

## CONTENTS

### Weathering of natural stone

VISSEUR,H., GERVAIS,A., GERVAIS,K., NEUMANN,H.-H., RÖSCH.H. and WENDLER,E.: Recognition of stone provenance and case histories of deterioration of two ancient ELBE Sandstone tombstones from Hamburg and Hanover (northern Germany).....	1
LÖFVENDAHL,R.: Gotland sandstone in swedish buildings.....	11
HOLZWARTH,D.: Building stone from Southern Palatinat (western side of the Oberrhein-graben) and their petrographical and geotechnical properties.....	21
SULOVSKÝ,P., GREGOROVÁ,M. and POSPÍŠIL,P.: Mineralogical study of stone decay in Charles Bridge, Prague.....	29
MARTIN,A. and SANCHO,J.: Differential alteration of a calcarenite.....	37
MONTEALEGRE,L., BARRIOS,J. and NIETO,M.: The materials of construction of the west wall of the mosque of Cordoba (Spain) and their deterioration.....	51
GARCIA -VALLÈS,M., MOLERA,J. and VENDRELL-SAZ,M.: Man induced deterioration in the gothic cloister of "Palau de la Generalitat" (Barcelona-Spain).....	61
MIKHAILOV,A.A. and SULOVA, M.N.: Mapping material damages of limestone and sandstone on the territory of the european part of Russia.....	71
MORONI,B. and POLI,G.: Lithology and weathering of Scaglia limestone.....	79
VILLEGAS SÁNCHEZ,R., MARTÍN GARCÍA,L., VALE PARAPAR,J.F., BELLO LÓPEZ,M.A. and ALCALDE MORENO,M.: Characterization and conservation of the stone used in the Cathedral of Almería (Spain).....	89
RATTAZZI,A., CAMAITI,M. and SALVIONI,D.: The statues of the apostles from the main doorway of the church of the Monastery of Batalha (Portugal): analysis of degradation forms in relation to ancient treatments.....	101
GONZÁLEZ LIMÓN,T. and ALVAREZ DE BUERGO BALLESTER,M.: Analysis of the deterioration causes of the petrous façades of the Communications Palace, Madrid, Spain.....	109
MORONI,B. and POLI,G.: Weathering of marble and calcareous breccia in the lateral facade of Foligno Cathedral: influence of lithology and role of exposure.....	121
DUFFY,A.P. and PERRY,S.H.: The mechanisms and causes of Portland limestone decay - a case study.....	135
KRAGE,L.: Environmental studies: Artificial corrosion of untreated and treated Sarema Dolomite.....	147
SPAEDA,P., PERUSINI,T. and FRANGIAPANE,E.: Dolostones used in Middle Age Friuli (NE Italy).....	155
SIMON,S. and SNETHLAGE,R.: Marble weathering in Europe - Results of the EUROCARE - EUROMARBLE Exposure Programme 1992 - 1994.....	159
KÖHLER,W.: Investigations on the increase in the rate of weathering of Carrara marble in Central Europe.....	167
SHARMA,R.K. and GUPTA,H.O.: Characterisation of oolithic textured stone accretions and erosion phenomenon of an excavated structure, Rani Ki Vav, Patan.....	175
STOREMYR,P.: A study on the weathering of Norwegian greenschist.....	185
CINQUEGRANA,L., ANDRIA,S. and PICCIOLI,C.: Some cases of alteration and degradation of yellow and grey tuff-stone in the "Campania" area.....	201
PEREZ-ORTIZ,A., ORDAZ,J., ESBERT, R.M., ALONSO,F.J. and DÍAZ- PACHE,F.: Physical behaviour and degradation trends in an anisotropic granite.....	205
JONES, M.S., O'BRIEN, P. F., HANEEF, S.J., THOMPSON, G.E., WOOD, G.C. and COOPER,T.P.: A study of decay occurring in Leinster granite, House No.9, Trinity College, Dublin.....	211
TOPAL,T. and DOYURAN,V.: The physico-chemical properties of the weathered Cappado-	

