

## **Biodeterioration of Cultural Property: A Bibliography**

R. J. Koestler

The Metropolitan Museum of Art, New York, New York 10028, USA

&

J. Vedral

Vedral Engineering, PO Box 47, Bar Mills, Maine 04004, USA

### **INTRODUCTION**

The field of biodeterioration of cultural properties is extremely diverse. The diversity is apparent in not only the materials to be dealt with but in the sources of publications. Publication sources range from readily available scientific literature to specialized conservation symposia. During the course of more than a decade of research in the field of biodeterioration, the senior author has spent a considerable amount of time amassing literature for projects and realized the need for a more efficient and faster method of locating biodeterioration literature. Specialized libraries, like those in conservation organization or museum conservation departments often provide a good source for this literature, but require much searching through individual publications. A major attempt by the Conservation Information Network, a consortium of international conservation organizations administered by the Getty Conservation Institute to provide biodeterioration references (some 2400 out of 100 000+ conservation references) is, unfortunately, only partially successful. The CIN biodeterioration bibliographic database has 30-40% duplicate references (data files were combined from four major conservation organizations) and too broad a keyword index so that this bibliography has been compiled to assist the scientist and conservator working in this field in locating and tracking the relevant literature.

229

Many of the papers referred to herein have been found to be useful to the senior author during a decade of research in this area. The bibliography has included in it a selection of general texts for introductory information for non-biologists. Also, a conscious attempt was made to include extensive references taken from the conservation field. Most of the references date from the last 25 years, although a handful of historical references will be found. The conservation references were mainly derived directly from the following libraries: The Conservation Center of the New York University's Institute of Fine Arts, The Objects Conservation Department of the Metropolitan Museum of Art, and The American Museum of Natural History — all in New York, also, to a lesser extent, the Conservation Information Network, a bibliographic database, administered by The Getty Conservation Institute, Marina del Rey, California.

The bibliography is organized alphabetically by first author, numbered, and keyworded. A keyword index is provided to assist in finding relevant references. The complete bibliography is available on a dBase III-compatible format, or as an ASCII file, both on 3½"-IBM format PC disks, from the senior author.

The majority of the references have been abstracted in English language sources. Regrets for the omission of potentially important communications from sources or languages less readily available.

We hope that this bibliography will assist in advancing research efforts in this field. Omissions, corrections, suggestions, or new work, may be brought to the attention of RJK, for inclusion in any future bibliographic updates.

The authors would like to thank M.T. Wypyski for help acquiring and collating sources in the initial stages of this project.

**Keyword Index****ADENYLATE CHARGE, MEASUREMENT OF ACTIVITY STATE OF MICRO-ORGANISMS**

219, 880, 1427, 1500, 1511, 1530, 1552

**ALGACIDES**

689, 690, 838, 1115, 1117, 1243

**ALGAE**

51, 66, 136, 149, 159, 161, 255, 258, 271, 290, 294, 340, 368, 369, 370, 371, 372, 373, 400, 426, 442, 480, 501, 567, 596, 610, 628, 672, 673, 674, 688, 691, 692, 772, 776, 793, 795, 830, 922, 926, 963, 965, 981, 1069, 1084, 1195, 1205, 1243, 1244, 1257, 1310, 1389, 1434, 1490, 1491, 1496, 1497, 1539, 1554, 1562, 1574, 1580, 1581, 1586, 1599, 1615, 1631, 1669, 1670, 1681

**ANOXANTS, ALTERNATE METHODS FOR INSECT CONTROL**

31, 111, 142, 143, 184, 224, 354, 504, 505, 681, 683, 839, 840, 841, 842, 997, 1016, 1138, 1182, 1301, 1339, 1505, 1609, 1610, 1611

**ANTLER, BONE, HORN, IVORY**

573, 1041, 1173, 1675

**ARCHIVES, BOOKS, LIBRARIES**

8, 18, 19, 47, 73, 141, 151, 182, 234, 250, 252, 254, 273, 320, 321, 334, 344, 374, 420, 452, 460, 467, 468, 550, 564, 608, 639, 640, 641, 643, 644, 667, 717, 762, 784, 876, 877, 908, 909, 911, 918, 1022, 1025, 1034, 1043, 1078, 1094, 1164, 1165, 1166, 1169, 1170, 1189, 1201, 1214, 1248, 1250, 1252, 1264, 1312, 1453, 1518, 1519, 1537, 1550, 1578, 1607, 1620, 1624, 1625, 1635, 1677, 1705

**BACTERIA**

1, 51, 116, 149, 205, 207, 217, 225, 227, 230, 231, 232, 233, 235, 255, 282, 286, 294, 308, 316, 318, 333, 340, 347, 350, 351, 359, 364, 391, 394, 395, 400, 401, 404, 405, 410, 418, 419, 423, 426, 441, 442, 456, 484, 497, 498, 499, 521, 527, 543, 544, 549, 555, 559, 580, 587, 602, 603, 638, 655, 664, 677, 708, 710, 724, 735, 753, 770, 775, 804, 806, 830, 887, 906, 924, 925, 926, 928, 934, 942, 954, 955, 962, 963, 965, 974, 977, 983, 985, 986, 1039, 1044, 1050, 1052, 1058, 1061, 1084, 1091, 1095, 1195, 1214, 1215, 1256, 1263, 1265, 1328, 1329, 1354, 1371, 1390, 1405, 1436, 1444, 1485, 1508, 1515, 1526, 1539, 1544, 1567, 1574, 1583, 1586, 1599, 1608, 1615, 1621, 1622, 1625, 1633, 1644, 1656, 1663, 1668, 1704, 1715, 1716

**BIOCIDES**

2, 3, 26, 28, 31, 32, 34, 39, 40, 42, 44, 50, 51, 58, 59, 60, 66, 70, 71, 74, 77, 82, 85, 86, 91, 92, 94, 98, 99,

109, 118, 129, 145, 147, 168, 170, 171, 172, 173, 174, 175, 179, 182, 185, 188, 189, 190, 198, 218, 221, 234, 240, 245, 248, 250, 255, 256, 269, 270, 278, 285, 296, 297, 315, 323, 330, 331, 340, 375, 379, 385, 398, 400, 403, 438, 443, 455, 457, 458, 459, 463, 464, 469, 471, 472, 475, 476, 506, 507, 542, 549, 562, 578, 580, 589, 593, 600, 603, 609, 613, 614, 623, 636, 637, 640, 641, 659, 662, 668, 674, 685, 687, 689, 690, 691, 692, 693, 717, 721, 727, 730, 732, 736, 750, 769, 784, 788, 791, 795, 798, 799, 802, 803, 838, 859, 869, 901, 905, 918, 948, 953, 967, 992, 1002, 1004, 1006, 1010, 1012, 1013, 1027, 1046, 1049, 1055, 1081, 1092, 1099, 1106, 1108, 1115, 1116, 1144, 1146, 1151, 1154, 1176, 1187, 1188, 1224, 1225, 1230, 1243, 1245, 1250, 1284, 1289, 1291, 1294, 1301, 1308, 1316, 1317, 1318, 1319, 1320, 1322, 1336, 1343, 1347, 1348, 1350, 1356, 1357, 1367, 1379, 1384, 1410, 1412, 1423, 1424, 1441, 1443, 1445, 1456, 1474, 1478, 1484, 1488, 1493, 1499, 1504, 1505, 1510, 1521, 1523, 1528, 1530, 1531, 1533, 1535, 1536, 1540, 1553, 1562, 1563, 1565, 1566, 1569, 1582, 1585, 1588, 1590, 1592, 1606, 1607, 1610, 1611, 1614, 1615, 1619, 1626, 1627, 1628, 1634, 1635, 1641, 1652, 1653, 1661, 1672, 1674, 1695, 1698, 1702, 1717

**BIOMASS, ATP-ATPase ASSESSMENT, BIOASSAY, ENUMERATION**

30, 195, 196, 355, 405, 422, 450, 518, 566, 588, 632, 664, 665, 724, 726, 776, 777, 778, 795, 828, 863, 865, 866, 867, 933, 1000, 1003, 1017, 1018, 1054, 1056, 1057, 1062, 1144, 1210, 1239, 1261, 1263, 1418, 1446, 1447, 1473, 1493, 1494, 1618, 1671

**BUILDING MATERIALS**

70, 193, 194, 341, 345, 348, 494, 545, 654, 693, 810, 921, 952, 1195, 1314, 1348, 1680

**CALCIUM OXALATES**

186, 187, 517, 625, 1191, 1364

**CAVES, TOMBS, TUMULI**

39, 118, 121, 166, 172, 175, 290, 292, 309, 362, 363, 412, 419, 540, 677, 807, 945, 963, 964, 965, 1464, 1465, 1570, 1571, 1577

**CONCRETE**

345, 545, 580, 1127, 1235, 1301, 1314, 1319, 1371, 1662

**CONFERENCE PROCEEDINGS, GENERAL, TEXTS**

8, 9, 10, 11, 27, 29, 52, 76, 78, 87, 89, 90, 95, 101, 104, 105, 106, 107, 108, 109, 120, 122, 141, 149, 177, 266, 321, 326, 477, 546, 570, 657, 659, 686, 789, 790, 793, 794, 809, 811, 895, 897, 931, 1043, 1133, 1134, 1204, 1264, 1312, 1392, 1401, 1573, 1576, 1582

**CONSERVATION**

4, 5, 25, 57, 74, 81, 122, 125, 127, 130, 132, 133, 134, 144, 152, 160, 173, 216, 228, 230, 241, 296, 298, 299, 325, 326, 328, 336, 356, 399, 408, 413, 421, 424, 452, 492, 503, 574, 575, 599, 605, 621, 634, 635, 653, 671, 678, 707, 728, 809, 829, 868, 939, 944, 962, 972, 982, 1001, 1011, 1014, 1040, 1075, 1076, 1086, 1101, 1104, 1122, 1130, 1132, 1155, 1183, 1229, 1231, 1241, 1275, 1342, 1368, 1377, 1391, 1396, 1460, 1502, 1520, 1642, 1658, 1675

**CONSOLIDANTS. POLYMERS. PLASTICS. RESINS. RUBBER**

37, 45, 46, 50, 94, 97, 103, 268, 279, 317, 334, 381, 382, 411, 461, 491, 493, 500, 520, 542, 596, 606, 697, 705, 706, 723, 735, 739, 743, 745, 770, 808, 816, 820, 826, 853, 861, 862, 871, 880, 881, 894, 899, 902, 901, 906, 938, 943, 990, 1037, 1126, 1139, 1161, 1197, 1213, 1217, 1218, 1219, 1220, 1221, 1246, 1259, 1301, 1365, 1375, 1402, 1431, 1435, 1507, 1568, 1589, 1590, 1595, 1602, 1647, 1659, 1665, 1683, 1684, 1685, 1686, 1700, 1703, 1720

**COPRA. HAIR. STRAW. WAX SEALS**

604, 740, 891, 907, 918, 919

**EASEL PAINTINGS**

179, 236, 244, 286, 328, 676, 814, 905, 1030, 1059, 1503, 1504, 1634

**FONING**

153, 168, 169, 173, 180, 181, 182, 253, 254, 267, 280, 346, 386, 387, 388, 416, 420, 530, 556, 611, 612, 626, 639, 646, 875, 912, 961, 991, 995, 1072, 1073, 1074, 1158, 1168, 1171, 1266, 1399, 1515, 1537, 1550, 1578, 1623, 1649, 1705, 1708

**FUMIGANT. FUMIGATION**

28, 41, 72, 111, 129, 179, 182, 188, 212, 215, 223, 234, 337, 354, 367, 431, 443, 444, 457, 508, 608, 685, 700, 756, 768, 872, 905, 1092, 1093, 1109, 1303, 1332, 1333, 1334, 1335, 1339, 1345, 1530, 1533, 1594, 1600, 1606, 1626, 1663.

**FUMIGANT. ETHYLENE OXIDE**

41, 234, 685, 700, 1594, 1626, 1663

**FUMIGATION. VIKANE SULFURYL FLUORIDE**

212, 901, 1143

**FUNGI**

2, 6, 7, 8, 26, 51, 53, 54, 60, 66, 67, 69, 82, 83, 84, 93, 99, 103, 115, 116, 128, 136, 141, 148, 149, 153, 161, 163, 167, 168, 169, 170, 171, 178, 180, 186, 187, 199, 213, 214, 215, 222, 236, 242, 248, 249, 254, 255, 259, 270, 273, 286, 287, 290, 294, 301, 302, 306, 308, 309, 310, 314, 317, 320, 323, 334, 335, 339, 340, 342, 343, 349, 353, 354, 361, 368, 369,

372, 373, 384, 385, 400, 402, 407, 414, 420, 423, 426, 445, 454, 462, 465, 468, 487, 491, 511, 520, 523, 524, 531, 532, 533, 534, 536, 553, 554, 559, 569, 576, 577, 578, 581, 582, 583, 584, 585, 586, 587, 591, 604, 618, 621, 626, 631, 636, 640, 650, 658, 660, 667, 668, 669, 670, 674, 685, 687, 694, 695, 709, 716, 717, 719, 723, 729, 731, 738, 742, 744, 748, 751, 753, 754, 755, 757, 765, 771, 784, 791, 792, 793, 801, 812, 813, 814, 818, 823, 827, 830, 845, 846, 847, 849, 852, 853, 858, 860, 874, 884, 886, 888, 893, 898, 899, 902, 903, 910, 924, 940, 946, 949, 951, 953, 957, 959, 960, 961, 976, 978, 990, 993, 995, 996, 1002, 1005, 1010, 1015, 1019, 1027, 1031, 1041, 1043, 1044, 1045, 1046, 1054, 1060, 1067, 1068, 1070, 1072, 1073, 1074, 1078, 1081, 1082, 1118, 1121, 1123, 1129, 1144, 1151, 1156, 1162, 1167, 1170, 1171, 1172, 1176, 1181, 1189, 1216, 1217, 1219, 1220, 1221, 1223, 1226, 1236, 1237, 1239, 1245, 1258, 1260, 1267, 1272, 1273, 1295, 1297, 1299, 1337, 1353, 1369, 1370, 1380, 1382, 1383, 1384, 1423, 1426, 1428, 1429, 1430, 1437, 1438, 1441, 1442, 1448, 1455, 1457, 1458, 1459, 1489, 1503, 1504, 1512, 1514, 1515, 1518, 1524, 1530, 1535, 1545, 1551, 1555, 1596, 1597, 1600, 1601, 1602, 1612, 1619, 1623, 1634, 1636, 1645, 1648, 1650, 1662, 1663, 1666, 1667, 1670, 1678, 1687, 1688, 1697, 1708, 1716, 1718, 1719, 1720, 1721

**FUNGICIDES**

103, 115, 163, 171, 213, 214, 248, 249, 301, 310, 317, 323, 334, 339, 342, 445, 523, 578, 583, 618, 621, 636, 640, 668, 685, 687, 716, 717, 784, 791, 860, 951, 953, 1015, 1019, 1031, 1046, 1081, 1144, 1151, 1162, 1216, 1223, 1226, 1245, 1258, 1267, 1384, 1423, 1426, 1441, 1455, 1458, 1459, 1504, 1512, 1514, 1600, 1602, 1619, 1634, 1670, 1678, 1718, 1720

**GAMMA RADIATION. UV RADIATION. ALTERNATE INSECT AND MICROBE CONTROL METHODS**

93, 184, 224, 261, 312, 320, 322, 357, 358, 415, 423, 431, 440, 504, 505, 594, 644, 681, 683, 732, 780, 890, 958, 961, 988, 1147, 1226, 1279, 1280, 1301, 1347, 1502, 1541, 1546, 1547, 1572, 1603, 1604, 1615

