inspection and advice to residents association, stone repair failure, North London
- Assessment and advice, painted plaster failure, police custody suite, Devon
- Insurance appraisal of investigations by others, floor heave, Midlands, UK
- Specialist advice on an historic reinforced concrete structure, Sussex coast, UK
- Inspection and opinion, alumina-lined silica mill, Stoke-on-Trent, UK
- Field and laboratory assessment of specially processed local aggregates, Arabian Gulf

RESEARCH AND DEVELOPMENT

- Development of dye-staining test for cracking granite cladding panels, Central London
- Research programme into potential of various natural materials as concrete additions
- Laboratory investigation into integrity of grout piles, London
- Abrasion resistance advice and evaluation, concrete drainage tunnel, London area
- Assessment of limestone source for potential quality powder fill, Ireland

Publications

BOOKS

Sims, I. (1992), 'Alkali-silica reaction—UK experience', in R. N. Swamy (ed.), *The Alkali-Silica Reaction in Concrete*, Volume 6 of the Concrete Technology and Design Series (Glasgow: Blackie and Son Ltd) (currently working as co-editor and chapter author on revised 2nd edition, publication expected 2016).

A. B. Poole, D. A. St John and Sims, I. (1998), *Concrete Petrography: A Handbook of investigative techniques*, 1st edn (London: Edward Arnold).

A. B. Poole and Sims, I. (2016), *Concrete Petrography: A Handbook of investigative techniques*, 2nd edn (London: CRC Press).

Sims I. and Brown, B. V. (1998), 'Concrete Aggregates', in P. C. Hewlett (ed.), *Lea's Chemistry of Cement And Concrete*, 4th edn (London: Edward Arnold) (currently working with John Lay (Cemex) and James Ferrari (RSK) as new co-authors for revised 5th edition, publication expected 2016).

Poole, A. and Sims, I. (2003), 'Geology, aggregates and classification', in John Newman and Ban Seng Choo (eds), *Advanced Concrete Technology: Constituent Materials* (Oxford: Elsevier/Butterworth-Heinemann).

Poole, A. and Sims, I. (2003), 'Alkali-aggregate reactivity', in John Newman and Ban Seng Choo (eds), *Advanced Concrete Technology: Concrete Properties* (Oxford: Elsevier/Butterworth-Heinemann).

Reeves, G. M., Sims, I. and Cripps, J. C. (2006), *Clay Materials Used In Construction*, Geological Society Engineering Geology Special Publication No. 21 (London: Geological Society).

Sims, I. (2014), 'Analysis of concrete and mortar samples', in David E Johnston and Jonathan Dicks (eds) *Sparsholt Roman villa, Hampshire: Excavations by David E Johnston*, Hampshire Field Club and Archaeological Society Monograph 11, in cooperation with English Heritage.

Brindle, I., Santo, P. and Sims, I. (2015), 'The mundic problem', Royal Institution of Chartered Surveyors (RICS) Guidance Note, 3rd edition, RICS, London.

Nixon, P. J. and Sims, I. (eds) (2015), 'RILEM Recommendations for the Prevention of Damage by Alkali-Aggregate Reactions in New Concrete Structures', *State-of-the-Art Report of the RILEM Technical Committee 219-ACS*, Volume 17 (Dordrecht: Springer).

Fernandes, I., Anjos Ribeiro, M., Broekmans, M. A. T. M. and Sims, I. (eds) (2015), 'Petrographic Atlas: Characterisation of Aggregates Regarding Potential Reactivity to Alkalis', *RILEM TC 219-ACS Recommended Guidance AAR-1.2, for Use with the RILEM AAR-1.1 Petrographic Examination Method* (Dordrecht: Springer).

PUBLISHED PAPERS

Sims, I. (1975), 'A provisional report on the examination of concrete structures at Waterford, Eire', *The Geological Journal of Queen Mary College*, 24.