cian tuff and their significance on conservation studies.....	223
SCHWEDA,P. and SJÖBERG,L.: Weathering of chlorite to chlorite/ smectite mixed-layers in Proterozoic metapelites - a link between acid deposition and rock deterioration?.....	233
LEAVENGOOD,P., TWILLEY,J. and VAN HALM,T.: Isamu Noguchi's "Black Sun": Investigation of a cracking phenomenon.....	239
SHELFORD,A. and INKPEN,R.: The assessment of geological structures as constraints on stone decay.....	253
TORFS,K., VAN GRIEKEN,R. and CASSAR,J.: Monitoring of environmental parameters to explain stone deterioration: Church of Sta. Marija Ta' Cwerra, Malta.....	265
<b><u>Environmental influences on stone</u></b>	
ZENDRI,E., BISCONTIN,G., BAKOLAS,A. and FINOTTO,G.: Simulated study on the chemical and physical decay of the acid rain on carbonate stones.....	273
LORUSSO,S., TROILI,M., BIONDI,F. and MARABELLI,M.: Air quality of historic cities and deterioration of monuments: case-studies in Rome and Tivoli.....	281
CADOT-LEROUX,L.: Rural nitrogenous pollution and deterioration of granitic monuments: Results of a statistical study.....	301
CARRETERO,M.I. and GALAN,E.: Marine spray and urban pollution as main factors of stone damage of Malaga Cathedral (Spain).....	311
DE LA TORRE LOPEZ,M.J. and SÉBASTIAN PARDO,E.: The effect of urban pollution on construction materials: stone and brick.....	325
SABBIONI, C., ZAPPIA,G., GHEDINI,N. and GOBBI,G.: Carbon due to atmospheric deposition on stone monuments and historical buildings.....	333
GIRARDET,F. and FURLAN,V.: Réactivité des pierres au SO <sub>2</sub> atmosphérique, étude en chambre de simulation et corrélation avec les mesures en site réel.....	341
GIRARDET,F., FURLAN,V., AUSSET,E.P., DEL MONTE, M., JEANNETTE,D. and LEFÈVRE,R.-A.: Étude expérimentale de la prise en soufre d'un calcaire et d'un grès calcaire dans la chambre de simulation atmosphérique de Lausanne.....	349
DERBEZ,M. and LEFÈVRE,R.-A.: Le contenu microparticulaire des croûtes gypseuses de la Cathédrale Saint-Gatien de Tours - comparaison avec l'air et la pluie.....	359
BEGONHA,A. and SEQUEIRA BRAGA,M.A.: Black crusts and thin black layers in granitic monuments: Their characterization and the role of air pollution.....	371
BEHLEN,A., WITTENBURG,C., STEIGER,M. and DANNECKER,W.: Dry deposition of NO, NO <sub>2</sub> , HONO, HNO <sub>3</sub> , and PAN on historic building stones.....	377
GISBERT,J., MARÍN-CHAVES,C. and ANDALUZ,N.: Black crusts from the Rueda cloister: An approximation to fossil effects of pollution in a semi-arid climate.....	387
ESBERT,R.M., DIÁZ-PACHE,F., ALONSO,F.J., ORDAZ,J. and GROSSI,C.M.: Solid particles of atmospheric pollution found on the Hontoria Limestone of Burgos Cathedral (Spain).....	393
BÖKE,H., GÖKTÜRK,H. and CANER-SALTİK,E.N.: Effect of some surfactants on the sulphation reaction of calcareous stone.....	401
BÖKE,H., GÖKTÜRK,H. and CANER-SALTİK,E.N.: Effect of particulate matter on the sulphation of calcareous stone in humid atmosphere containing sulphur dioxide.....	407
CHABAS,A. and LEFÈVRE,R.A.: Origine des constituants des croûtes sulfatées cendres volantes des monuments de Délos (Cyclades-Grèce).....	415
<b><u>Damage by moisture on stone</u></b>	
BINDA,L., SQUARCINA,T. and VAN HEES,R.: Determination of moisture content in masonry materials: calibration of some direct methods.....	423