**GLASS**

13, 213, 214, 288, 289, 447, 702, 874, 903, 1001, 1014, 1064, 1066, 1131, 1175, 1184, 1232, 1233, 1234, 1269, 1311, 1524, 1545, 1551, 1721

**HERBICIDES**

240, 398, 598, 727, 1357, 1661

**INSECTICIDES**

28, 32, 34, 35, 36, 41, 44, 59, 69, 72, 91, 98, 179, 185, 188, 189, 190, 223, 234, 256, 285, 334, 367, 378, 443, 444, 457, 459, 507, 565, 573, 637, 645,

668, 685, 736, 782, 872, 948, 971, 1010, 1020, 1058, 1093, 1106, 1143, 1145, 1182, 1268, 1332, 1333, 1334, 1335, 1336, 1339, 1441, 1474, 1478, 1487, 1499, 1506, 1569, 1594, 1600, 1603, 1606, 1607, 1610, 1611, 1652, 1653, 1663, 1674, 1688, 1698, 1702

**INSECTS**

28, 31, 32, 33, 34, 35, 36, 43, 44, 49, 55, 56, 59, 63, 64, 65, 68, 69, 72, 75, 86, 91, 92, 98, 100, 103, 111, 113, 124, 142, 143, 150, 164, 165, 179, 183, 184, 185, 188, 189, 190, 221, 223, 224, 251, 256, 263, 264, 265, 283, 284, 285, 297, 298, 312, 313, 319, 320, 321, 327, 334, 344, 353, 354, 357, 358, 367, 374, 377, 378, 380, 383, 409, 423, 427, 440, 443, 444, 457, 459, 467, 485, 486, 504, 505, 507, 525, 550, 565, 573, 579, 615, 616, 637, 645, 651, 668, 670, 680, 685, 696, 706, 714, 733, 736, 761, 762, 763, 764, 782, 783, 787, 805, 815, 839, 840, 841, 842, 855, 856, 857, 872, 873, 889, 911, 941, 948, 959, 971, 987, 997, 1010, 1016, 1020, 1022, 1026, 1034, 1058, 1063, 1083, 1088, 1092, 1093, 1097, 1102, 1105, 1106, 1107, 1108, 1124, 1125, 1128, 1135, 1138, 1140, 1141, 1143, 1145, 1147, 1148, 1157, 1177, 1182, 1222, 1268, 1270, 1288, 1290, 1291, 1298, 1300, 1304, 1305, 1306, 1309, 1339, 1344, 1358, 1363, 1379, 1387, 1412, 1413, 1414, 1415, 1416, 1417, 1421, 1441, 1451, 1452, 1454, 1461, 1474, 1475, 1476, 1477, 1478, 1479, 1480, 1481, 1482, 1483, 1487, 1499, 1501, 1505, 1506, 1525, 1531, 1548, 1569, 1572, 1578, 1579, 1603, 1606, 1607, 1609, 1610, 1611, 1620, 1652, 1653, 1660, 1674, 1679, 1688, 1689, 1692, 1698, 1702, 1706, 1710, 1711, 1712, 1713

**INSECTS, BEETLES**

43, 55, 56, 59, 75, 100, 113, 143, 150, 263, 367, 374, 444, 573, 732, 1501, 1688, 1698, 1710, 1711

**INSECTS, TERMITES**

33, 36, 49, 65, 91, 92, 124, 256, 265, 409, 459, 696, 714, 733, 736, 856, 1106, 1107, 1177, 1270, 1305, 1414, 1417, 1475, 1476, 1477, 1478, 1479, 1480, 1481, 1482, 1483, 1499, 1525, 1660

**LEATHER, HIDE, SKIN, PARCHMENT**

83, 218, 234, 238, 239, 250, 302, 415, 574, 609, 614, 618, 704, 716, 821, 907, 915, 916, 919, 1189, 1190, 1227, 1289, 1296, 1349, 1424, 1426, 1518, 1519, 1617, 1632, 1635, 1636, 1668, 1675, 1705, 1709, 1710, 1719

**LICHENS**

26, 51, 66, 102, 135, 136, 149, 161, 191, 192, 200, 202, 203, 204, 258, 260, 290, 348, 368, 369, 370, 371, 372, 373, 435, 498, 499, 514, 535, 617, 622, 629, 630, 647, 654, 656, 661, 663, 666, 673, 674, 678, 702, 718, 720, 722, 741, 830, 850, 851, 950, 1006, 1007, 1064, 1065, 1066, 1087, 1090, 1098, 1188, 1205, 1209, 1257, 1360, 1364, 1395, 1403,

1404, 1439, 1440, 1449, 1490, 1491, 1527, 1641, 1670

**LITERATURE REVIEWS**

620, 656, 667, 671, 680, 707, 800, 1100, 1490, 1491, 1693

**MANGANESE, IRON, BLACK SPOTS**

347, 406, 496, 933

**MARINE ENVIRONMENTS, MARINE FOULING, MARINE ORGANISMS**

14, 24, 40, 281, 311, 330, 331, 376, 404, 410, 466, 512, 521, 537, 551, 552, 567, 568, 590, 610, 660, 711, 712, 713, 748, 781, 852, 853, 892, 905, 925, 969, 970, 1013, 1024, 1070, 1071, 1110, 1114, 1136, 1230, 1238, 1281, 1373, 1374, 1498, 1554, 1587, 1591, 1707, 1715

**METALS**

12, 15, 17, 50, 79, 103, 281, 347, 350, 351, 360, 390, 392, 456, 567, 568, 655, 682, 729, 924, 935, 1024, 1048, 1120, 1185, 1196, 1206, 1236, 1262, 1349, 1463, 1495, 1548, 1587, 1593, 1714

**MINERALS, ALTERATION**

21, 22, 277, 527, 534, 539, 554, 623, 675, 754, 755, 831, 832, 835, 850, 851, 879, 922, 928, 929, 930, 1035, 1042, 1113, 1437, 1438, 1667

**MORTAR**

993, 1099

**MUSEUMS, COLLECTIONS**

124, 150, 177, 251, 309, 427, 508, 565, 700, 740, 846, 859, 889, 897, 900, 1183, 1186, 1187, 1222, 1294, 1295, 1604, 1609, 1626, 1712, 1713, 1721

**PAINT, PAINTINGS**

38, 114, 121, 123, 125, 126, 127, 130, 131, 140, 157, 172, 176, 179, 236, 244, 286, 287, 292, 293, 294, 300, 301, 304, 311, 323, 328, 336, 339, 340, 342, 343, 362, 363, 412, 418, 421, 445, 455, 462, 495, 503, 512, 529, 531, 532, 537, 539, 541, 558, 563, 583, 592, 658, 662, 669, 675, 676, 677, 734, 738, 771, 812, 814, 825, 843, 845, 905, 918, 932, 945, 954, 955, 964, 965, 1012, 1028, 1029, 1030, 1044, 1049, 1059, 1096, 1104, 1129, 1130, 1163, 1174, 1223, 1228, 1230, 1240, 1241, 1243, 1274, 1278, 1284, 1293, 1295, 1322, 1341, 1361, 1382, 1396, 1408, 1421, 1445, 1471, 1472, 1484, 1503, 1504, 1508, 1517, 1542, 1543, 1566, 1570, 1571, 1574, 1575, 1577, 1612, 1634, 1663, 1669, 1680, 1716

**PAPER**

25, 50, 73, 151, 168, 169, 173, 181, 182, 234, 243, 250, 252, 253, 254, 267, 273, 280, 296, 310, 320, 334, 337, 344, 374, 387, 388, 416, 420, 423, 460, 467, 468, 487, 530, 550, 556, 564, 574, 575, 608, 609, 611, 612, 639, 640, 641, 642, 643, 644, 646,

652. 780. 784. 797. 800. 827. 868. 875. 877. 907.  
908. 909. 910. 911. 912. 917. 919. 944. 958. 961.  
991. 1022. 1025. 1067. 1072. 1073. 1074. 1078.  
1086. 1094. 1137. 1156. 1158. 1165. 1166. 1167.  
1168. 1169. 1170. 1171. 1172. 1200. 1201. 1211.  
1214. 1226. 1239. 1247. 1248. 1249. 1250. 1251.  
1252. 1260. 1266. 1307. 1352. 1353. 1366. 1383.  
1399. 1400. 1407. 1420. 1433. 1451. 1453. 1454.  
1509. 1512. 1514. 1515. 1529. 1533. 1537. 1550.  
1578. 1607. 1610. 1620. 1623. 1624. 1625. 1649.  
1658. 1672. 1675. 1676. 1677. 1708

**PESTICIDES**

28. 44. 91. 92. 565. 782. 872. 1653

**PHOTOGRAPHS. PRINTS**

488. 489. 490. 608. 613. 756. 1394

**PIGMENTS**

346. 626. 870. 1240

**ROCK ART**

417. 434. 435. 436. 540. 617. 1141. 1155. 1640.  
1642. 1660

**STERILIZATION. SPORE CONTROL**

442. 1050. 1091. 1271. 1418. 1644

**STONE. MARBLE. LIMESTONE.****SANDSTONE. GRANITE**

23. 24. 51. 70. 74. 76. 78. 84. 97. 101. 110. 116. 117.  
132. 133. 144. 149. 152. 156. 159. 160. 161. 174.  
191. 192. 197. 200. 202. 203. 204. 210. 225. 226.  
227. 228. 229. 230. 231. 232. 233. 235. 241. 245.  
247. 257. 258. 260. 268. 271. 272. 274. 275. 276.  
277. 290. 291. 292. 305. 315. 316. 324. 345. 348.  
352. 364. 392. 393. 394. 395. 396. 397. 398. 399.  
400. 413. 417. 424. 425. 426. 429. 433. 437. 451.  
453. 470. 471. 472. 473. 474. 475. 476. 477. 478.  
479. 480. 481. 482. 497. 498. 499. 502. 511. 514.  
515. 516. 517. 519. 528. 538. 540. 544. 546. 549.  
555. 557. 558. 559. 572. 595. 597. 599. 605. 617.  
622. 624. 625. 629. 630. 633. 635. 653. 654. 656.  
666. 668. 671. 672. 673. 674. 678. 690. 691. 692.  
693. 707. 710. 718. 721. 722. 752. 753. 754. 774.  
793. 796. 802. 803. 804. 806. 810. 813. 817. 818.  
824. 829. 830. 831. 832. 833. 834. 836. 837. 838.  
849. 869. 878. 882. 883. 895. 896. 898. 921. 926.  
927. 929. 930. 934. 940. 947. 950. 956. 966. 967.  
973. 975. 982. 983. 984. 985. 986. 989. 990. 1007.  
1035. 1036. 1038. 1040. 1052. 1053. 1060. 1061.  
1065. 1084. 1087. 1095. 1098. 1099. 1101. 1103.  
1119. 1122. 1178. 1179. 1188. 1191. 1192. 1193.  
1195. 1202. 1203. 1205. 1207. 1208. 1209. 1236.  
1237. 1242. 1244. 1253. 1254. 1255. 1256. 1282.  
1287. 1292. 1315. 1316. 1317. 1319. 1323. 1324.  
1325. 1326. 1327. 1331. 1342. 1351. 1354. 1355.  
1359. 1360. 1362. 1364. 1367. 1368. 1372. 1386.  
1391. 1392. 1404. 1411. 1419. 1422. 1423. 1436.  
1437. 1438. 1440. 1443. 1460. 1462. 1463. 1464.

1468. 1469. 1470. 1486. 1490. 1491. 1516. 1520.  
1522. 1527. 1532. 1536. 1539. 1544. 1562. 1563.  
1564. 1565. 1567. 1568. 1574. 1576. 1590. 1605.  
1621. 1622. 1631. 1637. 1641. 1654. 1655. 1656.  
1657. 1662. 1666. 1667. 1669. 1670. 1693. 1694.  
1696. 1699. 1716. 1717

**TEMPERATURES. HOT. COLD.****FREEZING FOR INSECT CONTROL**

138. 143. 184. 188. 190. 380. 427. 428. 488. 489.  
490. 531. 608. 613. 615. 616. 652. 756. 873. 1063.  
1083. 1091. 1118. 1124. 1125. 1148. 1346. 1394.  
1451. 1452. 1454. 1555. 1706

**TREATMENTS**

60. 69. 70. 71. 73. 74. 81. 83. 98. 99. 188. 216. 218.  
230. 284. 303. 323. 406. 409. 428. 526. 613. 621.  
648. 673. 707. 766. 767. 824. 827. 829. 833. 834.  
960. 963. 979. 988. 991. 1002. 1026. 1030. 1053.  
1099. 1150. 1188. 1199. 1243. 1274. 1336. 1337.  
1349. 1366. 1388. 1392. 1410. 1461. 1492. 1528.  
1588. 1632. 1635. 1651. 1688

**TROPICS**

4. 48. 49. 71. 96. 114. 122. 326. 356. 377. 427. 552.  
607. 721. 751. 947. 951. 959. 996. 1133. 1200. 1252.  
1324. 1326. 1596. 1597

**WALL PAINTINGS**

121. 125. 126. 127. 130. 140. 157. 172. 176. 301.  
304. 336. 362. 363. 421. 462. 471. 472. 529. 531.  
539. 558. 563. 592. 658. 675. 676. 677. 734. 738.  
812. 843. 845. 945. 954. 955. 964. 965. 1044. 1049.  
1096. 1104. 1130. 1163. 1228. 1240. 1241. 1243.  
1274. 1278. 1284. 1293. 1295. 1361. 1369. 1382.  
1396. 1408. 1469. 1471. 1472. 1566. 1570. 1571.  
1574. 1575. 1577. 1612. 1634. 1716

**WOOD. CELLULOSE**

15. 29. 40. 42. 47. 48. 50. 53. 58. 60. 61. 62. 63. 64.  
67. 68. 69. 72. 76. 77. 78. 80. 81. 88. 96. 98. 99. 100.  
103. 128. 131. 134. 145. 146. 149. 153. 154. 155.  
158. 163. 164. 167. 170. 186. 187. 205. 206. 207.  
208. 209. 211. 216. 222. 237. 242. 249. 259. 261.  
262. 263. 264. 265. 269. 270. 283. 284. 285. 295.  
299. 303. 306. 307. 308. 309. 312. 313. 318. 322.  
323. 327. 329. 332. 333. 335. 338. 341. 348. 361.  
375. 376. 377. 384. 385. 401. 402. 403. 408. 414.  
428. 432. 438. 439. 443. 448. 457. 464. 465. 466.  
483. 484. 485. 486. 492. 500. 509. 510. 513. 524.  
525. 526. 532. 533. 534. 536. 547. 548. 551. 552.  
553. 560. 561. 562. 569. 571. 581. 582. 584. 585.  
586. 587. 590. 591. 593. 594. 600. 601. 607. 620.  
627. 631. 637. 648. 649. 650. 651. 670. 684. 694.  
698. 699. 701. 706. 709. 711. 715. 719. 728. 730.  
731. 732. 737. 739. 744. 746. 747. 748. 749. 750.  
757. 758. 759. 760. 761. 763. 764. 765. 766. 767.  
768. 769. 773. 800. 801. 810. 811. 817. 818. 822.  
823. 847. 848. 852. 858. 859. 861. 884. 885. 886.  
887. 888. 893. 914. 921. 937. 939. 946. 949. 951.