Sims, I. (2014), 'Analysis of concrete and mortar samples from Sparsholt Roman Villa, near Winchester, Hampshire'. Originally submitted for inclusion in main excavation report to the Department of the Environment, Ancient Monuments Laboratory, July 1975. Finally published as Chapter 13 in *Hampshire Field Club Monograph 11*, 2014, see books section for details.

Sims, I. (1976), 'The mineralogy of collapsing school roofs', *The Geological Journal of QMC*, 25.

Sims, I. and Poole, A. B. (1978), 'Potentially alkali-reactive aggregates from the Middle East', in Proceedings of the 4th International Conference on the effects of alkalis in cement and concrete, Purdue University, Lafayette, IN, USA, June.

Sims, I. and Poole, A. B. (1980), 'Potentially alkali-reactive aggregates from the Middle East', *Concrete*, 14/5: 27–30.

Sims, I. (1980), 'Some practical aspects of alkali-aggregate reactivity. Contribution to the discussion, "Applied Petrology: The Stability of Concrete Aggregates"', *Quarterly Journal of Engineering Geology*, September.

Sims, I. (1981), 'The application and reliability of standard testing procedures for potential alkali-reactivity', paper given at 5th International Conference on Alkali-Aggregate Reaction in Concrete, Cape Town, Proceedings, NBRI, Paper S252/13, Pretoria, South Africa.

Sims, I. (1981), 'Cape Town Conference Highlights Practical Problems (Report on the 5th International Conference on Alkali-Aggregate Reaction in Concrete, Cape Town)', *Concrete*, July.

Sims, I. (1981), 'Application of standard testing procedures for alkali-reactivity: Part 1', *Concrete*, October; 'Part 2', *Concrete*, November.

Sims, I. (1983), 'The influence of ground granulated blastfurnace slag on the alkali-reactivity of flint aggregate concrete in the United Kingdom', paper given at 6th International Conference: Alkalis in Concrete – Research and Practice, Copenhagen, Denmark, June.

Sims, I. and Sotiropoulos, P. (1983), 'Standard alkali-reactivity testing of carbonate rocks from the Middle East and North Africa', paper given at 6th International Conference: Alkalis in Concrete – Research and Practice', Copenhagen, Denmark, June.

Sims, I. and Bladon, S. (1984), 'An exploratory assessment of the alkali-reactivity potential of sintered pfa in concrete', paper given at Ash Tech '84, Second International Conference on Ash Technology and Marketing, London, September.

Sims, I., Frearson, J. P. H. and Uren, J. M. (1986), 'Development of test procedures to determine the glass content of ground granulated blastfurnace slag', paper given at Second International Conference on the use of Fly Ash, Silica Fume, Slag and Natural Pozzolans in Concrete, Madrid, 21–25 April.

Sims, I. (1986), 'Sand, gravel and crushed rock aggregates for construction purposes. Summary of the Geological Society Engineering Group Working Party Report', *Quarterly Journal of Engineering Geology*, 19: 325–338.

Sims, I. (1987), 'The importance of petrography in the ASR assessment of aggregates and existing concretes', paper given at 7th International Conference in Alkali Aggregate Reaction, Ottawa, Canada, 18–22 August; *Proceedings* (New Jersey: Noyes Publications).

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- Sims, I. (1990), 'Enigma forces Europe together', report on a seminar on AAR – The European Dimension, held at QMW, London, September. Speakers corner in *New Civil Engineer*, 11 October: 22.
- Sims, I. (1991), 'Methods for the assessment of HAC concrete structures' [in English and Catalan], in *Proceedings of a Meeting, 'El Ciment Aluminós i els Seus Prefabricats - Característiques, Problemàtica, Detecció, Diagnosi i Actuacions'*, organised by Col.legi d'Aparelladors i Arquitectes Tècnics de Barcelona, Spain, 26 April.
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- Sims, I. (1992), 'The assessment of concrete for ASR', *Concrete* (The Concrete Society Journal), 26/2: 42–46.
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'Quality and durability of stone for construction', one-day conference at Geological Society of London, 'Geological Materials in Construction - Developments in Geomaterials Research and Practice', 13 November 1989.