SIZOV,B.: Evaluation of moisture content measurements in stone.....	437
WEISE,F., NIEDACK-NAD,M., HENSCHEN,J., HOFFMANN,D., RUDOLPH,M. and SCHAURICH,D.: Complex investigations of the moisture balance in structural members made of natural stone - a case study of the Berlin Zeughaus.....	441
HOFFMANN,D., NIEDACK-NAD,M. and NIESEL,K.: Evaporation as a feature of characterizing stone.....	453
HOFFMANN,D., NIESEL,K. and PLAGGE,R.: Relationship between pore structure and other physico-technical characteristics of stone.....	461
POSCHLOD,K. and KATZSCHMANN,L.: Zur Ermittlung der Verwitterungsbeständigkeit von Naturwerksteinen mittels Sättigungswert S und Frost-Tau-Wechsel-Versuch.....	473

#### **Damage by salt on stone**

VITINA,I., IGAUNE,S., KRAGE,L. and BAUMANIS,O.: Problems of soluble salts in monuments of Latvia.....	477
BEGONHA,A., SEQUEIRA BRAGA,M.A. and GOMES DA SILVA,F.: Rain water as a source of the soluble salts responsible for stone decay in the granitic monuments of Oporto and Braga -Portugal.....	481
KLEMM,W. and SIEDEL,H.: Sources of sulphate salt efflorescences at historical monuments- a geochemical study from Freiberg, Saxony.....	489
AIRES-BARROS,L. and MAURÍCIO, A.: Chronology, probability estimations and salt efflorescence occurrences forecasts on monumental building stones surfaces.....	497
LAUE,S., BLÄUER BÖHM,CH. and JEANNETTE,D.: Saltweathering and porosity - Examples from the Crypt of St. Maria im Kapitol, Cologne.....	513
FASSINA,V., ARBIZZANI,R. and NACCARI,A.: Salt efflorescences on the marble slabs of S.Maria dei Miracoli church: a survey on their origin and the methodology of their removal.....	523
STEIGER,M. and ZEUNERT,A.: Crystallization properties of salt mixtures: comparison of experimental results and model calculations.....	535
PÜHRINGER,J.: Deterioration of materials by hydraulic pressure in salt/ watersystems - An outline model.....	545
VILES,H.A. and MOSES,C.A.: SEM based studies of the combined effects of salt and biological weathering on calcareous building stones.....	557
WESSMAN,L.: Studies of salt-frost attack on natural stone.....	563
GABRIEL,G. and INKPEN,R.J.: The nature of decay of Monk's Park limestone under simulated salt weathering.....	573

#### **Biological damage on stone**

WILIMZIG,M.: Biodeterioration of building materials.....	579
MONTE,M. and FERRARI,R.: Biodeterioration of the temple of Segeste (Sicily).....	585
YOUNG, M.E. and URQUHART,D.C.M.: Factors affecting the growth of algae on cleaned sandstone buildings in Scotland.....	593
ARROYO,I. and ARROYO,G.: Annual microbiological analysis of Altamira Cave (Santillana el Mar), Spain.....	601
VENDRELL-SAZ,M., KRUMBEIN,W.E., URZI,C. and GARCIA VALLES,M.: Are patinas of mediterranean monuments really related to the rock substrate?.....	609
DE LEO,F., CRISEO,G. and URZI,C.: Impact of surrounding vegetation and soil on the colonization of marble statues by dematiaceous fungi.....	625
KRUMBEIN,W.E., DIAKUMAKU,E., GEHRMANN,C., GORBUSHINA,A.A., GROTE,G., HEYN,CH., KUROCZKIN,J., SCHOSTAK,V., STERFLINGER,K., WARSCHIED,TH.,	