957, 959, 960, 968, 969, 970, 976, 978, 979, 993,  
994, 998, 999, 1000, 1010, 1011, 1019, 1026, 1027,  
1032, 1045, 1051, 1054, 1071, 1075, 1076, 1077,  
1079, 1080, 1082, 1085, 1088, 1101, 1102, 1105,  
1109, 1111, 1118, 1126, 1127, 1128, 1136, 1139,  
1149, 1150, 1151, 1152, 1153, 1154, 1176, 1177,  
1180, 1198, 1231, 1267, 1271, 1277, 1280, 1281,  
1282, 1287, 1298, 1299, 1300, 1301, 1302, 1309,  
1315, 1320, 1330, 1338, 1350, 1373, 1374, 1376,  
1378, 1379, 1380, 1381, 1385, 1387, 1388, 1390,  
1393, 1398, 1405, 1406, 1407, 1410, 1411, 1413,  
1414, 1415, 1416, 1417, 1425, 1427, 1428, 1429,  
1430, 1455, 1458, 1459, 1466, 1488, 1492, 1498,  
1502, 1521, 1525, 1528, 1534, 1540, 1556, 1557,  
1558, 1559, 1560, 1561, 1569, 1579, 1584, 1585,  
1588, 1591, 1605, 1613, 1624, 1627, 1630, 1643,  
1645, 1646, 1650, 1651, 1662, 1664, 1673, 1675,  
1679, 1682, 1688, 1689, 1690, 1691, 1700, 1704

**Bibliography****Bacteria, Actinomycetes.**

1. (1984). *The Biology of the Actinomycetes*. M. Goodfellow, M. Mordarski, and S.T. Williams, eds. Academic Press, New York.

**Fungi, Biocides.**

2. (1984). *Mode of Action of Antifungal Agents*. A.P.J. Trinci and J.F. Ryley, eds. Cambridge University Press, Cambridge.

**Biocides, Principles, Practices.**

3. (1982). *Principles and Practice of Disinfection, Preservation and Sterilisation*. A.D. Russell, W.B. Hugo, and G.A.J. Ayliffe, eds. Blackwell Scientific, St. Louis.

**Conservation, Tropics.**

4. (1976). *Conservation in the Tropics. Proceedings of the Asia-Pacific Seminar on Conservation of Cultural Property*. O.P. Agrawal, ed. International Center for Conservation, Rome.

**Conservation, Problem.**

5. (1973). *Problemi de Conservazione*. G. Urbani, ed. Editrice Compositori, Bologna.

**Fungi, Mycotoxins.**

6. (1977). *Mycotoxic Fungi — Mycotoxins — Mycotoxicoses Mycotoxic Fungi and Chemistry of Mycotoxins*. Vol. 1. T.D. Wyllie, and L.G. Morehouse, eds. Marcel Dekker, New York.

**Fungi, Taxonomy.**

7. (1973). *The Fungi. A Taxonomic Review with Keys*. Vol. IV A. G.C. Ainsworth, F.K. Sparrow, and A.S. Sussman, eds. Academic Press, New York.

**Fungi, Textbook.**

8. (1968). *The Fungi. The Fungal Population*. III. G.C. Ainsworth and A.S. Sussman, eds. Academic Press, New York.

**General, Proceedings.**

9. (1983). *Biodeterioration 5. Proceedings of the Fifth International Symposium*. T.A. Oxley and S. Barry, eds. John Wiley and Sons, New York.

**General, Journal.**

10. *International Biodeterioration. A journal of biodeterioration and biodegradation*, published in two volumes/8 times a year. Elsevier, London.

**General, Proceedings.**

11. (1971). *Biodeterioration of Materials*. Vol. 2. A.H. Walters and E.H. Hueck-van der Plas, eds. John Wiley and Sons, New York.

**Geomicrobiology, Metals.**

12. (1983). *Biomineralization and Biological Metal Accumulation: Biological and Geological Perspectives*. P. Westbroek and A.F. De Jong, eds. D. Reidel Publishing Co. Boston.

**Glass, Society publication.**

13. (1971). *Corpus Vitrearum de Mediei Newsletter*. Occasional publication of articles and abstracts on Medieval Stained Glass. Comite Technique du Corpus Vitrearum, Paris.

**Marine organisms, Interdisciplinary study.**

14. (1984). *Marine Biodeterioration: An Interdisciplinary Study*. J.D. Costlow and R.C. Tipper, eds. Naval Institute Press, Annapolis, MD.

**Metals, Wool, Wood.**

15. (1981). *Economic Microbiology Series*. Vol. 6. *Microbial Biodeterioration*. A.H. Rose, ed. Academic Press, New York.

**Methods, Taxonomy.**

16. (1980). *Microbial Classification and Identification*. M. Goodfellow and R.G. Board, eds. Academic Press, New York.

**Methods, Metals.**

17. (1978). *Environmental Biogeochemistry and Geomicrobiology*. Vol. 3: *Methods, Metals and Assessment*. W.E. Krumbein, ed. Ann Arbor Science, Ann Arbor, MI.

**Microbiology, Handbook.**

18. (1977). *CRC Handbook of Microbiology*. Vol. 2. A.I. Laskin and H.A. Lechevalier, eds. CRC Press, Cleveland, OH.

**Microbiology, Handbook.**

19. (1977). *CRC Handbook of Microbiology*. Vol. 1. A.I. Laskin and H.A. Lechevalier, eds. CRC Press, Cleveland, OH.

**Microbiology, Symposium.**

20. (1983). *Microbes in their Natural Environments*. 34th Symposium of the Society for General Microbiology. J.H. Slater, R. Whittenbury, and J.W.T. Wimpenny, eds. Cambridge University Press, Cambridge.

**Minerals, Demineralization.**

21. (1982). *Biological Mineralization and Demineralization*. G.H. Nancollas, ed. Springer-Verlag. New York.

**Minerals, Microorganisms.**

22. (1977). *Microorganisms and Minerals*. G.E. Weinberg, ed. Marcel Dekker. New York.

**Stone, Biogeochemistry, Geomicrobiology.**

23. (1978). *Environmental Biogeochemistry and Geomicrobiology*. Vol. 2: *The Terrestrial Environment*. W.E. Krumbein, ed. Ann Arbor Science. Ann Arbor, MI.

**Stone, Marine, Organisms.**

24. (1978). *Environmental Biogeochemistry and Geomicrobiology*. Vol. 1: *The Aquatic Environment*. W.E. Krumbein, ed. Ann Arbor Science. Ann Arbor, MI.

**Paper, India, Conservation.**

25. (1977). *Conservation of paper. Conservation of Cultural Properties in India*. 10:15-45.

**Biocides, Lichens, Fungi.**

26. (1982). *Control of lichens, moulds and similar growths. Building Research Establishment Digest. Building Research Advisory Service*. Aylesbury, Bucks. UK. 139:1-4.

**General, Proceedings.**

27. (1980). *Biodeterioration. Proceedings of the Fourth International Symposium*, Berlin. T.A. Oxley, D. Allsopp, and G. Becker, eds. Pitman, and The Biodeterioration Society. London.

**Fumigants, Biocides, Pesticides, Insecticides.**

28. (1981). *Pesticides and Fumigants Used by Art Conservators*. R. Lowinger and S.Thomassen-Krauss, eds. 1-9.

**Wood, Archaeological, Proceedings.**

29. (1990). *Advances in Chemistry Series. Archaeological Wood: Properties, Chemistry, and Preservation*. R.M. Rowell and R.J. Barbour, eds. American Chemical Society. Washington DC.

**ATP-ATPase assessment.**

30. (1986). *Bioluminescence and chemiluminescence. Methods in Enzymology*. Vol. B. M.A. DeLuca and W.D. McElroy, eds. Academic Press. New York.

**Anoxants, Insects, Inert Gases, Biocides.**

31. (1980). *Controlled Atmosphere Storage of Grains: Developments in Agricultural Engineering*. J. Shejbal, ed. Elsevier. Amsterdam.

**Insects, Control techniques, Biocides, Insecticides.**

32. (1988). *A Guide to Museum Pest Control*. L.A. Zycherman and J.R. Schrock, eds. FAIC and ASC. Washington, DC.

**Insects, Termites.**

33. (1971). *Termites. A World Problem*. The Rentokil Library. Hutchinson. London.

**Insects, Control techniques, Biocides, Insecticides.**

34. (1979). *Pest Control in Buildings*. The Rentokil Library. Rentokil. East Grinstead, UK.

**Insects, Cockroaches, Insecticides.**

35. (1976). *The Cockroach*. Vol. II: *Insecticides and Cockroach Control*. The Rentokil Library. Associated Business Programmes. London.

**Insects, Termites, Insecticides.**

36. (1983). *Termicides in Building Protection. Proceedings*. Abdallah M. Khasawinah. Chicago.

**Polymers, Resins.**

37. (1975). *Degradation of polymers. Comprehensive Chemical Kinetics*. Vol. 14. Elsevier. Amsterdam.

**Paints, Coatings, Varnish.**

38. (1961). *Annual Book of ASTM Standards 1983. Section 6: Paints, Related Coatings, and Aromatics*. American Society for Testing and Materials. Philadelphia.

**Biocides, Algicides, Caves.**

39. (1977). *Utilisation de biocides-algicides par la section 'conservation des grottes ornees' du LRMH. Laboratoire de Recherche des Monuments Historiques*. Champs-sur-Marne.

**Wood, Marine environment, Biocides.**

40. (1981). *Marine exposure of preservative-treated small wood panels*. Research Paper FPL No. 399. Forest Products Laboratory. Madison.

**Fumigants, Ethylene oxide.**

41. (1980). *The Safe Use of Ethylene Oxide. Proceedings of the Educational Seminar*.

- Arlington, VA, 16-17 June, 1980. HIMA Report 80-4. Health Industry Manufacturers Association. Washington, DC.
- Biocides, Wood.**
42. (1982). General discussion: Progression the treatment of waterlogged wood, biocides. Proceedings of the ICOM Waterlogged Wood Working Group Conference, Ottawa, 15-18 September 1981. ICOM Waterlogged Wood Working Group, Ottawa. 267-8.
- Insects, Beetles.**
43. (1982). House longhorn beetle survey. BRE Information N. 12. Building Research Station, Garston, UK.
- Pesticides, Biocides, Insecticides, Chemistry.**
44. (1982). The Chemistry of Pesticides: Their Metabolism, Mode of Action and Uses in Crop Protection. Verlag Chemie, Weinheim.
- Polymers, Resins.**
45. (1981). Polymer Degradation. Principle and Practical Applications. Hanser International, Munich.
- Polymers, Resins, Natural products.**
46. (1980). Polymers in Nature. John Wiley and Sons, Chichester.
- Wood, Handbook.**
47. (1981). A Handbook of Softwoods. Building Research Establishment Report. Her Majesty's Stationery Office, London.
- Wood, Tropics.**
48. (1980). Timber in tropical building. Building in Hot Climates. A Selection of Overseas Building Notes. Her Majesty's Stationery Office, London. 195-217.
- Insects, Termites, Tropics.**
49. (1980). Termites and tropical building. Building in Hot Climates. A Selection of Overseas Building Notes. Her Majesty's Stationery Office, London. 219-38.
- Wood, Paper, Pulp, Fuels, Polymers, Rubber, Plastics, Metals, Grains, Biocides.**
50. (1978). Biodeterioration. Proceedings of the Fourth International Symposium, Berlin. T.A. Oxley, D. Allsopp, and G. Becker, eds. Pitman, and The Biodeterioration Society, London.
- Stone, Masonry, Biocides, Fungi, Algae, Bacteria, Lichen.**
51. (1981). The Conservation of Stone, II: Preprints. Part A: Deterioration. Part B: Treatments. R. Rossi-Manaresi, ed. Centro per la Conservazione delle Sculture all'Aperto, Bologna.
- General, Many materials and techniques.**
52. (1977). Conservation in Australia. Proceedings of the ICCM national Conference, Canberra, May 1976. The Institute for the Conservation of Cultural Material, Sydney.
- Wood, Masonry, Fungi, Moisture.**
53. (1979). Moisture of construction as a cause of decay in suspended ground floors. Princes Risborough Laboratory Technical Note N. 14. Building Research Station, Garston, UK.
- Masonry, Fungi, Moisture.**
54. (1977). Fungus growths in buildings following wetting from burst pipes. Princes Risborough Laboratory Technical Note N. 15. Building Research Station, Garston, UK.
- Insects, Beetles.**
55. (1977). The house longhorn beetle. Princes Risborough Laboratory Technical Note N. 39. Building Research Station, Garston, UK.
- Insects, Beetles.**
56. (1979). Lyctus powder-post beetles. Princes Risborough Laboratory Technical Note N. 60. Building Research Station, Garston, UK.
- Brick, Masonry, Conservation.**
57. (1977). The Conservation of Brick Buildings. The Repair, Alteration and Restoration of Old Brickwork. The Brick Development Association. Winkfield, Windsor.
- Wood, Biocides, Preservatives.**
58. (1960). Documentation bois. VII: Preservation du bois et traitement des surfaces. 1: Preservation du bois. Lignum — Union Suisse en Faveur du Bois. Zurich.
- Textiles, Insects, Moths, Beetles, Life-cycle, Control, Biocides, Insecticides.**
59. (1967). Clothes moths and carpet beetles: Their life-history, habits and control. British Museum (Natural History)

- Economic Series, No. 14. Trustees of the British Museum (Natural History). London.
- Wood, Dry rot. Prevention, Treatment, Biocides, Fungi.  
60. (1977). Dry rot. Causes, remedy and prevention. Wood Preservation Leaflet 1. The British Wood Preserving Association. London.
- Wood, Preservation.  
61. (1977). Preservative treatment of timber for estate, farm and garden use. Wood Preservation Leaflet 2. The British Wood Preserving Association. London.
- Wood, Preservation.  
62. (1977). Preservative treatment of timber. Wood Preservation Leaflet 3. The British Wood Preserving Association. London.
- Wood, Insects, Borers, Preservation.  
63. (1977). Preservative treatment against wood borers. Wood Preservation Leaflet 6. The British Wood Preserving Association. London.
- Wood, Insects, Preservation.  
64. (1977). Preserving wood in home and garden: A general guide. Wood Preservation Leaflet 14. The British Wood Preserving Association. London.
- Insects, Termites, Bibliography.  
65. (1976). Specialized bibliography on termites, behaviour and control. Specialised Bibliography N. 11. Biodeterioration Information Centre. Birmingham, UK.
- Lichens, Fungi, Algae, Biocides, Control.  
66. (1972). Control of lichens, moulds and similar growths. Building Research Station Digest N. 139. Her Majesty's Stationery Office. London.
- Wood, Dry rot, Wet rot, Fungi.  
67. (1975). Dry rot and wet rot. Advisory Leaflet N.10. Her Majesty's Stationery Office. London.
- Wood, Insects, Woodworm.  
68. (1972). Woodworm. Advisory Leaflet N.42. Her Majesty's Stationery Office. London.
- Wood, Fungi, Insects, Prevention, Treatments, Biocides, Insecticides.  
69. (1972). Traitements preventifs et curatifs des bois de construction contre les alterations biologiques. Cahiers du Centre Technique du Bois N. 73. Centre Technique du Bois. Paris.
- Stone, Building materials, Biocides, Treatments.  
70. (1973). International Symposium on the Deterioration of Building Stones. V. Romanowski, ed. Les Imprimeries Reunies de Chambéry. Chambéry.
- Tropics, Biocides, Treatments, Mechanisms.  
71. (1972). Conservation in the Tropics. Proceedings of the Asia Pacific Seminar on Conservation of Cultural Property, New Delhi, 7-16 February, 1972. O.P. Agrawal, ed. International Center for Conservation. Rome.
- Wood, Insects, Fumigants, Insecticides, Dichlorvos.  
72. (1972). Woodworm control in domestic roofs by Dichlorvos vapour. Technical Note N. 58. Building Research Establishment. Aylesbury, Bucks, UK.
- Library, Paper, Conservation, Treatments, Archives.  
73. (1972). Library and Archives Conservation. The Boston Athenaeum's 1971 Seminar on the Application of Chemical and Physical Methods to the Conservation of Library and Archives. G.M. Cunha and N.P. Tucker, eds. The Library of the Boston Athenaeum. Boston, MA.
- Stone, Conservation, Treatments, Biocides.  
74. (1976). The Conservation of Stone I. Proceedings of the International Symposium, Bologna, 19-21 June, 1975. R. Rossi-Manaresi, ed. Centro per la Conservazione delle Sculture all'Aperto. Bologna.
- Insects, Beetles.  
75. (1976). Le capricorne des maisons. Cahiers du Centre Technique du Bois N. 103. Centre Technique du Bois. Paris.
- Stone, Wood, General, Prevention, Causes.  
76. (1954). Deterioration of Materials. Causes and Preventive Techniques. G.A. Greathouse and C.J. Wessel, eds. Reinhold. New York.
- Wood, Protection, Biocides.  
77. (1954). Jahresberichte ueber holzschutz — annual report on wood protection. G. Becker and G. Theden, eds. Springer Verlag. Berlin.