'Revision of the Aggregates Working Party Report', Joint Meeting of the Geological Society Engineering Group with the Institution of Highways and Transportation, 'The Economic Utilisation of Aggregates in Highways and Transportation', at Geological Society, London, 9 January 1990.

'Quantifying Microscopical examinations of concrete for AAR and other durability aspects', G. M. Idorn Durability Symposium, ACI Annual Convention, Toronto, Canada, 18–23 March 1990.

'Is it? Has it? Will it? The diagnosis and prognosis of ASR in concrete', seminar on 'Concrete and Alkali-Silica Reaction', Sheffield University, 5–6 April 1990.

'Stone, stones and stone-like', A talk on geomaterials to the Open University Geological Society (East Anglian Branch), Anglian Higher Education College, Cambridge, 31 August 1990.

'The technical implications of HAC concrete deterioration' [incl. circulated notes], ITEC meeting, 'El Ciment Aluminós', at Construmat 91, Barcelona, Spain, 10 April 1991.

'The geology of concrete', Cambridgeshire Geology Club, 22 April 1991.

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'The assessment of concrete for ASR and carbonation', Institute of Corrosion meeting, 'Corrosion and Deterioration in Concrete', Bristol, 13 September 1991.

'Factors controlling ASR and methods of prevention in the UK', Ciments Français meeting, 'Le Point sur l'Alcali-réaction dans les Bétons', Guerville, Paris, France, 22 October 1991.

'Quality and durability of stone for construction', MSc Geomaterials course, Geomaterials Unit, Queen Mary and Westfield College, London University, 30 October 1991.

'Stone, Stones and Stone-like', Leicester Literary & Philosophical Society (Geology section), Leicestershire Museum, 6 November 1991, and the Geologists' Association (Essex Group), Billericay, Essex, 13 November 1991.

'Petrography in the AAR assessment of a prospective source of aggregate for concrete', Extractive Industry Geology 92, Leicester University, 13 April 1992.

'Permanent answer or temporary expedient? Seminar: HAC-reassessing its future, World of Concrete Europe 92, Transport Research Laboratory, Crowthorne, 7 October 1992.

'Alkali-silica reaction and its significance/Minimising the risk of ASR damage/Appraisal of ASR-affected structures', Standing Committee on Concrete Technology, Annual Seminar: Alkali-Silica Reaction, Hong Kong, twice, 8 and 9 December 1992.

'Testing for mundic', Building Research Establishment Problem Tutorial, Redruth, Cornwall, 30 March 1993.

'Stone testing - the use and interpretation of test methods for natural stone: the Consultant's view', Building Research Establishment, Watford, 22 June 1993.

'Alkali-aggregate reactivity: UK experience', presentation to Arena, Paris, 28 June 1993.

'Stone, Stones and Stone-like', Kent Geologists' Group, Maidstone, 21 September 1993.

'Durability assessment of stone', Geological Society Engineering Group Meeting: Geological aspects of the durability and performance of construction materials, London, 7 December 1993.

'Sodium sulphate crystallisation test', Stone Federation Meeting, 14 April 1994.

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'Carpets, curtains and roof slates - Assessing thin stone', The Natural Stone Show, London, 7 March 1996.

'Phantom, opportunistic, historical and real AAR - Getting diagnosis right', 10th International Conference on Alkali-Aggregate Reaction in Concrete, Melbourne, Australia, August 1996.

'Report of TC-106 "Alkali-Aggregate Reaction" - Testing aggregates for alkali-reactivity', RILEM 50th General Council Meeting, BRE, 26 September 1996 (jointly with P J Nixon).

'Geology in the 1970s', Geology Reunion, Queen Mary & Westfield College, London, September 1996.

'Geology & aggregate classification, and Alkali-aggregate reactivity', two lectures to the Advanced Concrete Technology (ACT) course, University of Nottingham, 3 September 1998.