WOLF,B., WOLLENZIEN,U., YUN-KYUNG YUN and PETERSEN,K.: Chemoorganotrophic microorganisms as agents in the destruction of objects of art - A summary.....	631
WOLF,B. and KRUMBEIN,W.E.: Microbial colonization on the surface and at the depth of marble elements of the "Freundschaftstempel" at Sanssouci (Potsdam).....	637
GARCÍA-MURILLO,S. and MARTIN-PÉREZ,A.: Symptomatology of bioalteration processes of stonework in the Pamplona Cathedral (Spain).....	645
GARCÍA-MURILLO,S. and MARTIN-PÉREZ,A.: Presence, distribution and bioalteration phenomena associated to higher plants in the Pamplona Cathedral (Spain).....	655
GARCÍA-MURILLO,S. and MARTIN-PÉREZ,A.: Bioalteration of stone associated to presence of microorganisms in the Pamplona Cathedral (Spain).....	661
BADALYAN,A.G., GORBUSHINA, A.A., KRUMBEIN, W.E., KUMZEROV, Y.A., PANINA,L.K. and VLASOV, D.Y.: Physical and microbiological investigations of rock weathering at hellenic excavation sites on the Crimean Peninsula.....	671
ORTEGA-CALVO,J.J. and SAIZ-JIMENEZ,C.:Polycyclic aromatic hydrocarbon-degrading bacteria in building stones.....	681
KRUMBEIN,W.E., GORBUSHINA,A.A., STERFLINGER,K. and WOLF,B.: Biological aspects of deterioration and consolidation of selected tombstones on jewish cemeteries.....	687
SAMEÑO PUERTO,M., GARCÍA ROWE,J. and VILLEGRAS SÁNCHEZ,R.: Studies of biodeterioration of building materials on Bonsor Castle (Seville, Spain).....	695
WAKEFIELD, R.D. and JONES,M.S.: Some effects of masonry biocides on intact and decayed stone.....	703
URZI,C., TRUSSO,N. and KOPECKY,A.: Colonisation patterns of stone surfaces analyzed by fractal geometry.....	717
ARIÑO,X. and SAIZ-JIMENEZ,C.: Factors affecting the colonization and distribution of cyanobacteria, algae and lichenes in ancient mortars.....	725

### Methods of analysis

LAURENT,J.P.: Modelling water and heat transfers in stones under climatic influences: physical basis.....	733
MURPHY,W. and INKPEN,R.J.:Alteration of geotechnical properties of Portland limestone and Monk's Park limestone under simulated weathering.....	739
BLUM,R.: The application of ultrasonic testing in the preservation of monuments.....	751
KÖHLER,W., ROHATSCH,A. and WEBER,J.: The stone material of the West Portal of St. Stephen's Cathedral in Vienna: petrological and ultrasonic investigations.....	759
SCHIAVON,N. and LIPING ZHOU: Magnetic, chemical and microscopical characterization of urban soiling on historical monuments.....	769
JONES,M.S. and THOMPSON,G.E.: The use of stone thin sections in the study of decay of individual components of stone by pollutants.....	771
TORFS,K., BUZEK,F. and VAN GRIEKEN,R.: Use of stable isotopes to study the deterioration of building stone.....	783
TOPAL,T.: The use of methylene blue adsorption test to assess the clay content of the Cappadocian tuff.....	791
ZEZZA,A. and GARCÍA PASCUA,N.: Experimental physico-chemical methods for the identification of previous interventions on porous stone.....	801
CHRISTARAS,B.: Particularities in studying the physical and mechanical properties of stone in monuments. Examples from the mediterranean Basin. ....	819
VILES,H.A.: Monitoring the effects of the Oxford Transport Strategy on building stone decay and soiling.....	831
SMITH,B.J. and WHALLY,W.B.: Microenvironment controls on the early soiling of building stone: Dublin, Ireland.....	835