## Stone, Wood, Textiles, General.

78. (1981). *Microbial Biodeterioration*. Economic Microbiology Series. Vol. 6. A.H. Rose, ed. Academic Press. New York.

## Metals, Metallurgy.

79. (1971). *Microbial Aspects of Metallurgy*. J.D.A. Miller, ed. Medical and Technical Publishing. Aylesbury, Bucks, UK.

## Wood, Durability.

80. (1981). The natural durability classification of timber. Princes Risborough Laboratory Technical Note N. 40. Building Research Establishment. Garston, UK.

## Wood, Conservation, Treatments.

81. (1983). *Legno del Restauro e Restauro del Legno*. Atti del Congresso Nazionale. Firenze. Palazzo Affari, 30 Novembre-3 Dicembre, 1983. Vol. 1. G. Tampone, ed. Palutan. Milan.

## Textiles, Biocides, Fungi, Techniques.

82. (1981). Methods of test for determination of the resistance of textiles to microbiological deterioration. BS 6085. British Standard Institution. London.

## Leather, Treatment, Fungi.

83. (1983). Removing mould from leather. CCI notes N. 8/1. Canadian Conservation Institute. Ottawa.

## Stone, Borobudur, Fungi, Plants.

84. (1983). Borobudur. La conquete du temps. UNESCO. Paris.

## Biocides, Toxicity.

85. (1983). Registry of toxic effects of chemical substances. 1981-82. R.L. Tatken and R.J. Lewis, Sr, eds. National Institute for Occupational Safety and Health. Cincinnati, OH.

## Insects, Textiles, Biocides, Control.

86. (1981). Control of fabric pests. Agriculture Canada Publication 1202. Minister of Supply and Services. Ottawa.

## General, Proceedings.

87. (1985). Vth International Congress on Deterioration and Conservation of Stone: Proceedings. Vols 1 and 2. G. Felix, ed. Presses Polytechniques Romandes. Lausanne.

## Wood, Chemistry.

88. (1984). The Chemistry of Solid Wood. Advances in Chemistry Series N. 207. R.

Rowell, ed. American Chemical Society. Washington, DC.

## General, Proceedings.

89. (1968). *Biodeterioration of Materials*. A.H. Walters and J.J. Elphick, eds. Elsevier. Amsterdam.

## Stone, Leather, Textiles, Lichens, Fungi, Algae, Bacteria, Techniques, General.

90. (1972). *Biodeterioration of Materials*. Vol. 2. Proceedings of the 2nd International Biodeterioration Symposium. Lunteren. The Netherlands. A.H. Walters and E.H. Hueck-Van Der Plas, eds. Applied Science. London.

## Pesticides, Toxicity, Biocides, Insecticides, Termites.

91. (1982). An assessment of the health risks of seven pesticides used for termite control. NTIS Document AD-A 152.250. National Academy Press. Washington, DC.

## Insects, Pesticides, Biocides, Application techniques, Termites.

92. (1982). Pesticide applicator training manual. Category 7. Industrial, institutional, structural and health related pest control. Subcategory. Termites. Cornell University. Ithaca, NY.

## Fungi, Textiles, Mummy, Gamma radiation, Egypt.

93. (1985). La Momie de Ramses II. Contribution Scientifique a l'Egyptologie. L. Balout, C. Roubet, and C. Desroches-Noblecourt, eds. Editions Recherche sur les Civilisations. Paris.

## Proceedings, Plastics, Resins, Polymers, Biocides.

94. (1985). *Biodeterioration and Biodegradation of Plastics and Polymers*. Proceedings of the Biodeterioration Society. Occasional Publication N. 1. K.J. Seal, ed. The Biodeterioration Society. Kew, UK.

## General, Proceedings.

95. (1987). Proceedings of the Pan-American Biodeterioration Society Meeting. Biodeterioration Research I. G.C. Llewellyn and C.E. O'Rear, eds. Plenum Press. New York.

## Wood, Tropics, Preservation.

96. (1985). *Preservation of Timber in the Tropics*. W.P.K. Findlay, ed. Martinus Nijhoff/Dr. W. Junk Publishers. Dordrecht.

- Consolidants, Polymers, Resins, Stone.  
97. (1987). Biodeterioration studies of stone consolidants. The Getty Conservation Institute Newsletter. The Getty Conservation Institute. Marina del Rey, CA. 2:10.
- Insecticides. Wood borers, Biocides, Treatments.  
98. (1987). Insecticidal treatments against wood-boring insects. BRE Digest. 327. Building Research Establishment. Garston, UK.
- Wood, Wet rot, Treatment, Biocides, Fungi.  
99. (1989). Wet rots: Recognition and control. BRE Digest. 345. Building Research Establishment. Garston, UK.
- Wood, Insects, Wood borers, Beetles.  
100. (1972). Damage by *Ambrosia* (Pinhole borer) beetles. Technical Note N. 55. Building Research Establishment. Garston, UK.
- General, Proceedings.  
101. (1988). Vth International Congress on Deterioration and Conservation of Stone. Supplement. Nicholas Copernicus University. Press Department. Torun.
- Lichens, Structure, Environmental Response, Physiology, Metabolic products.  
102. (1973). The Lichens. V. Ahmadjian and M.E. Hale, eds. Academic Press. New York.
- General, Proceedings.  
103. (1976). Proceedings Third International Biodegradation Symposium. J. M. Sharpley and A.M. Kaplan, eds. Applied Science. London.
- General, Proceedings.  
104. (1988). Biodeterioration 7. D.R. Houghton, R.N. Smith, and H.O.W. Egging, eds. Elsevier. New York.
- General, Proceedings.  
105. (1988). International Biodeterioration. Special Issue: Biodeterioration 7. Part One. D.R. Houghton, R.N. Smith, and H.O.W. Egging, eds. Elsevier. London. 24(4-5).
- General, Proceedings part 2.  
106. (1989). International Biodeterioration Special Issue: Biodeterioration 7. Part Two. D.R. Houghton, R.N. Smith, and H.O.W. Egging, eds. Elsevier. New York. 25(1-3).
- General, Proceedings.  
107. (1989). Proceedings of the Pan-American Biodeterioration Society Meeting. Biodeterioration Research 2. G.C. Llewellyn and C.E. O'Rear, eds. Plenum Press. New York.
- General, Proceedings.  
108. (1990). Proceedings of the Pan-American Biodeterioration Society Meeting. Biodeterioration Research 3. G.C. Llewellyn and C.E. O'Rear, eds. Plenum Press. New York.
- Biocides, Proceedings.  
109. (1990). International Biodeterioration. Special Issue: Biocides. R. Elsmore, D.R. Houghton, B. Flannigan, and H.W. Rossmore, eds. Elsevier. London. 26(2-4).
- Stone, Limestone, Egypt.  
110. Abd El Hady, M.A. (1988). Biodeterioration of Monumental Limestone Material — Egypt. Vth International Congress of Egyptology. International Association of Egyptologists. Cairo.
- Anoxant, Fumigation, Insect control.  
111. Abe, Y., and Y. Kondoh. (1990). Oxygen absorbers. CA/MA Vacuum Packaging of Foods. Mitsubishi Gas Chemical Company. 149-60.
- Organic materials, Prevention, Techniques.  
112. Abrams, E. (1948). Microbiological deterioration of organic materials: Its prevention and methods of test. National Bureau of Standards Miscellaneous Publication N. 188. US Department of Commerce. Washington, DC.
- Insects, Beetles, England, Infestation, *Reesa*.  
113. Adams, R.G. (1978). The first British infestation of *Reesa vespulaf* (Milliron) (Coleoptera: Dermestidae). Entomologist's Gazette. 29:73-5.
- Paint, Paintings, Tropics.  
114. Adefarati, F.B. (1980). Paints and painting problems in the tropics. Journal of the Oil and Colour Chemists' Association. 63(9):367-9.
- Fungicides, Textiles, Pentachlorophenol.  
115. Adema, D.M.M., G.M. Meijer, and H.J. Hueck. (1967). The biological activity of pentachlorophenol esters — a preliminary note. Internat. Biodeter. Bull. 3(1):29-32.

## Stone, Bacteria, Fungi, Rome, Hypogea.

116. Agarossi, G., R. Ferrari, and M. Monte. (1985). Microbial biodeterioration in the Hypogea: The subterranean neo-Pythagorean basilica of Porta Maggiore in Rome. Vth International Congress on Deterioration and Conservation of Stone. Proceedings, Vol. 2. G. Felix, ed. Presses Polytechniques Romandes. Lausanne. 597-605.

## Stone, Rome, St. Clemente, Techniques.

117. Agarossi, G., R. Ferrari, and M. Monte. (1986). The Basilica of St. Clemente in Rome: Studies on biodeterioration. Scientific Methodologies Applied to Works of Art. Proceedings. P.L. Parrini, ed. Montedison Progetto Cultura. Milan. 52-56, 231.

## Biocides, Tomb, Etruscan.

118. Agarossi, G., R. Ferrari, M. Monte, C. Gugliandolo, and M. Maugeri. (1988). Changes in the microbial system in an Etruscan tomb after biocidal treatments. VIth International Congress on Deterioration and Conservation of Stone. Supplement. Nicholas Copernicus University. Press Department. Torun. 82-91.

## Weathering, Laboratory experiments.

119. Agrawal, P.N., and J.N. Nanda. (1972). Correlation of tropical room experiments with weathering exposures. Biodeterioration of Materials. Vol. 2. A.H. Walters and E.H. Hueck-Van Der Plas, eds. Applied Science. London. 179-84.

## General, India.

120. Agrawal, O.P. (1989). An overview of studies related to biodeterioration of cultural property. International Conference on Biodeterioration of Cultural Property. Preprints, Vol. I. Nat'l. Res. Lab. Conser. Cult. Prop. Lucknow.

## Wall paintings, Caves, Ajanta, India.

121. Agrawal, O.P. (1975). Problems of preservation of Ajanta wall paintings. Conservation of Cultural Property in India. 8:13-21.

## General, Tropics, Conservation.

122. Agrawal, O.P. (1979). Conservation of cultural objects in the tropics. Regional Seminar on the Conservation of Cultural Materials in Humid Climates. Australian Government Publishing Office. Canberra. 19-28.

## Paintings, Preservation.

123. Agrawal, O.P. (1967). An introduction to preservation of paintings. Maharaja Sayajirao. University of Baroda. Baroda.

## Insects, Termites, Museums.

124. Agrawal, O.P. (1979). Termites: A Major Problem in Museums. Via di San Michele. Rome.

## Wall Paintings, Conservation, Techniques, India.

125. Agrawal, O.P. (1989). Examination and conservation of wall paintings of Sheesh Mahal. Nagaur. Intach Conservation Centre. Lucknow.

## Wall paintings, Ajanta, India.

126. Agrawal, O.P., S. Dhawan, K.L. Garg, F. Shaheen, N. Pathak, and A. Misra. (1988). Study of biodeterioration of the Ajanta wall paintings. Internat. Biodeter. 24:121-9.

## Wall paintings, India, Conservation, Problems.

127. Agrawal, O.P. and K.K. Jain. (1984). Problems of conservation of wall paintings in India. Conservation and Restoration of Cultural Property. Conservation and Restoration of Mural Paintings (I). Tokyo National Research Institute of Cultural Property. Tokyo. 31-40.

## Wood, Fungi, Natural Biocide.

128. Agrawal, O.P., and S. Dhawan. (1984). Studies on fungal resistance of birch-bark. ICOM. Internat. Council of Monuments. Copenhagen. 25.1-3.

## Biocides, Control, Fumigation.

129. Agrawal, O.P. and S. Dhawan. (1985). Control of biodeterioration in museums. Technical Note N. 2. Nat'l. Res. Lab. Conser. Cult. Prop. Lucknow.

## Wall paintings, Murals, India, Conservation.

130. Agrawal, O.P. and U. Agrawal. (1988). Conservation of murals in the Raja Parikshit Chhatri Datia. Restoration of Indian art - Some case studies. Vol. I. INTACH Conservation Centre. Lucknow. 15-20.

## Wood, Restoration, Painting.

131. Agrawal, O.P. and U. Agrawal. (1988). Restoration of a painting on wooden panel. Restoration of Indian art - Some case studies. Vol. I INTACH Conservation Centre. Lucknow. 41-4.

## Stone, Conservation, Sandstone, India.

132. Agrawal, O.P., T. Singh, and K.K. Jain. (1986). Study and conservation of spotted red sandstone of Mathura. Case Studies in the Conservation of Stone and Wall Paintings. IIC. London. 165-9.

## Stone, Conservation, Marble, Taj Mahal, India.

133. Agrawal, O.P., T. Singh, B. V. Kharbade, K.K. Jain and G.P. Joshi. (1987). Discolouration of Taj Mahal marble — A case study. ICOM. Committee for Conservation. Paris. 447-52.

## Wood, Conservation, Natural biocide.

134. Agrawal, P.N., C.B. Gupta and D.G. Suryavanshi. (1984). Conservation and study of the properties of birch-bark. ICOM. Internat. Council of Monuments. Copenhagen. 14.1-4.

## Lichens, Culture methods, Symbiosis.

135. Ahmadjian, V. (1973). Methods of isolating and culturing lichen symbionts and thalli. The Lichens. V. Ahmadjian and M.E. Hale, eds. Academic Press. New York. 653-9.

## Lichens, Fungi, Algae, Symbiosis.

136. Ahmadjian, V. and J. Jacobs. (1983). Algal-fungal relationships in lichens: Recognition, synthesis and development. Algal Symbiosis. L.J. Goff, ed. University Press. New York. 147-72.

## Deterioration, Preservation.

137. Aktinat, M.H. (1970). Organische korrosionsinhibitoren: Wirkungsmechanismen und charakteristik. Werkstoffe und Korrosion. 21(4):273-81.

## Sterilization, High temperatures.

138. Alder, V.G. and R.A. Simpson. (1982). Heat sterilisation, Sterilisation and disinfection by heat methods. In: Principles and Practices of Disinfection, Preservation and Sterilisation. A.D. Russell, W.B. Hugo, and G.A.J. Ayliffe, eds. Blackwell Scientific. St. Louis. 433-53.