'Laboratory procedures for diagnosing thaumasite formation', STATS 25th Anniversary Seminar, 'Recognising Thaumasite, the diagnosis of an unusual form of sulfate attack on concrete', University of Hertfordshire, Hatfield, 9 September 1998.

'Modern uses of stone', Cambridgeshire Geology Club, Parkside Community College, Cambridge, 8 March 1999.

'Confronting the challenges of modern stone usage', Technical Conference on Designing with Stone and Ceramics, London, 18 May 1999.

'Geology & aggregate classification, and Alkali-aggregate reactivity', two lectures to the Advanced Concrete Technology (ACT) course, University of Nottingham, 14 September 1999.

'Recognising thaumasite', meeting on Thaumasite - a form of below-ground sulfate attack that can seriously damage your structure, Concrete Society, Chilterns Club, Hatfield, 3 November 1999.

'Common, uncommon and rare but jolly interesting defects', RICS (Devon & Cornwall Branch) meeting on Defective Concrete, St Mellion, Cornwall, 16 February 2000.

'Forensic geomaterials', twice, Sedgwick Club, University of Cambridge, 22 February 2000 and Geomaterials MSc group, Greenwich University (Chatham), 7 March 2000.

'Ancient problems, modern answers', afternoon seminar on Historic Building Materials, University of Hertfordshire, Hatfield, 30 March 2000.

'Alkali-reactivity - An integrated universal scheme for assessing aggregates - The practical conclusion of RILEM TC 106-AAR', 54th RILEM Week: General Conference of RILEM TCs' Chairmen, UNESCO, Paris, France, 12 September 2000.

'International measures for minimising ASR damage with new concrete', overseas guest speaker at afternoon seminar, TNO, Delft, Netherlands, 31 October 2000.

'Forensic geomaterials', Geologists' Association (Essex Group), Billericay, 28 February 2001.

'Specialist role of the geomaterials scientist', The John Glanville Afternoon Seminar: The Expert Witness in Construction, The Geological Society, London. 3 October 2001.

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'Concrete aggregate instability', one-day seminar: Aggregates: Vital Materials in a Changing World. Part of: The Institute of Materials, Minerals and Mining, Ceramic Industry Division Conference, Keele University, Stoke-on-Trent, 29 April 2004.

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'Action of chlorides in concrete and corrosion of reinforcement', Workshop 1, 8th International Concrete Conference, Bahrain, 25 November 2006.

'Selection, storage and use of materials in concrete', Workshop 1, 8th International Concrete Conference, Bahrain, 25 November 2006.

'Selection of materials for concrete in a hot and aggressive climate', keynote lecture, 8th International Concrete Conference, Bahrain, 28 November 2006.

'Prevention of damaging AAR in dam structures', Expanding Concrete Dams Workshop, HYDRO 2007, 'New Approaches for a New Era', ICOLD, Granada, Spain, 19 October 2007.

'Technical assessment for stone restoration', CPT/SCI one-day Conference, Our Built Heritage, the practicalities of maintenance and conservation, London, 15 November 2007.

'Assessing concrete and steel deterioration', STATS seminar, 'Recycling Foundations', Hatfield, 29 April 2008.

'Role of petrography in concrete investigation', Institution of Structural Engineers, North Thames Branch, St Albans, 26 June 2008.

'Building Materials – Avoiding pitfalls and disputes', talk to Essex Geologists' Association, 1 October 2008.

'Materials in Construction - Fitness for purpose', STATS seminar (Experts in Construction), IoD, London, 28 November 2008.

'Management of AAR-affected structures: analysis performance and prediction', lecture on ASR in dams, ICOLD course, Paris, 15 September 2009.

'Management of AAR-affected structures: analysis performance and prediction', talk on AAR update, Applied Petrography Group, RSK, Hemel Hempstead, 23 June 2010.