HALSEY,D.P., DEWS,S.J., MITCHELL,D.J. and HARRIS,F.C.: Influence of aspect upon sandstone weathering: the role of climatic cycles in flaking and scaling.....	849
BRÜGGERHOFF,S., LAIDIG,G. and SCHNEIDER,J.: Environmental monitoring with natural stone sensors.....	861
MIRWALD,P.W., BRÜGGERHOFF,S. and FIMMEL, R.: Baumberg calcareous sandstone and Obernkirchner sandstone, natural sensor materials for environmental monitoring - results of a field exposure study.....	871

### The conservation of stone

RIZZI,G.: Stone preservation and architectural preservation: two different perspectives?.....	879
TIANO,P., FILARETO,C., GRANATO,A. and PIACENTI,F.: Methods and materials used for the conservation of monumental works in Italy.....	885
YÜCEL,I.: Methods of restoration and conservation of stone in the national cultural heritage in care of the Turkish Grand National Assembly and documents connected.....	895
ZAINCHKOVSKY, A.: The recent state of technological development of stone conservation in Russia.....	905
PÜHRINGER,J. and MAKES,F.: Electrical charges on material surfaces and treatments.....	907
D'AVINO,ST.: Chemical and physical techniques for the conservation of stone materials: interdisciplinary approach and specific nature of the discipline.....	923
MONTANARI,V.: Patina: surface deposit, alteration or outward appearance? Preliminary considerations for the conservation of stone surfaces in architecture.....	929
MAXWELL,I.: Historic Scotland's work in the preservation of carved stones.....	935
KOTLIK,P., HEIDINGSFELD,V., VANECEK,I., BAYER,K., KAŠE,J., VÁNA,J. and WEBER,J.: The rescue of M.Braun's sculptures in the area of the Betlém near Kuks (CZ): a case study on sandstone deterioration in the frame of an international project.....	955
SAURET,T.: Documentación histórica y patrimonio monumental. Experiencia metodológica aplicada a la recuperacion del Conjunto Monumental de la Alcazaba de Málaga (Siglos XI-XIV).....	969
BYLUND,CH., ÖSTERLUND,E., LÖFVENDAHL,R., MARCHNER,S. and PETERSEN,M.: The state of deterioration of the Carrara marble sculptures in the facade of the National Museum of Fine Arts in Stockholm.....	977
GIUSTI, A.: Case studies in the restoration of medieval and renaissance painted sculptures.	993
ESPINOSA GAITÁN,J., ONTIVEROS ORTEGA,E. and VILLEGAS SÁNCHEZ,R.: Previous studies for the restoration of the Cordoba Door of Carmona (Seville, Spain).....	1001
CANTOS MARTINEZ,O., LABORDE MARQUEZE, A., GONZALES MERCADÉ,E. and NAVARRO GASCON,J.V.: Planning de conservation du gisement Califatal de la Rábita de Guardamar del Segura (Alicante, Espagne).....	1009
ROBY,T.C.: In situ assessment of surface consolidation and protection treatments of marble monuments in Rome in the 1980's, with particular reference to two treatments with paraloid B72.....	1015
PLEHWE-LEISEN, E.v., WARSCHIED,T. and LEISEN,H.: Studies of long-term behaviour of conservation agents and of microbiological contamination on twenty years exposed treated sandstone cubes.....	1029
KOLLER,M., NIMMRICHTER,J. and PASCHINGER,H.: Conservation of marble at the facade of the cathedral in Salzburg.....	1039
ATZENI,C., MAMELI,P.L., MASSIDDA,L., and SANNA,U.: Development of sacrificial coatings for protecting marble from sulfatation.....	1051
ALESSANDRINI,G., PERUZZI,R., ALDI,A. and FANTASMA,F.: Noto calcarenite (SR): the protective treatments and the evaluation of their effectiveness.....	1059
CALIA,A., MECCHI,A.M., QUARTA,G. and ROSSI-DORIA,P.: Water-repellent treatments	