## Building material, Conservation, Techniques.

139. Alessandrini, G. (1983). La conservazione dei manufatti artistici: Metodologia di ricerche sul degrado e sulle tecniche di consolidamento dei materiali lapidei. Il consolidamento delle costruzioni. Collana di ingegneria strutturale. I. G. Del Piero, ed. Centro Internazionale di Scienze Meccaniche. Udine. 97-120.

## Frescoes, Wall paintings, Restoration.

140. Alessandrini, G., M. Bassi, G. Dassu and G. Sala. (1976). Suggestions for the restoration of paleochristian frescoes in the pantheon of S. Maria in Stelle. Verona. Antonio Barbieri. Milano. 219-25.

## Fungi, General, Textbook.

141. Alexopoulos, C.J. and C.W. Mims. (1979). Introductory Mycology. 3rd edition. John Wiley and Sons. New York.

Anoxant, Insects, Carbon Dioxide, *Tribolium*.

142. Ali Niazee, M.T. (1971). The effect of carbon dioxide gas alone or in combinations on the mortality of *Tribolium castanum* (Herbst) and *T. confusum* (Du Val) (Coleoptera: Tenebrionidae). Journal of Stored Product Research. 7(4):243-52.

## Anoxants, Insects, Helium, Nitrogen, Temperature, Flour Beetles.

143. Ali Niazee, M.T. (1972). Susceptibility of the confused and red flour beetles to anoxia produced by helium and nitrogen at various temperatures. J. Economic Entomology. 65(1):60-64.

## Stone, Conservation, Techniques.

144. Alessandrini, G.G. et al. (1984). St. Christopher Church in Milan. 1. Chemical and physical analysis and restoration. 2. Biological investigations. Estratto da Arte Lombarda Numero Sessantotto / Sessantanoove. 1-12.

## Wood, Durability, Degradation prevention, Biocides.

145. Alliot, H. (1966). Durabilite du bois, agents de degradation et moyens de prevention. Corrosion et Anticorrosion. 14(1):26-37.

## Wood, Preservation.

146. Alliot, H. and M.R. Gerling. (1954). La Preservation du Bois. Centre Technique du Bois. Paris.

## Biocides, Many materials.

147. Allsopp, C. and D. Allsopp. (1983). An updated survey of commercial products used to protect materials against biodeterioration. Internat. Biodeter. Bull. 19(3/4):99-146.

## Fungi, Growth requirements.

148. Allsopp, D. (1985). Biology and growth requirements of moulds and other deterring fungi. J. Soc. Archivists. 7(8):530-33.

General, Fungi, Algae, Bacteria, Lichens, Stone, Wood, Textiles.

149. Allsopp, D., and K. Seal. (1986). Introduction to Biodeterioration. E. Arnold. London.

Insects, Odd beetles, Museum.

150. Alpert, G.D. (1987). The role of the odd beetle, *Thylodrias contractus*, in the biodeterioration of museum objects. Biodeterioration Research 1. G.C. Llewellyn and C.E. O'Rear, eds. Plenum Press. New York. 309-15.

Library, Paper, Archives.

151. Altibrandi, M.G. and M.C. Scocchi. (1989). La microbiologia negli archivi. Le scienze applicate nella salvaguardia e nella riproduzione degli archivi. Quaderni della rassegna degli Archivi di Stato. 56. Ministero per i Beni Culturali e Ambientali. Rome. 107-19.

Stone, Conservation, Techniques.

152. Amadori, L., A.M. Mecchi, M. Monte, S. Musco, and A. Salvatori. (1989). La conoscenza dei materiali e delle strutture per un progetto di restauro nel parco archeologico di Gabii. Il cantiere della conoscenza, il cantiere del restauro. Atti del convegno di studi, Bressanone. 27-30 Giugno 1989. Scienza e Beni Culturali. G. Biscontin, M. Dal Colle and S. Volpin, eds. Libreria Progetto Editore. Padova. 295-308.

Cellulose, Fungi, Foxing.

153. Ambler, H.R. and C. F. Finney. (1957). Brown stain formed on wet cellulose. Nature. 179:1141.

Wood, Freeze-drying.

154. Ambrose, W. (1970). Freeze drying of swamp-degraded wood. Conservation of Stone and Wooden Objects. Preprints. Vol. 2. 2nd edition. Internat. Inst. Cons. Historic and Artistic Works. London. 53-7.

Wood, Freeze-drying.

155. Ambrose, W.R. (1975). Stabilizing degraded swamp wood by freeze drying. ICOM Committee for Conservation. 4th Triennial Meeting. Preprints. Paris. 14.

Stone.

156. Amico, F.D. (1984). Su Paolo Guidotti Borghese esu una congiuntura di tardo manierismo romano. Ricerche di storia dell'arte. La Nuova Italia Scientifica. Rome. 82:71-102.

Wall paintings, Nefertari, Egypt.

157. Ammar, M.S., K. Barakat, .H. Ghanem, and A.A. El-Deeb. (1987). Microflora investigations. Wall Paintings of the Tomb of Nefertari. Scientific Studies for their Conservation. M.A. Corzo, ed. The Getty Conservation Institute. Century City, CA. 58-63.

Cellulose, Mechanisms.

158. Amsallem, B. (1970). Etude de la degradation enzymatique de la cellulose. Internat. Biodeter. Bull. 6(4):135-8.

Stone, Algae, Greece, Acropolis.

159. Anagnostidis, K., A. Economou-Amilli, and M. Roussomoustakaki. (1983). Epilithic and chasmolitic micorflora (Cyanpphyta, Bacillariophyta) from marbles of the Parthenon (Acropolis-Athens, Greece). Nova Hedwigia. 38:227-87.

Stone, Sculpture, Conservation, Sweden, Gotland, Middle Ages.

160. Andersson, T. (1985). The investigation and conservation of middle age stone sculpture on the island of Gotland, Sweden. Vth International Congress on Deterioration and Conservation of Stone. Vol. 2. G. Felix, ed. Presses Polytechniques Romandes. Lausanne. 1035-43.

Stone, Algae, Fungi, Lichens.

161. Andreoli, C., N. Rascio, L. Garlet, S. Leznicka and A. Strzelczyk. (1988). Interrelationships between algae and fungi overgrowing stoneworks in natural habitats. Vth International Congress on Deterioration and Conservation of Stone. Supplement. Nicholas Copernicus University. Press Department. Torun. 324-7.

Textiles, Soil burial, Microorganisms.

162. Anon. (1981). Microorganism stability of textiles in soil burial tests. Textilveredlung. 16(1):5-8.

Wood, Water repellents, Fungicides, Mildewicides.

163. Anon. (1984). Water repellents and chemicals in controlling mildew on wood exposed outdoors. Part 1. American Paint and Coatings Journal. 68:45-51.

Wood, Insects, Woodworm.

164. Anon. (1968). Woodworm in furniture, Technical Notes on the Care of Art Objects, No. 2. Her Majesty's Stationery Office. London.

## Insects. Dermestidae, Silkworm cocoons.

165. Ansari, M.F. and S. Basalingappa. (1989). Biodeterioration of different varieties of silkworm cocoons by the larvae of Dermestids' *Ater degear* and *Attegenus fasciatus* Thunberg (Dermestidae: Coleoptera). International Conference on Biodeterioration of Cultural Property. Preprints, Vol. I. Nat'l. Res. Lab. Conser. Cult. Prop. Lucknow. 44-54.

## Microbiology, Tumuli, Soil.

166. Arai, H. (1974). Microbiological study on a virgin tumulus. *J. Archaeol. Soc. Nippon.* 59(4):5-12.

## Wood, Fungi, Japan.

167. Arai, H. (1982). On *Stetmonitis fusca* Roth. (Myxomycetes) in a wooden building — the main building of the Kitasato Institute transferred to the museum Meiji-Mura (Jap.). *Science for Conservation.* 21:41-5.

## Foxing, Paper, Fungi, Biocides.

168. Arai, H. (1987). Microbiological study on the conservation of paper and related cultural property. (Part 5) Physiological and morphological characteristics of fungi isolated from foxing, foxing formation, mechanisms and countermeasures. *Science for Conservation.* 26:43-52.

## Foxing, Paper, Fungi.

169. Arai, H. (1987). On the foxing-causing fungi. ICOM Sixth Triennial Meeting. Preprints. Paris. 1165-67.

## Wood, Fungi, Prevention, Biocides.

170. Arai, H. (1979). Title translated: Method for preventing fungus growth on the decorative painting of wooden historical buildings. *Science for Conservation.* 18:27-34.

## Biocides, Fungicides, Bactericides.

171. Arai, H. (1974). *Journal of Antibacterial and Antifungal Agents.* 2(3):107-14.

## Wall paintings, Murals, Biocides, Tumuli, Japan.

172. Arai, H. (1984). Microbiological studies on the conservation of mural paintings in tumuli. International Symposium on the Conservation and Restoration of Cultural Property. Preprints. Y. Emoto and S. Miura, eds. Tokyo National Research Institute of Cultural Properties. Tokyo. 117-24.

## Foxing, Paper, Conservation, Biocides.

173. Arai, H. (1984). Microbiological studies on the conservation of paper and related cultural properties. Part I. Isolation of fungi from the foxing on paper. *Science for Conservation.* 23:33-9.

## Stone, Biocides.

174. Arai, H. (1985). Biodeterioration of stone monuments and its countermeasure. Conservation and Restoration of Stone Monuments. Y. Emoto, T. Nishiura and S. Miura, eds. National Research Institute of Cultural Properties. Tokyo. 84-95.

## Biocides, Tumuli, Amines, Japan.

175. Arai, H. (1986). Antimicrobial factors found in virgin tumuli. Biodeterioration 6. Proceedings of the Sixth International Biodeterioration Symposium. S. Barry, D.R. Houghton, G.C. Llewellyn and C.E. O'Rear, eds. CAB. International Mycological Institute and The Biodeterioration Society. Slough, UK. 363-8.

## Wall paintings, Nefertari, Egypt.

176. Arai, H. (1987). Biological investigations. Wall Paintings of the Tomb of Nefertari. Scientific Studies for their Conservation. M.A. Corzo, ed. The Getty Conservation Institute. Century City, CA. 117-24.

## General, Museums.

177. Arai, H. and H. Mori. (1980). Biological problems found in newly built museums. *Science for Conservation.* 19:1-8.

## Fungi, Cultural chambers, Techniques.

178. Arai, H. and T. Kenjo. (1989). A closed system for preventing fungal growth in cultural properties. International Conference on Biodeterioration of Cultural Property. Preprints. Vol. I. Nat'l. Res. Lab. Conservation Cultural Prop. Lucknow. 1-12.

## Biocides, Fumigation, Insecticides, da Vinci, Japan, Easel paintings.

179. Arai, H., H. Mori and T. Kadokura. (1979). Title translated: Fungus and insect damage countermeasures taken during the Leonardo da Vinci exhibition in Japan. *Science for Conservation.* 18:35-9.

## Foxing, Fungi, Mechanisms.

180. Arai, H., N. Matsui, N. Matsumura and H. Murakita. (1988). Biochemical investigations on the formation mechanisms of foxing. *Conservation of Far Eastern Art.* Kyoto. 11-12.

## Foxing, Paper, Induced.

181. Arai, H., N. Matsumura and H. Murakita. (1990). Induced foxing by components found in foxed areas. ICOM Committee for Conservation. 9th Triennial Meeting Dresden, GDR, 26-31 August 1990. Preprints. Vol. II. Paris. 801-3.

## Paper, Books, Library, Control, Foxing, Biocides, Fumigation.

182. Arai, H. and H. Mori. (1975). Biodeterioration of books and their pest controls in Japan. Science for Conservation, 14:33-43.

## Insects, Thailand.

183. Aranyanak, C. (1988). Insect factors in deterioration of cultural materials in Thailand. Spafa Digest. 8(2):19-21.

## High Temperature, Insects, Alternate control methods.

184. Arboblast, R.T. (1981). Mortality and reproduction of *Ephestia cautella* and *Plodia interpunctella* exposed as pupae to high temperatures. Environmental Entomology, 10(5):708-11.

## Biocides, Insecticides.

185. Armes, N. (1984). Aspects of the biology of the Guernsey carpet beetle *Anthrenus samicus* and control of Dermestid beetle pests in museums. 7th Triennial Meetings. ICOM. Copenhagen. 84/13/1-3.

## Wood, SEM, Calcium oxalate, Fungi.

186. Arnott, H.J. and A. Fryar. (1984). Raphide-like fungal crystals from Arlington, Texas compost. Scanning Electron Microscopy. Vol. IV. O. Johari, ed. SEM, Inc. AMF O'Hare (Chicago), IL. 1745-50.

## Wood, SEM, Calcium oxalate, Fungi.

187. Arnott, H.J. and M.A. Webb. (1983). The structure of calcium oxalate crystal deposits on the hyphae of a wood rot fungus. Scanning Electron Microscopy. Vol. IV. O. Johari, ed. SEM Inc. AMF O'Hare (Chicago), IL. 1747-58.

## High temperature treatment, Insects, Biocides, Fumigants.

188. Arogast, R.T. (1981). Mortality and reproduction of *Ephestia cautella* and *Plodia interpunctella* exposed to high temperatures. Environmental Entomology, 10(5):708-11.

## Textiles, Costumes, Insects, Control, Biocides, Insecticides.

189. Arthur, E. (1982). Pest problems and their control in costume and textile collections. Scottish Society for Conservation and Restoration — Newsletter. 40:18-21.

## Cold temperature, Control, Insects, Biocides, Insecticides.

190. Asahina, E. (1966). Freezing and frost resistance in insects. Cryology. H.T. Meryman, ed. Academic Press. London. 801-33.

## Lichens, Acids, Stone, Pedogenesis.

191. Ascaso, C. and J. Galvan. (1976). Studies on the pedogenetic action of lichen acids. Pedobiologica. 16:321-31.

## Lichens, Acids, Stone, Pedogenesis.

192. Ascaso, C., J. Galvan and C. Rodriguez-Pascual. (1982). The weathering of calcareous rocks by lichens. Pedobiologica. 24:219-29.

## Building materials, Weathering.

193. Ashton, H.E. (1975). Weathering of organic building materials. Canadian Building Digests 101-150. Canadian Building Digest N. 117. National Research Council of Canada. Ottawa.

## Building materials, Biodegradation.

194. Ashton, H.E. (1975). Biological attack on organic materials. Canadian Building Digests 101-150. Canadian Building Digest N. 124. National Research Council of Canada. Ottawa.

## ATP, Regulation.

195. Atkinson D.E. and G.M. Walton. (1967). ATP conservation in metabolic regulation. J. Biol. Chem. 242:3239-41.

## Energy charge, ATP.

196. Atkinson, D.E. (1969). Regulation of enzyme function. Ann. Rev. Microbiol. 23:47-68.

## Stone, Rock, Re-calcification.

197. Atlas, R.M., A.N. Chowdhury and K.L. Gauri. (1988). Microbial calcification of gypsum-rock and sulfated marble. Studies in Conservation. 33:149-53.

## Biocides, Ampholytics.

198. Augustin, H. (1983). Sanitizers — Antimicrobial, cleaning, toxicological and ecotoxicological properties of an ampholytic product. Biodeterioration 5.