'Geomaterials: Highlights of a developing concept', at A History of Applied Geology, Geological Society (History of Geology & Engineering Geology Groups), London, 16–17 November 2010 (talk 17 November 2010).

'Concrete dams subjected to AAR: Diagnosis, modelling and rehabilitation, physical & chemical features of AAR – RILEM experience & recommendations', ASR Course, ICOLD Conference, Lisbon, 14 February 2011.

'Recycled materials in construction', RSK Development Industry seminar roadshow: 5 November 2013 (Haydock, Cheshire), 7 November 2013 (Wetherby, Yorkshire), 12 November 2013 (Hemel Hempstead, Hertfordshire), 14 November 2013 (Coventry), 21 November 2013 (Glasgow), 27 November 2013 (Bristol) and 24 January 2014 (Gilmoor, Liverpool).

TC 219-ACS Meetings. Presentation to Final Meeting of RILEM TC 219-ACS on 14 February 2014, at Smart Minerals GmbH in Vienna, Austria.

'Memories of the dig, 1965 to 1972', presentation at launch of Sparsholt Villa Monograph, 26 April 2014, The Stripe, Winchester University.

'RILEM history of ASR', combined meeting of RILEM 258-AAA and Canadian Standards Associates (CSA), Toronto University, Toronto, Canada, 24 September 2015.

COMMITTEES AND WORKING PARTIES

British Standards Institution (BSI)

BSI Working Group, B502/6 - WG10, Methods of testing the alkali-reactivity of UK aggregates (Member). Work completed.

BSI Sub-Committee, CAB/3/6, Methods of testing curing membranes (Member). Work completed.

BSI Sub-Committee, CAB/1/4, Working Group, Methods of determining the glass content of ground granulated blastfurnace slag (Member). Work completed.

BSI Sub-Committee B502/2, Aggregates for Concrete (Member). Convenor of Sub-Committee on Guidance on the Interpretation of Petrographical Examinations for ASR (now BS 7943:1999). Member of the Sub-Committee on 'Mundic' aggregates.

BSI Working Group, B502/6 - WG3, Petrographical Examination of Aggregates (Member). Author of basic draft of method. Work completed.

BSI, Committee B/502, Aggregates. Invited/co-opted member from 2005 to 2014. Chairman from 2014 to date.

Building Research Establishment (BRE)

BRE Working Party, endorsed by BSI B517/1, Alternative methods to avoid ASR, from May 1999 to publication of BRE IP1/02, January 2002.

Concrete Society and British Cement Association (BCA - formerly CandCA)

Working Party, Alkali-Aggregate Reaction - Specifications. Initially the 'Hawkins Working Party', now affiliated to the Concrete Society (Member). One-time convenor of the General Editing Group. Member of both the Aggregates and the Concrete Alkali Limit Sub-Committees. 1981–1998

Working Party, Alkali-Aggregate Reaction - Diagnosis. Convened by the Cement and Concrete Association (Member). Founding member and member for second edition. Work completed

Project Working Party, 'Guide to the design of concrete structures in the Arabian Peninsula', CS 163, The Concrete Society, Camberley. Member from 2006 to publication in 2008

Geological Society and Institution of Geologists (latter now merged with the GS)

Committee, Engineering Group, Geological Society. 1981–1984

Working Party, Aggregates for Construction Purposes, Engineering Group, Geological Society (Member), 1981–1984

Council, Institution of Geologists, 1987–1990. IGeol merged with Geological Society

Working Group, Aggregates for Construction Purposes (Revision), Engineering Group, Geological Society (Secretary), 1989–1993, and revision for third edition, 2001

Working Party, Stone and Rock for Construction Purposes, Engineering Group, Geological Society (Secretary). Full working party met 1993–1999 (report published June 1999)

Working Party, Clay materials used in Construction, Engineering Group, Geological Society (Secretary & second Editor). Steering group commenced work in October 1998. Full working party met 1999–2004 (report published in 2006)

Working Party, Hot Deserts, Geological Society Engineering Group, (Secretary). Steering Committee commenced work in December 2002. Working party met first in November 2003 and completed collective work in 2008 (report published in 2012)

Geological Society, Chartership Panel (now Committee). Member and scrutineer. Panel/committee from 2009 onwards.