for the conservation of the calcareous tuff "Carparo" .....	1075
ALAIMO,R., GIARRUSSO,R., LAZZARINI,L., MANNUCIA,F. and MELI,P.: The conservation problems of the theatre of Eraclea Minoa (Sicily).....	1085
APPOPOLONIA,L., VAUDAN,D., and DE LEO,S.: Projet des traveaux de conservation du théâtre romain d'Aoste: recherche et résultats.....	1097
ASLAN,Z. and SHAR,M.: Tomb 825: A case study in planning for restoration of a selected monument in Petra.....	1109
KÜHLENTHAL,M.: PETRA - The conservation concept for the tomb facades.....	1117
HELMI,F.M. and ATTIA,H.R.: Characterization and conservation of Seti - I temple stone, Abydous, Upper Egypt.....	1123
LEISEN,H., PLEHWE-LEISEN, E.v.und SATTLER,L.: Weathering and conservation of Apsara reliefs at Angkor Vat, Cambodia-Project Angkor.....	1137
LAZZARINI,L., LOMBARDI,G., MARCONI,F. and MEUCCI,C.: New data on the characterization and conservation of the Easter Island pyroclastics used for the moais.....	1147
WENDLER,E., CHAROLA,A.E. and FITZNER,B.: Easter Island Tuff: Laboratory studies for its consolidation.....	1159
OLIVEIRA,M.M. DE, FASCIO,M., SANTIAGO, C.C. and AMARAL,A.M. do: Behaviour of lithic surfaces treated with Carnauba wax.....	1171
BOOS,M., GROBE,J., HILBERT,G. and MÜLLER-ROCHHOLZ,J.: Modified elastic silicic-acid ester applied on natural stone and tests of their efficiency.....	1179
KOBLESCHKE,P.J.: The consolidation of natural stone with a stone strengthener on the basis of poly-silicic-acid-ethyl-ester.....	1187
HRISTOVA,J. and TODOROV,V.: Consolidation effect of Wacker-Silicones on the properties of sandy limestone.....	1195
LUKASZEWCZ,J.W.: The influence of stone pre-consolidation with ethyl silicate on soluble salts removal.....	1203
LUKASZEWCZ,J.W.: The influence of stone pre-consolidation with ethyl silicate on deep consolidation.....	1209
CIABACH,J.: The effect of water soluble salts on the impregnation of sandstone with silicone microemulsion.....	1215
BRUCHERTSEIFER, CHR., BRÜGGERHOFF,S., GROBE,J. and GÖTZE,H.J.: DRIFT investigation of silylated natural stone - molecular surface information and macroscopic features.....	1223
FROGNER,P. and SJÖBERG,L.: Dissolution of tetraethylortosilicate coatings on quartz grains in acid solution.....	1233
GOINS,E.S., WHEELER,G.S., GIFFITHS,D. and PRICE,C.A.: The effect of sandstone, limestone, marble and sodium chloride on the polymerization of MTMOS solutions.....	1243
GOINS,E.S., WHEELER,G.S. and WYPYSKI,M.T: Alkoxy silane film formation on quartz and calcite crystal surfaces.....	1255
OSSWALD,J. and SNETHLAGE,R.: The hardening process in silicate paints.....	1265
ANTONOVA,H.: Evaluation of protective treatments in laboratory and „in situ“.....	1277
STADLBAUER,E., LOTZMANN,S., MENG,B., RÖSCH,H. and WENDLER,E.: On the effectiveness of stone conservation after 20 years of exposure - case study at Clemenswerth Castle/NW-Germany.....	1285
VALLET,J.M. and VERGÈS-BALMIN,V.: Efficacité résiduelle après 24 ans de vieillissement naturel de produits de protection à base de „résines silicones“ appliqués sur pierres calcaires.....	1297
FASSINA,V. and NACCARI,A.: Evaluation of the protective treatment of the external facade of the Scrovegni Chapel in Padova.....	1309
PLEHWE-LEISEN, E.v., WENDLER,E., CASTELLO BRANCO,H.D. and DOS SANTOS, A.F.: Climatic influences on the longtherm efficiency of conservation agents - a german-	