- T.A. Oxley and S. Barry, eds. John Wiley and Sons. New York. 717-24.
- Fungi, Growth, *Aspergillus*.  
199. Avari, G.P. and D. Allsopp. (1983). The combined effect of pH, solutes and water activity (aw) on the growth of some xerophilic *Aspergillus* species. Biodeterioration 5. T.A. Oxley and S. Barry, eds. John Wiley and Sons. New York. 548-56.
- Stone, Lichens.  
200. Awasthi, D.D. (1989). Lichens and monuments. International Conference on Biodeterioration of Cultural Property. Preprints, Vol. I. Nat. Res. Lab. Conser. Cult. Prop. Lucknow. 175-80.
- Prevention, Environment control.  
201. Ayerst, G. (1968). Prevention of biodeterioration by control of environmental conditions. Biodeterioration of Materials. A.H. Walters and J.J. Elphick, eds. Elsevier. Amsterdam. 223-41.
- Stone, Lichens.  
202. Bachman, E. (1890). The relation between caliculus lichens and their substratum. Berichte der deutschen Botanischen Gesellschaft. 8:141-5.
- Stone, Lichens, Silica.  
203. Bachman, E. (1904). The relation between silica, lichens and their substrate. Berichte der deutschen Botanischen Gesellschaft. 22:101-4.
- Stone, Lichens.  
204. Bachman, E. (1892). The thallus of caliculus lichens. Berichte der deutschen Botanischen Gesellschaft. 22:30-7.
- Wood, Actinomycetes, Bacteria.  
205. Baecker, A.A.W. and B. King. (1978). Decay of wood by actinomycetales. Biodeterioration. Proceedings of the Fourth International Symposium, Berlin. T.A. Oxley, D. Allsopp and G. Becker, eds. Pitman and The Biodeterioration Society. London. 53-8.
- Wood, Soft rot, *Streptomyces*.  
206. Baecker, A.A.W. and B. King. (1981). Soft rot in wood caused by *Streptomyces*. Journal of the Institute of Wood Sciences. 65-71.
- Wood, Actinomycetes, Bacteria.  
207. Baecker, A.A.W., M.P. Dyker and B. King. (1983). The role of actinomycetes in the biodeterioration of wood. Biodeterioration 5. T.A. Oxley and S. Barry, eds. John Wiley and Sons. New York. 64-74.
- Wood, Cellulose, Lignin.  
208. Bailey, P.J., W. Liese and R. Rosch. (1968). Some aspects of cellulose degradation in lignified cell walls. Biodeterioration of Materials. A.H. Walters and J.J. Elphick, eds. Elsevier. Amsterdam. 546-57.
- Wood, Water, Wicking.  
209. Baines, E.F. (1983). Water potential, wick action and timber decay. Biodeterioration 5. T.A. Oxley and S. Barry, eds. John Wiley and Sons. New York. 26-37.
- Stone, Geology.  
210. Baker, D.R. and G.E. Claypool. (1970). Effect of incipient metamorphism on organic matter in mudrock. The Am. Assoc. Petrol. Geol. Bull. 54:456-68.
- Wood, Deterioration.  
211. Baker, M.C. (1975). Decay of wood. Canadian Building Digests 101-150. Canadian Building Digest N. 111. National Research Council of Canada. Ottawa.
- Fumigation, Vikane, Sulfuryl fluoride, Testing.  
212. Baker, M.T., H.D. Burgess, N.E. Binnie, M.R. Derrick and J.R. Druzik. (1990). Laboratory investigation of the fumigant Vikane. ICOM Committee for Conservation. 9th Triennial Meeting Dresden, GDR, 26-31 August 1990. Preprints. Vol. II. ICOM. Paris. 804-11.
- Glass, Fungicides.  
213. Baker, P.W. (1967). An evaluation of some fungicides for optical instruments. Internat. Biodeter. Bull. 3(2):59-64.
- Glass, Fungicides, Ethyl-mercury chloride, Meta-cresyl-acetate.  
214. Baker, P.W. (1968). Possible adverse effects of ethyl-mercury chloride and meta-cresyl-acetate if used as fungicides for optical/electronic equipment. Internat. Biodeter. Bull. 4(1):59-62.
- Fumigation, Effectiveness, Fungi.  
215. Baker, R. (1984). Monitoring the effectiveness of fumigation (or, the case of the unknown bloom). The Abbey Newsletter. 8(4):54.

## Cellulose, Wood, Conservation, Treatment.

216. Bakken, A. and K. Aarmo. (1978). A report on the treatment of museum materials made of plant fibers. ICOM. Paris. 3/2.

Methods, SEM, Sulfur bacteria, *Thiobacillus*.

217. Baldensperger, J., L.J. Guarraia and W.J. Humphreys. (1974). Scanning electron microscopy of *Thiobacilli* grown on colloidal sulfur. Arch. Microbiol. 99:323-9.

## Leather, Biocides, Treatment.

218. Balif, G. and V. Lazar. (1968). Microbial deterioration of some sorts of leather and its control. National Conference of General and Applied Microbiology. Abstracts of Communications. Bucharest. Academy of the Socialist Republic of Rumania. Bucharest. 193-4.

## AEC, Yeast, Activity level assessment.

219. Ball, W.J.Jr. and D.E. Atkinson. (1975). Adenylate energy charge in *Saccharomyces cerevisiae* during starvation. J. Bacteriol. 121(3):975-82.

## Ethylene oxide, Risk assessment.

220. Ballard, M. and N.S. Baer. (1984). Ethylene oxide fumigation: Results and risk assessment. Biodeterioration 6. Proceedings of the Sixth International Biodeterioration Symposium. S. Barry, D.R. Houghton, G.C. Llewellyn and C.E. O'Rear, eds. CAB International Mycological Institute and The Biodeterioration Society. Slough, UK. 1-24.

## Textiles, Insects, Biocides.

221. Ballard, M.W. (1984). Moth proofing museum textiles. ICOM. Paris. 9.1-6.

## Wood, Techniques, Fungi, Isolation.

222. Banerjee, A.K. and J.F. Levy. (1970). Techniques for the isolation of fungi from wood. Internat. Biodeter. Bull. 6(2):37-41.

## Anoxants, Insects, Fumigants.

223. Banks, H.J. (1978). Recent advances in the use of modified atmospheres for stored product pest control. Proceedings 2nd. International Working Conference Stored Product Entomology. Ibadan, Nigeria.

## Insects, Alternate methods of control, Anoxants.

224. Banks, H.J. and P.C. Annis. (1977). Suggested procedures for controlled

atmosphere storage of dry grain. CSIRO. Australia. Div. of Entomological Technology. Paper No. 13.

## Stone, Identification, Bacteria, Techniques.

225. Barcellona Vero, L. and M. Monte Sila. (1978). Mise en evidence de l'activite des thiobacilles dans les alterations des pierres a Rome. Identification de certaines souches. Alteration et protection des monuments en pierre. Deterioration and protection of stone monuments. International Symposium. UNESCO RILEM. Paris.

## Stone, Rome.

226. Barcellona Vero, L. and M. Tabasso Laurenzi. (1982). La Fontana del Tritone di L. Bernini, a Roma: Un esempio di alterazione legato a fattori chimici, biologici e ambientali. Deterioration and Preservation of Stones: Proceedings of the 3rd International Symposium. Universita degli Studi. Istituto di Chimica Industriale. Padova. 511-16.

## Stone, Techniques, Bacteria.

227. Barcellona Vero, L., R. Bianchini, M. Monte Sila and P. Tiano. (1976). Proposal of a method of investigation for the study of the presence of bacteria in exposed works of art in stone. The Conservation of Stone I. Proceedings of the International Symposium, Bologna, 19-21 June, 1975. R. Rossi-Manaresi, ed. Centro per la Conservazione delle Sculture all'Aperto. Bologna. 257-65.

## Stone, Conservation, Acid rain, Environment.

228. Barcellona, S., L. Barcellona-Vero and F. Guidobaldi. (1978). Influenza dell'inquinamento atmosferico sulla conservazione dei monumenti in pietra calcarea. Problemi di Conservazione. G. Urbani, ed. Editrice Compositori. Bologna. 427-37.

Stone, Techniques, *Aspergillus*, Sulfate crust.

229. Barcellona, S., L. Barcellona-Vero and F. Guidobaldi. (1972). The front of S. Giacomo Degli Incurabili church in Rome: Biological and chemical surface analysis. ICOM. Madrid. 2/1.

## Stone, Techniques, Bacteria, Conservation, Treatment.

230. Barcellona-Vero, L. and C. Giacobini. (1969). Metodi microbiologici di studio delle alterazioni delle pietre costituenti strutture murarie all'aperto. La Conservazione delle Sculture all'Aperto. Bologna. R.

- Rossi-Manaresi, ed. *Ente Bolognese Manifestazioni Artistiche*. Bologna. 95-100.
- Stone, Sulfur, Acid rain, Bacteria.
231. Barcellona-Vero, L. and M. Mont-Sila. (1976). Isolation of various sulphur-oxidizing bacteria from stone monuments. *The Conservation of Stone I. Proceedings of the International Symposium Bologna, 19-21 June, 1975*. R. Rossi-Manaresi, ed. Centro per la Conservazione delle Sculture all'Aperto. Bologna. 233-4.
- Stone, Acid rain, Sulfur, Bacteria.
232. Barcellona-Vero, L. and M. Monte Sila. (1976). Alterazione dei monumenti esposti all'Aperto: Incidenza dei solfobatteri in relazione alla natura del substrato e alle condizioni ambientali. *Conservazione dei Monumenti. Atti della Sezione II dell'associazione Termotecnica Italiana, Firenze, 25-27 settembre 1974*. Antonio Barbieri. Milano. 125-8.
- Stone, Bacteria.
233. Barcellona-Vero, L., C. Bettini and M. Monte-Sila. (1976). Chemoautotrophic microorganisms in semi-insulated environments. *Proceedings 2nd International Symposium on the Deterioration of Building Stones, Athens, Universite Technique National, Athens*. 61-6.
- Ethylene oxide, Fumigants, Biocides, Parchment, Books, Paper.
234. Barcellona-Vero, L., M. Marabelli and M.Z. Plozzi. (1978). Investigation on the disintegration by ethylene oxide of illuminated parchments. *ICOM, Zagreb*. 14/10.
- Stone, Acid rain, Sulfur, Bacteria.
235. Barcellona-Vero, L., M. Monte-Sila and A. Sileri. (1978). Influenza dell'azione dei solfobatteri nei processi di alterazione di materiali lapidei. *Problemi di Conservazione*. G. Urbani, ed. Editrice Compostori. Bologna. 439-52.
- Easel painting, Glue, Lining, Fungi.
236. Barclay, M. (1986). Case history: Removal of a double glue-lining from a 19th century English oil painting on canvas. *IIC-CG 12th Annual Conference, Winnipeg, International Institute for Conservation — Canadian Group, Ottawa*. 29, 26.
- Wood, Water-logged, Ship, Wasa, Techniques, Preservation.
237. Barkman, L. and A. Franzen. (1972). *The Wasa: Preservation and conservation. Underwater archaeology. A nascent discipline. Museums and Monuments, N. 13*. UNESCO. Paris. 231-242.
- Leather, Hides, Preservation, Techniques.
238. Barlow, J.R. (1976). Preservation of partially-processed hides and skins: A review. Part 1: Raw stock. *Tropical Science*. 18(2):63-92.
- Leather, Skins, Hides, Preservation, Processing, Techniques.
239. Barlow, J.R. (1976). Preservation of partially-processed hides and skins: A review. Part 2: Limed, pickled, wet-blue and crust material. *Tropical Science*. 18(2):93-113.
- Biocides, Hazards, Herbicides.
240. Barnes, J.M. (1976). Toxic hazards in the use of herbicides. *Herbicides, Vol. 2*. L.J. Audus, ed. Academic Press. New York. 373-91.
- Stone, Cleaner, Organic stains, Conservation.
241. Barov, A. (1987). An effective cleaner for organic stains on stone. *ICOM Committee for Conservation: Sydney, ICOM, Paris*. 465-8.
- Wood, Cellulose, Fungi.
242. Barr, A.R.M. (1978). The role of soils in the colonization and decay of cellulose by microfungi. *Annual Convention of the British Wood Preserving Association, Cambridge, British Wood Preserving Association, London*. 47-60.
- Paper making, Techniques.
243. Barrett, T. (1989). Part one: Early European papermaking methods 1400-1800. *The Paper Conservator*. 13:7-27.
- Easel paintings, Moisture, Techniques.
244. Barry, S., A.F. Bravery and L.J. Coleman. (1982). Une methode pour tester la resistance des peinture aux moisissures. *Double liaison chimie des peintures*. 320:51-3.
- Stone, Biocides, Techniques, Identification.
245. Bassi, M. (1981). Agenti biologici quale causadi deterioramento e metodi per la loro identificazione. Eliminazione e controllo del biodeterioramento. *Primo Corso di Aggiornamento sui Problemi*

- della Salvaguardia del Patrimonio Artistico Monumentale. Milano. Vol. 5. Regione Lombardia. Assessorato alla Cultura. Milano. 1-29.
- SEM. Methods. Microbiology  
246. Bassi, M. and C. Giacobini (1973). Scanning electron microscopy: A new technique in the study of the microbiology of works of art. *Internat. Biodeter. Bull.* 9(3):57-68.
- Stone, Pigeon excrement.  
247. Bassi, M. and D. Chiante. (1976). The role of pigeon excrement in stone biodeterioration. *Internat. Biodeter. Bull.* 12(3):73-9.
- Textiles. Biocides, Fungicides.  
248. Bayley, C.H. (1956). Microbiological process discussion: Some auxiliary effects of textile fungicides. *Appl. Microbiol.* 4:2.
- Wood, Fungicides, Preservation, Waterlogged.  
249. Baynes-Cope, A. (1975). Fungicides and the preservation of waterlogged wood. *Nat'l. Marit. Monogr., Rep.* 16:31-3.
- Biocides. Library, Leather, Paper, Archives.  
250. Baynes-Cope, A. (1971). The choice of biocides for library and archival material. *Biodeterioration of Materials*. Vol. 2. A.H. Walters and E.H. Hueck-van der Plas, eds. John Wiley and Sons. New York. 381-7.
- Insects, Identification, Museums.  
251. Baynes-Cope, A.D. (1982). Infestations and collections. The care of ethnographic material. *Museum Ethnographers' Group Occasional Paper N. 1*. Ipswich Museum. Ipswich. 1:22-5.
- Paper, Archives, Documents.  
252. Baynes-Cope, A.D. (1987). Biodeterioration and archival documents. *Internat. Biodeter.* 23(4):193-7.
- Paper, Foxing.  
253. Baynes-Cope, D. (1976). Some observations on foxing at the British Museum Research Laboratory. *Internat. Biodeter. Bull.* 12(1):31-3.
- Foxing, Fungi, Paper, Library.  
254. Baynes-Cope, D. and D. Allsopp. (1984). Observations on mould growth thin small libraries. *Biodeterioration 6*. Proceedings of the Sixth International Biodeterioration Symposium. S. Barry, D.R. Houghton, G.C. Llewellyn and C.E. O'Rear, eds. CAB International Mycological Institute and The Biodeterioration Society. Slough. UK. 382-6.
- Biocides, Panacide, Fungi, Algae, Bacteria, Dichlorophen.  
255. BDH Chemicals Ltd, England. (1988). Industrial applications of PANACIDE. BDH Chemical Ltd. UK.
- Insects, Termites, Insecticides, Biocides, Control.  
256. Beal, R.H. and R. Hodward. (1982). Subterranean termite control: Results of long term tests. *Internat. Biodeter. Bull.* 18(1):13-18.
- Stone, Calcite.  
257. Beaucourt, F.D. and C. Jaton. (1975). Les types d'alterations des roches calcaires. *Les Monuments Historiques de la France*. Champ-sur-Marne. 21(7):14-31.
- Stone, Algae, Lichens, Mosses, Plants.  
258. Bech-Andersen, J. (1984). Biodeterioration of natural and artificial stone caused by algae, lichens, mosses and higher plants. *Biodeterioration 6*. Proceedings of the Sixth International Biodeterioration Symposium. S. Barry, D.R. Houghton, G.C. Llewellyn and C.E. O'Rear, eds. CAB International Mycological Institute and The Biodeterioration Society. Slough, UK. 126-31.
- Wood, Fungi.  
259. Bech-Andersen, J. and L. Harmesen. (1978). Pole Fungus A. *Biodeterioration*. Proceedings of the Fourth International Symposium, Berlin. T.A. Oxley, D. Allsopp and G. Becker, eds. Pitman and The Biodeterioration Society. London. 79-82.
- Stone, Lichens, Rocks, Optical techniques.  
260. Bech-Andersen, J. and P. Christensen. (1983). Studies of lichen growth and deterioration of rocks and building materials using optical methods. *Biodeterioration 5*. T.A. Oxley and S. Barry, eds. John Wiley and Sons. New York. 568-72.
- Wood, Gamma radiation.  
261. Beck, W. (1972). L'emploi des radiations ionisantes pour l'assainissement du bois ancien. Symposium on the Weathering of Wood. ICOMOS. Paris. 53-68.