Institution of Civil Engineers (ICE)

Editorial Advisory Panel for 'Construction Materials', Institution of Civil Engineers, London. Founding Member from first meeting in October 2005. Deputy Chairman from November 2006. Chairman from 2008 to 2012. Member from November 2012 to present

RILEM

RILEM Technical Committee TC-106: AAR (Alkali-Aggregate Reaction) Accelerated Tests (Secretary), 1988 to 2001

RILEM Technical Committee TC 191-ARP: Alkali-Reactivity and Prevention, assessment, specification and diagnosis (Secretary), 2001 to 2006

RILEM Technical Committee TC 219-ACS: AAR in Concrete Structures (Secretary), 2006 to 2014, member of editing team (for completing publications in progress from 2014)

RILEM Technical Committee TC 258-AAA: Avoiding Alkali-Aggregate reactions in concrete – performance-based concept (member), 2014 to present

Royal Institution of Chartered Surveyors (RICS)

RICS, Devon and Cornwall Branch, Mundic Group, responsible for RICS guidance, 1st and 2nd editions in 1994 and 1997, respectively (Invited Member). Technical co-author of the RICS guidance, 3rd edition, published in 2015.

Stone Federation Great Britain (SFGB)

Technical Committee, Stone Federation Great Britain, from February 2002 to 2012. Now corresponding member, 2012 to date (regular attendance taken over by Dr Ian Blanchard of RSK)

Others

Forum on Engineering Implications of Alkali-Silica Reaction (ASR) (Member). Work completed

European Organising Committee for the 9th International Conference on AAR to be held in London in July 1992 (Member). Work completed

International Organising Committee (representing the UK), International Conferences on Alkali-Aggregate Reaction in Concrete, from June 2000 to present

Organising Committee, First International Conference on Thaumassite in Cementitious Materials. Convened by the BRE, from September 2000 to Conference in June 2002

National Technical Committee, International Congresses on Concrete, University of Dundee, Concrete Technology Unit, from 2000 to 2008

Steering Committee, University of Dundee, Concrete Technology Unit, Project: ASR testing on recycled and secondary aggregates - guidance on alkali limits and reactivity, from 2004 until Report published in 2009

Founding participant in ICRAT (International Centre of Research and Applied Technology for Alkali-Aggregate Reactions), via Mannvit, Reykjavik, Iceland - from 2009

International technical committee, 2013 Concrete Conference, Bahrain Society of Engineers

Memberships

ASSOCIATIONS AND SOCIETIES

- Founding Member, the Society of Expert Witnesses, Newmarket, UK
- Member, the Geologists' Association, London, UK
- Member, the Concrete Society, Camberley, UK
- Member, Convocation, University of London, UK

- Member, the Kirkaldy Society, Queen Mary and Westfield College (now Queen Mary's), University of London, UK
- Senior Member, RILEM*, Paris, France (RILEM Fellow since 2007) (*International Union of Testing and Research Laboratories for Materials and Structures)
- Fellow, the Royal Society for the encouragement of Arts, Manufactures and Commerce (FRSA)
- Member, the Institute of Directors
- Fellow of Institute of Materials, Minerals and Mining
- Fellow (Engineering Group) of Geological Society, London
- Member (eligible to apply for Fellowship) of Institute of Concrete Technology
- Member of Chartered Quality Institute
- Member (and trained Single Joint Expert, certified by Bond Solon Training, 1999) of Expert Witness Institute
- Geological Society Engineering Group Award 2003. Coke Medal, 2013
- CSCS: Construction Site Visitor (expires September 2015)
- UK Register of Expert Witnesses: Edition 27, 2014/2015, No 1075 (vetting renewed 2011)