brazilian outdoor exposure program.....	1325
BARONIO,G., SQUARCINA,T., ROCCA,P. and BINDA,L.: Full scale models as an outdoor laboratory to study the durability of surface treatments.....	1333
HILBERT,G. and WENDLER,E.: Influence of different consolidating agents on the water vapour diffusion properties of selected stones.....	1345
GARCIA PASCUA,N., SANCHEZ DE ROJAS,M.I. and FRIAS,M.: The important role of the colour measurement in restoration works. Use of consolidants and water-repellents in sandstone.....	1351
GATTI,M.P.: Die modernen Gebäude und die Probleme der Sanierung von Wandverkleidungen.....	1363
DOMASLOWSKI,W. and TOMASZEWSKA-SZEWZYK,A.: Desalting of stones by means of ion exchangers.....	1371
INOUE,S., SAGAWA,H. and SAWADA,M.: Washing agents for cleaning of biodeteriorated stone in cultural properties field.....	1383
PROTZ,A.: The cleaning of the Hirschfeld tomb by recarbonation of the gypsum crust.....	1387
MARAVELAKI,P.V., ZAFIROPOULOS,V., KYLIKOGLOU,V., KALAITZAKI,M. and FOTAKIS,C.: Diagnostic techniques for laser cleaning of marble.....	1395
MAXWELL,I.: Emerging conservation issues in consequence of cleaning scottish historic buildings.....	1405
RANALLI,G., CHIAVARINI,M., GUIDETTI,V., MARSALA,F., MATTEINI,M., ZANARDINI,E. and SORLINI,C.: The use of microorganisms for the removal of nitrates and organic substances on artistic stoneworks.....	1415
CHAROLA,A.E., GRISSOM,C.A., ERDER,E., WACHOWIAK,M.L. and OURSLER,D.: Measuring surface roughness: three techniques.....	1421
VAN HEES,R.P.J. and KOEK, J.A.G.: Treatment of rising damp. Evaluation of six chemical products.....	1435

### Bricks, Plaster, Mortar, Wall-paintings

BORELLI,E. and LAURENZI TABASSO,M.: Which binder for the Egyptian plasters of the Pharaos' monuments?.....	1447
ALVAREZ,J.I., MARTÍN,A. and GARCÍA CASADO,P.J.: Méthodologie employée dans la caractérisation de mortiers de la cathédrale de Pamplune (Espagne).....	1457
ALVAREZ,J.I., MARTÍN,A. and GARCÍA CASADO,P.J.: Analysis of the mortars used in the Cathedral of Pamplona, Spain.....	1471
ARNOLD,B., BURGER,H., NEUMANN,H.-H. and WENS,R.: Historical plaster on village churches in Brandenburg.....	1489
BUGINI,R., FOLLI, L. and LOMMANO,A.: Plaster Technologies in Northern Italy from 15th to 19th century.....	1495
BLÄUER BÖHM,CH.: Assessment of quantitative salt analysis by the water extraction method on lime mortars.....	1505
HENRIQUES,F.M.A. and CHAROLA, A. E.: Comparative study of standard test procedures for mortars.....	1521
DOMASLOWSKI,W.: The properties of lime and cement mortars modified by metakaolinite.....	1529
HARTMANN,A.: Investigations on injection grouts to readhere lime mortars to adobe grounds.....	1535
PALOMO,A., PUERTAS,F. and BLANCO,M.T.: Mortars for restoration. Decay due to salt crystallization.....	1547
MARTÍNEZ-RAMIREZ,S., PUERTAS,F., BLANCO- VARELA,M.T., THOMPSON,G.E. HANEEF,S.J., and WOOD,G.: Behaviour of lime mortar in atmospheric simulation	