## Wood, Protection, Problems.

262. Becker, G. (1968). Protection of timber, an introduction into some problems. *Biodeterioration of Materials*. A.H. Walters and J.J. Elphick, eds. Elsevier. Amsterdam. 205-22.

## Wood, Coleoptera, Beetles, Insects.

263. Becker, G. (1977). Ecology and physiology of wood destroying Coleoptera in structural timber. *Material und Organismen*. 12(2):141-60.

## Wood, Insects.

264. Becker, G. (1972). La destruction du bois par des organismes vivants, Symposium on the Weathering of Wood. ICOMOS. Paris. 25-32.

## Insects, Termites, Wood, Techniques.

265. Becker, G. (1972). Problems of testing materials with termites. *Biodeterioration of Materials*. Vol. 2. A.H. Walters and E.H. Hueck-Van Der Plas, eds. Applied Science. London. 249-55.

## General.

266. Becker, G. and W. Kerner-Gang. (1969). Recent research work on biodeterioration of materials on Berlin-Dahlem. *Internat. Biodeter. Bull.* 5(3):125-33.

## Paper, Foxing.

267. Beckwith, T.D., W.H. Swanson and T. Liams. (1940). Deterioration of paper: The cause and effect of foxing. *Publ. Univ. Calif. Biol. Sci.* 13:299-356.

## Stone, Plastics, Problems.

268. Beeger, D. (1982). Ergaemzungen an natursteinkunstwerken der architektur und plastik in der DDR. Problems of completion, ethics and scientific investigation in the restoration. Proceedings of the Third International Restorer Seminar. Institute of Conservation and Methodology of Museums. Budapest. 83-9.

## Wood, Preservation, Biocides.

269. Beesley, J. (1978). An Australian test of wood preservatives. Part 1: Preservatives, principles and practices. *Material und Organismen*. 13(1):31-50.

## Wood, Preservation, Techniques, Biocides, Fungi.

270. Belenkov, D.A. (1971). A laboratory method for evaluating the protection probability of wood preservatives against fungi. *Biodeterioration of Materials*. Vol. 2.

A.H. Walters and E.H. Hueck-van der Plas, eds. John Wiley and Sons. New York. 246-55.

## Stone, Sandstone, Australia, Algae.

271. Bell, D. (1984). The role of algae in the weathering of Hawkesbury sandstone: Some implications for rock art conservation in the Sydney area. *Bulletin of the ICCM (Australia)*. 10(3-4):5-12.

## Stone, Techniques, Greece.

272. Beloyannis, N. and P. Theoulakis. (1986). Stone deterioration at the Temple of Epicurean Apollo (Bassai): A general approach to the problem. *Science in Archaeology*. Fitch Laboratory, Occasional Paper 2. British School at Athens and Leopard's Head Press Ltd. London. 11-15.

## Paper, Books, Fungi.

273. Belyakova, L.A. (1964). The mold species and their injurious effect on various book materials. *Collection of Materials on the Preservation of Library Resources*. Vol. 2. E. Rabinantz and B. Toher, eds. L.G. Petrova. (Moscow 1953) Jerusalem. 184.

## Stone, Biomolecules, TLC, GC, MS, Venice.

274. Benassi, R., S.B. Curri, K. Serk-Hanssen and A. Paleni. (1974). TLC, GC, MS analyses of extract by chloroform methyl alcohol (3:1) from the flora pushing on marble columns Santa Fosca Arcade, Torcello, Venice. Proceedings of Section Lipids and Works of Art of the 12th World Congress of the International Society for Fat Research. Poligrafico Artioli, Modena. 15-25.

## Stone, Biomolecules, TLC, GC, MS, Venice.

275. Benassi, R., S.B. Curri, K. Serk-Hanssen and A. Paleni. (1976). TLC, GC, MS analyses of extracts by chloroform methyl alcohol (3:1) from the flora pushing on marble columns of Santa Fosca Arcade, Torcello, Venice. Proceedings of Section Lipids and Works of Art of the 13th World Congress of the International Society for Fat Research. Poligrafico Artioli, Modena. 65-73.

## Stone, TLC, Petrographic analyses, Organic matter, Carbonate rocks.

276. Benassi, R., S.B. Curri, R.D. Harvey and A. Paleni. (1976). Organic matter in some carbonate rocks used as building stones and in monumental works as revealed by TLC and petrographic analyses. Proceedings of Section Lipids and Works

- of Art of the 13th World Congress of the International Society for Fat Research. Poligrafico Artioli. Modena. 55-63.
- Stone, Techniques, Mineralogy, Petrology.  
277. Bencini, A., P. Malesani and S. Vannucci. (1976). Ricerche sulla degradazione delle Pietre. V-Pietra Serena E. Pietraforte: Relazioni fra indagini mineralogico-petrografiche e analisi chimiche. Conservazione dei Monumenti. Atti della sezione II dell'associazione termotecnica Italiana. Antonio Barbieri. Milano. 121-4.
- Preservation, Biocides, Environmental control.  
278. Bengson, M.H. and J.R. Gillis. (1968). Protection of sensitive components from microbial contamination. Biodeterioration of Materials. A.H. Walters and J.J. Elphick, eds. Elsevier. Amsterdam. 99-110.
- Plastics, Polyurethanes, Assessment, Techniques, Methods.  
279. Bentham, R.H., L.H.G. Morton and N.G. Allen. (1987). Rapid assessment of the microbial deterioration of polyurethanes. Internat. Biodeter. 23(6):377-86.
- Paper, Foxing.  
280. Baveduti, P. (1939). Diagnosi precoce delle infezioni microbiche della carta. Bull. Ist. Pat. Libro. 1:153-4.
- Metals, Marine fouling.  
281. Berk, S.G., R. Mitchell and R.J. Bobbie. (1981). Microfouling on metal surfaces exposed to seawater. Internat. Biodeter. Bull. 17(2):29-37.
- Chitin, Bacteria, Adhesion.  
282. Berkeley, R.C.W., A. Abbott, C. Browne and R. Campbell. (1983). Colonization and biodegradation of chitin membranes in a natural oligotrophic water and the deposition of bacteria onto such membranes *in vitro*. Biodeterioration 5. T.A. Oxley and S. Barry, eds. John Wiley and Sons. New York. 690-97.
- Insects, Wood, Prevention, Recognition.  
283. Bernis Mateu, J. (1974). Principales insectos xilofagos de la peninsula reconomimiento y prevencion. De re Restauratoria. Universidad Politecnica de Barcelona. Barcelona. 2:81-92.
- Wood, Insects, Borers, Treatments.  
284. Berry, R.W. (1983). Recent developments on the remedial treatment of wood-boring insect infestations. Biodeterioration 5. T.A. Oxley and S. Barry, eds. John Wiley and Sons. New York. 154-65.
- Wood, Insecticides, Biocides, Preservation.  
285. Berry, R.W. (1979). Alternative insecticides for remedial treatment wood preservative formulations. International Pest Control. 21(5):117-21, 125.
- Easel paintings, Fungi, Bacteria.  
286. Berteaux, J. (1968). Les microorganismes et la degradation des peintures. Peintures Pigments Vernis. 44(12):740-53.
- Paintings, Fungi, Guatemala.  
287. Betancourt Morales, M.E. (1983). Etiologia fungica de los agentes de deterioro en obras pictoricas de la Antigua Guatemala. Universidad de San Carlos de Guatemala. Guatemala.
- Stained Glass.  
288. Bettembourg, J.M. (1976). Composition et alteration des verres de vitraux anciens. Verres Refract. 30(1):36-42.
- Stained Glass.  
289. Bettembourg, J.M. (1977). La degradation des vitraux. Revue du Palais de la Decouverte. 6(53):41-50.
- Stone, Tombstones, Cleaning, Lichens, Fungi, Algae.  
290. Bettini, C. and A. Villa. (1981). Description of a method for cleaning tombstones. The Conservation of Stone. II. Preprints of the Contributions to the International Symposium, Bologna. Part B: Treatments. R. Rossi-Manaresi, ed. Centro per la Conservazione delle Sculture all'Aperto. Bologna. 523-34.
- Stone, Plants.  
291. Bettini, C. and A. Villa. (1976). Il problema della vegetazione infestante nelle aree archeologiche. The Conservation of Stone. I. Proceedings of the International Symposium, Bologna. R. Rossi-Manaresi, ed. Centro per la Conservazione delle Sculture all'Aperto. Bologna. 191-204.
- Stone, Paint, Tomb, Etruscan.  
292. Bettini, C. and C. Giacobini. (1976). Problemi microbiologici deidi pinti di due tombe etrusche della Necropoli di

- Veio. Conservazione dei Monumenti. Atti Della Sezione II. Dell'associazione Termotecnica Italiana. Firenze. Antonio Barbieri. Milano. 229-34.
- Paint.**
293. Bettini, C. and P. Violini. (1989). Problemi di biodegradazione in ambienti ipogei dipinti. *Rassegna dei Beni Culturali*. 4:43-5.
- Paint. Control, Fungi, Algae, Bacteria.**
294. Bettini, C., G. Agarossi, R. Ferrari and M. Monte. (1988). Fenomeni di biodeterioramento in ambienti ipogei dipinti: Esperienze sul controllo di alcune specie microbiche. 2nd International Conference on Non-destructive Testing, Microanalytical Methods and Environment Evaluation for Study and Conservation of Works of Art. Perugia. Istituto Centrale Per Il Restauro - Assoc. Italiana Pro. Rome. 4.1-4.14.
- Wood, Creosote, Preservative.**
295. Betts, W.D. (1982). Creosote: A century of service as a wood preservative. Record of the 1982 Annual Convention of the British Wood Preserving Association. 10-27.
- Paper, Conservation, Biocides, Pentachlorophenol.**
296. Bezborodova, L.F. (1978). The substitution of natrium pentachlorophenolate with other antiseptics in the restoration of paper. ICOM. 5th Triennial Mtgs. Paris. 14/12.
- Insects, Biocides, Control.**
297. Bhowmik, S. (1968). Common museum insects: Destruction caused by them and methods of their control. *Bull. Barado Museum and Picture Gallery*. 20:73-91.
- Conservation of dry-mounted insects, India.**
298. Bhowmik, S. (1967). Conservation of dry mounted zoological specimens. *Indian Museum Bull.* 2(2):59-63.
- Wood, Conservation, India.**
299. Bhowmik, S. (1965). Conservation of a wooden sculpture from the Baroda Museum. *Bull. Baroda Museum and Picture Gallery*. 19:66-9.
- Paintings, Miniatures, Restoration, India.**
300. Bhowmik, S.K. (1967). A non-aqueous method for the restoration of Indian miniature paintings. *Studies in Conservation*. 12(3):116-23.
- Frescoes, Wall paintings, Fungicides, Italy, Pavia.**
301. Bianchi, A., Favali, M. A., Barbieri, N. and Bassi, M. (1980). The use of fungicides on mold-covered frescoes in S. Eusebio in Pavia. *Internat Biodeter. Bull.* 16(2):45-51
- Leather, Fungi.**
302. Bienkiewicz, K.J., H. Oberman, K. Malik and B. Sokolowska. (1982). Wet-blue leather microflora and its growth. *Journal of the Society of Leather Technologists and Chemists*. 129-33.
- Wood, Dry-rot, Treatments.**
303. Birkholz, D. (1989). Steamship Wapania finds a cure: Remedial treatment of dry rot in a large wooden structure. *CRM Bulletin*. 12(4):18-19.
- Wall paintings, Asia, Crimea, Organic components.**
304. Birstein, V.I. (1975). A study of organic components of paints and grounds in Central Asian and Crimean wall paintings. ICOM Committee for Conservation. 4th Triennial Meeting. Preprints. Paris.
- Stone, Study, France, Poitiers.**
305. Blanc, A., C. Jaton and G. Oriol. (1981). Etude des materiaux et des alterations de la Facade de Notre-Dame-la-Grande de Poitiers avant restauration. The Conservation of Stone. II. R. Rossi-Manaresi, ed. Centro per la Conservazione delle sculture all'Aperto. Bologna. 333-54.
- Wood, Manganese, Fungi.**
306. Blanchette, R.A. (1984). Manganese accumulation in wood decayed by white rot fungi. *Phytopathology*. 74(6):725-30.
- Wood, Lignin, Fungi.**
307. Blanchette, R.A. (1984). Screening wood decayed by white rot fungi for preferential lignin degradation. *App. Env. Microbiol.* 48(3):647-53.
- Wood, Fungi, SEM, Bacteria, Yeasts.**
308. Blanchette, R.A., C.G. Shaw and A.L. Cohen. (1978). A SEM study of the effects of bacteria and yeasts on wood decay by brown and white-rot fungi. *Scanning Electron Microscopy*. II. O. Johari, ed. SEM, Inc. O'Hare (Chicago). 61-8.
- Wood, Archaeological, Deterioration identification, Fungi, Museums, Tumuli.**
309. Blanchette, R.A., K.R. Cease, A.R. Abad, R.J. Koestler, E. Simpson, and G.K. Sams.