chambers.....	1557
MARTÍNEZ-RAMÍREZ,S., PUERTAS,F., BLANCO- VARELA,M.T., THOMPSON,G.E., HANEEF,S.J.and WOOD,G.: Durability of a new lime mortar with biocide properties.....	1565
MARTÍNEZ-RAMÍREZ,S., PUERTAS,F., BLANCO- VARELA,M.T., THOMPSON,G.E., HANEEF,S.J.and WOOD,G.: Effect of 'acid rain' on the degradation of lime mortar.....	1573
BEAUCHAMP,D. and ZSEMERY,ST.: 19th century protest helps save Parliament House for the 21st century. Testing mortars for repointing sandstone.....	1577
MARIE-VICTOIRE, E., QUENEE,B., TEXIER,A., BROMBLET,PH and RAFAI,N.: Église Saint Joseph du Havre (France), analyses d'un béton ancien et de ses altérations.....	1585
SKOULIKIDIS,TH., CHARALAMBOUS,D. and TSAKONA,K.: Amelioration of the properties of hydrated lime for the consolidation of the surface or/and the mass of building materials of monuments or new buildings or statues and ornaments.....	1599
WARRACK,S., LUJAN,R., LEISEN,H. and JELEN,J.:The Preah Ko Project - treatment, conservation and maintenance of the stucco carvings, stone elements and brick of the sanctuary towers at Preah Ko, Cambodia.....	1607
ONTIVEROS ORTEGA,E., SEBASTIAN PARDO,E. and VALVERDE ESPINOSA,I.: Analyses by X-ray diffraction and light microscopy of rammed earth walls (Granada,Spain).....	1617
CHEREMKHIN,V.I.: Anwendung von Gipsstein bei Restaurierungsarbeiten.....	1627
VASSILIEVA,O.A.: The experience of the conservation of the plaster sculpture from the collection of the State Tretiakov Gallery.....	1631
STADLBAUER,E., EHLING,A., KRUMBEIN,W.E., SCHÄDLER-SAUB,U., SCHUH,H. and WENDLER,E.: Conservation of stone monuments on jewish cemeteries in Berlin and Hannover/ Germany.....	1635
NEGROTTI,R., REALINI,M. and TONIOLO,L.: The frescoes of the oratory of S. Stefano (Lentate sul Seveso - Milan): comparison between the indoor air quality and decay.....	1647
TONIOLO,L., CARIATI,F. POLESELLO,S. and POZZI,A.: The mural paintings of S. Andrea in Melzo (Italy): Analytical investigations of the pigmented layers.....	1655
FASSINA, V., ROSSETTI, M. and ZUCCHETTA, E.: Mural painting in San Tarasio Chapel in the Church of San Zaccaria, Venice: A study of the state of conservation of paint film.....	1663
ZEHNDER,K.:Gypsum efflorescence in the zone of rising damp. Monitoring of slow decay processes caused by crystallizing salts on wall paintings.....	1669
ESPINOSA GAITÁN,J., VILLEGAS SANCHEZ, R. and SEBASTIAN PARDO,E.: Characterization of the bricks used in the construction of the Alcazaba (Malaga, Spain).....	1679
VAN BALEN,K., BINDA,L., VAN HEES,R. and FRANKE,L.: Damage to historic brick masonry structures.....	1687
VAN HEES,R.P.J., KOEK, J.A.G., DE CLERQ,H., DE WITTE,E., BINDA,L., and BARONIO,G.: Evaluation of the performance of surface treatments for the conservation of brick masonry.....	1695
WITTENBURG,C., WENDLER,E. and STEIGER,M.: Terracotta at Schloß Schwerin, different desalination treatments for the application of stone consolidating agents.....	1717
RUDY,M.: Conservation of Renaissance tiles from the Grand Stove in Gdansk Arthus' Court.....	1727

#### Databases for the conservation of monuments

VAN HEES,R., VAN DER KLUKT, L.J.A.R., NALDINI,S., VAN BALEN,K., MASCARENHAS MATEUS,J. BINDA,L., BARONIO,G., FRANCKE,L. and SCHUMANN,I.: The Masonry Damage Diagnostic System.....	1737
OBERMEIER,CH.: A database for historic renderings in Brandenburg .....	1741
FITZ,S.: MONUFACT -A database system for improved information transfer in conservation.....	1745