- (1991). An evaluation of different forms of deterioration found in archaeological wood. *International Biodeterioration. Special Issue: Biodeterioration of Cultural Property*. R.J. Koestler, ed. 28: 3-22.
- Paper, Fungicides.**
310. Blechschmidt, D., G. Muller and R. Troger. (1984). Zur verwendung von fungiziden bei der konservierung wertvoller papiererzeugnisse. *Neue Museumskunde*. 27:185-8.
- Paint, Marine environment.**
311. Bleile, H.R., T. Radakovich and S.D. Rodgers. (1981). Development of a performance data base for marine coatings. *Durability of Building Materials and Components. Second International Conference. National Bureau of Standards. Washington, DC*. 336-46.
- Gamma radiation, Insects, Wood.**
312. Bletchly, J.D. (1958). Some laboratory investigations on the eradication of wood-boring insects by gamma radiation. *Proc. Tenth Inter. Cong. Entomol. S.L.* 4:385-9.
- Wood, Insects, Testing methods, Techniques.**
313. Bletchly, J.D. and J.M. Taylor. (1961). Methods of testing preservatives against the common furniture beetle and the house longhorn beetle at the Forest Products Research Laboratory. *J. Inst. Wood Sci.* 8:4-11.
- Fungi, Methods, Humidity.**
314. Block, S.S. (1953). Humidity requirements for mold growth. *Engng. Progr. Univ. Florida* 7:10.
- Stone, Biocides, USSR.**
315. Bocharov, B. (1983). Chemical control of biodeterioration with restoration and conservation of historical and architectural memorials. *Biodeterioration* 5. T.A. Oxley and S. Barry, eds. John Wiley and Sons. New York. 445-50.
- Stones, Bacteria, Nitrifying.**
316. Bock, E., W. Sand, M. Meincke, B. Wolters, B. Ahlers, C. Meyer and F. Sameluck. (1988). Biologically induced corrosion of natural stones — strong contamination of monuments with nitrifying organisms. *Biodeterioration* 7. D.R. Houghton, R.N. Smith and H.O.W. Egging, eds. Elsevier. New York. 436-40.
- Fungicides, Plastics, Techniques, Testing methods.**
317. Bomar, M. (1968). Some results of antifungal test on combinations of plasticisers and fungicides. *Internat. Biodeter. Bull.* 4(1):43-8.
- Wood, Cellulose, Bacteria.**
318. Bomar, M.T. and S. Schmid. (1973). Control of the bacterial breakdown of cellulose. *Process Biochemistry*. 22-3.
- Anoxants, Insects, Carbon Dioxide, Weevil, Resistance.**
319. Bond, E.J. and C.T. Buckland. (1979). Development of resistance of carbon dioxide in the granary weevil. *J. Economic Entomology*. 72(5):770-1.
- Gamma radiation, Insects, Fungi, Paper, Library.**
320. Bonetti, M., F. Gallo, G. Magauida, C. Marconi and M. Montanari. (1979). Essais sur l'utilisation des rayons gamma pour la sterilisation des materiaux libraires. *Studies in Conservation*. 24(2):59-68.
- Insects, Textbook.**
321. Borrer, D.J., D. DeLong and C.A. Triplehorn. (1981). *An Introduction to the Study of Insects*. Saunders College. Philadelphia.
- Gamma radiation, Wood.**
322. Bors, J. (1972). La suppression des dommages aux bois par des radiations ionisantes. *Symposium on the Weathering of Wood. ICOMOS. Paris*. 69-76.
- Paint, Wood, Polychromy, Fungicides, Biocides, Treatments.**
323. Bougrain-Dubourg, R. (1989). *Disinfection de sculptures polychromes. Exemples concrets en ateliers et chantiers. Patrimoine Culturel et Alterations Biologiques. Section Francaise de l'Institut International de Conser. S.L.* 211-15.
- Stone, Techniques.**
324. Bourcart, J., J. Noetzelin, J. Pochon and S. Berthelie. (1949). *Etude des deteriorations des pierres des monuments historiques. Annales de l'Institut Technique de Batiment et des Travaux Publics. Technique Generale de la Construction. No. 7.* 108:1-16.
- Conservation, Humidity, Environment.**
325. Boustead, W. (1968). Dehumidification in museum areas. *Contributions to the*

- London Conference on Museum Climatology. G. Thomson, ed. International Institute of Conservation. London. 103-7.
- Conservation. General. Environment. Tropics.
326. Boustead, W. (1961). The conservation of works of art in tropical and subtropical zones. Recent Advances in Conservation. Contributions to the IIC Rome Conference. G. Thomson, ed. Butterworths. London. 73-8.
- Wood. Insects. Borers.
327. Boustead, W. (1968). Borers in wooden specimens. *Kalori*. 35:51-3.
- Easel paintings. Conservation.
328. Boustead, W. (1969). La conservacion y restauracion de cuadros. La conservacion de los bienes culturales con especial referencia a las condiciones tropicales. *Museos y Monumentos*. N. XI. UNESCO. Paris. 203-21.
- Wood. Underground. Anaerobic microbes.
329. Boutelje, J.B. and B. Goransson. (1971). Decay in wood constructions below the ground water table. *Biodeterioration of Materials*. Vol. 2. A.H. Walters and E.H. Hueck-van der Plas, eds. John Wiley and Sons. New York. 311-18.
- Biocides. Marine fouling. Techniques. Evaluation.
330. Bowden, R.D. and J.M. Taylor. (1978). An approach to the evaluation of antifouling toxins: I—Method and underlying philosophy. *Proceedings of the Fourth International Symposium*, Berlin. T.A. Oxley, D. Allsopp and G. Becker, eds. Pitman and The Biodeterioration Society. London. 291-6.
- Biocides. Marine fouling. Techniques. Evaluations.
331. Bowden, R.D., I.E. Heeson and J.M. Taylor. (1978). An approach to the evaluation of antifouling toxins: II—Results. *Proceedings of the Fourth International Symposium*, Berlin. T.A. Oxley, D. Allsopp and G. Becker, eds. Pitman and The Biodeterioration Society. London. 297-306.
- Wood. Preservatives in finishes.
332. Boxall, J., G.F. Hayes, R.A. Laidlaw and E.R. Miller. (1984). The performance of extender-modified clear finishes on exterior timber. *Journal of the Oil and Colour Chemists' Association*. 67(9):227-33.
- Wood. Borers. Bacteria.
333. Boyle, P.J. and R. Mitchell. (1978). Interactions between microorganisms and wood-boring crustaceans. *Proceedings of the Fourth International Symposium*, Berlin. T.A. Oxley, D. Allsopp and G. Becker, eds. Pitman and The Biodeterioration Society. London. 179-86.
- Paper. Library. Fungicides. Insecticides. Urea formaldehyde. Resin.
334. Bracey, P. and F. Barlow. (1952). Urea formaldehyde resin as a vehicle for semi-permanent insecticidal and fungicidal coatings on book bindings and book-cases. Colonial Insecticides Committee Research Unit. Porton, Wiltshire.
- Wood. Fungi. Assessment technique. Chitin.
335. Braid, G.H. and M.A. Line. (1981). A sensitive chitin assay for the estimation of fungal biomass in hardwoods. *Holzfor-schung*. 35:10-15.
- Wall paintings. Examination. Last Supper, da Vinci. Conservation.
336. Brambilla Barcilon, G. (1984). Consideration regarding the state of conservation of da Vinci's Last Supper before starting restoration operations. *ICOM Committee for Conservation 7th Triennial Meeting. Preprints*. Paris. 84/15/1-.
- Fumigation. Paper. Freeze dryer. Manitoba.
337. Brandt, A.E. (1983). Planning an environmentally benign fumigation/freezer dryer for the provincial archives of Manitoba. *AIC Preprints*. Baltimore, MD. 1-7.
- Wood. Building material.
338. Bravery, A.F. (1977). Biodeterioration of solid and constructional timbers. *Chemistry and Industry*. 16:665-8.
- Building materials. Preservation.
339. Bravery, A.F. (1982). Preservation in specialised areas. Preservation in the construction industry. Principles and Practices of Disinfection, Preservation and Sterilisation. A.D. Russell, W.B. Hugo and G.A.J. Ayliffe, eds. Blackwell Scientific. St. Louis. 379-402.

Paint, Fungi, Fungicides, Testing methods, Techniques.

340. Bravery, A.F. (1984). Further collaborative experiments on testing the mould resistance of paint films. *Journal of the Oil and Colour Chemists' Association*. 67(1):2-8.

Paint, Composition, Environmental factors, Bacteria, Yeasts, Fungi, Algae, Lichens

341. Bravery, A.F. (1988). Biodeterioration of paint — A state-of-the-art comment. *Biodeterioration* 7.D.R. Houghton, R.N. Smith and H.O.W. Egging, eds. Elsevier. New York. 466-85.

Paint, Fungi, Fungicides, Testing methods, Techniques.

342. Bravery, A.F., S. Barry and L.J. Coleman. (1978). Collaborative experiments on testing the mould resistance of paint films. *Internat. Biodeter. Bull.* 14(1):1-10.

Paint, Fungi, Testing methods, Techniques.

343. Bravery, A.F., S. Barry and W. Worley. (1985). An alternative method for testing the mould resistance of paint films. *Journal of the Oil and Colour Chemists' Association*. 66(2):39-48.

Library, Paper, Books, Insects.

344. Bravi, L. (1968). *Catalogo degli insetti e atropodi amici e nemici delle biblioteche degli archivi e dei musei*. *Bollettino dell'Istituto di Patologia del Libro*. 1-2:3-28.

Concrete, Stone, Building materials.

345. Brebion, G. and R. Cabridenc. (1969). La corrosion biologique des ouvrages en beton. *Corrosion Traitement Protection Finition*. 17(2):71-7.

Foxing, Pigments, Spectroscopy.

346. Breccia, A., M.A. Breccia-Fratadocchi, F. Minto and R. Savoia. (1972). *Analisi non distruttiva con tecniche spettroscopiche di pigmenti fungini su opere d'arte grafica*. *Quaderni del Gabinetto Nazionale delle Stampe*. 3:1-23.

Metals, Copper, Thermophilic bacteria, Iron oxidizing.

347. Brierly, J.A. and S.J. Lockwood. (1977). The occurrence of thermophilic iron-oxidizing bacteria in a copper leaching system. *FEMS Microbiology Letters*. 2:163-5.

Lichens, Stone, Wood, Building materials.

348. Brightman, F.H. and M.R.D. Seaward. (1977). *Lichens of man-made substances*. *Lichen Ecology*. M.R.D. Seaward, ed. Academic Press. New York. 253-93.

Textiles, Fungi, Testing methods, Techniques.

349. Brijn, J.La and H.R. Kauffman. (1972). Fungal testing of textiles: A summary of cooperative experiments carried out by the working group of the International Biodegradatin Research Group. (IBRG). *Biodeterioration of Materials*. Vol. 2. A.H. Walters and E.H. Hueck-Van Der Plas, eds. Applied Science. London. 208-17.

Metals, Bronze, Black spots, Iron, Manganese, Bacteria.

350. Brinch-Madsen, H. (1978). *Schwarze flecken auf bronzen*. *Arbeitsblaetter fuer Restauratoren*. 1:96-102.

Metals, Bronze, Bacteria, Black spots, Iron, Manganese.

351. Brinch-Madsen, H. and N. Hjelm-Hansen. (1979). Black spots on bronzes — a microbiological or chemical attack. *Proceedings of the Symposium on the Conservation and Restoration of Metals*. Edinburgh. 33-9.

Stone, Cleaning techniques.

352. Brittner, C. (1933). *Procede de nettoyage de la pierre*. *La Conservation des Monuments d'Art et d'Histoire*. Institut de Cooperation Intellectuelle. Paris. 227-8.

Insects, Fungi, Control, Alternative techniques.

353. Brokerhof, A.W. (1989). Proposal for research on the application of alternatives to ethylene oxide fumigation to control insects and fungi in objects and collections of cultural value. *Central Research Laboratory for Objects of Art and Science*. Amsterdam.

Insects, Fungi, Control, Alternative techniques, Fumigation, Freezing, Anoxants.

354. Brokerhof, A.W. (1989). Control of fungi and insects in objects and collections of cultural value. *Central Research Laboratory for Objects of Art and Science*. Amsterdam.

Bioluminescence, Biomass assessment, ATP-ATPase.

355. Brolin, S.E. and G. Wettermark. (1991). *Analytical applications of bioluminescence*

- a matter of proper kinetic design and recording. *J. Biochem. and Biophys. Methods.* 22:1-18.
- Conservation. Tropics.
356. Brommelle, N.S. (1968). The conservation of museum objects in the tropics. Contributions to the London Conference on Museum Climatology. G. Thomson, ed. International Institute for Conservation. London. 139-49.
- Gamma radiation. Insects. *Tenebrio*.
357. Brower, J.H. (1973). Sensitivity of *Tenebrio molitor* and *T. obscurus* to gamma irradiation. *J. Economic Entomology.* 66(5):1175-9.
- Gamma radiation. Insects. *Trogoderma*.
358. Brower, J.H. and E.W. Tilton. (1972). Gamma-radiation effects on *Trogoderma inclusum* and *T. variabile*. *J. Economic Entomology.* 65(1):250-54.
- Bacteria. Adhesion. Surfaces. Nutrients.
359. Brown, C.M. and J.R. Hunter. (1977). Growth of bacteria at surfaces: Influence of nutrient limitation. *FEMS Microbiology Letters.* 1:163-6.
- Metals. Corrosion factors.
360. Brown, P.W. and L.W. Masters. (1980). Factors Affecting the Corrosion of Metals in the Atmosphere — Chapter 3. Metals. Atmospheric corrosion. W.H. Ailor, ed. John Wiley and Sons. New York. 31-49.
- Wood. Control. Fungi. *Lentinus*.
361. Bruce, A. and B. King. (1983). Biological control of wood decay by *Lentinus lepidus* (Fr.) produced by *Scyldium* and *Trichoderma* residues. *Material und Organismen.* 18(3):171-81.
- Wall paintings. Caves. France.
362. Brunet, J. and P. Vidal. (1984). Preservation of ornamented caves of France. International Symposium on the Conservation and Restoration of Cultural Property. Conservation and Restoration of Mural Paintings (I). Tokyo National Research Institute of Cultural Properties. Tokyo. 125-41.
- Wall paintings. Caves. Lascaux.
363. Brunet, J., J. Marsal and P. Vidal. (1980). Lascaux: Ou en sont les travaux de conservation? *Archeologia.* 149:35-50.
- Stone. Bacteria.
364. Bruni, V. (1982). Presenza di batteri solubilizzanti carbonati su monumenti marmorei calcarei. Deterioration and Conservation of Stone. Proceedings 3rd International Symposium Universita degli Studi. Istituto de Chimica Industriale. Padova. 301-4.
- Textiles. Cotton.
365. Bruno, G.P. (1983). Attack of microorganisms on most widely used textile fibers in the cotton sector (It.). *Industria Cottoniera.* 36:327-9.
- Textile. Tapestry. Franconia.
366. Brutillot, A. (1989). Conservation of a fifteenth-century tapestry from Franconia. The Conservation of Tapestries and Embroideries. Proceedings of Meetings at the Institut Royal du Patrimoine Artistique. Brussels. Belgium. The J. Paul Getty Trust. Marina del Rey, CA. 75-9.
- Textiles. Moths. Mothproofing. Fumigants. Insecticides. Beetle. Insects.
367. Bry, R.E., L. Jurd, J.H. Lang and R.E. Boatright. (1978). Mothproofing: Candidate repellents against black carpet beetle larvae (Coleoptera : Dermestidae). *Journal of the Georgia Entomological Society.* 13(1):63-6.
- Lichens. Algae. Fungi. Culture techniques.
368. Bubrick, P. and M. Galen. (1980). Symbiosis in lichens: Differences in cell wall properties of freshly isolated and cultured phycobionts. *FEMS Microbiology Letters.* 7:311-13.
- Lichens. Culture techniques. Fungi. Algae. *Xanthoria*.
369. Bubrick, P. and M. Galun. (1986). Spore to spore resynthesis of *Xanthoria parietina*. *Lichenologist.* 18(1):47-9.
- Lichens. Algae. *Xanthoria*. *Trebouxia*. *Pseudotrebouxia*.
370. Bubrick, P., M. Galen and A. Frensdorff (1984). Observations on free living *Trebouxia* de Puymaly and *Pseudotrebouxia archibald* and evidence that both symbionts from *Xanthoria parietina* can be found free. *New Phytol.* 97:455-62
- Lichens. Algae. Symbiosis. *Xanthoria*.
371. Bubrick, P., M. Galen and A. Frensdorff (1981). Proteins from the lichen *Xanthoria*

- parietina* which bind to phycobiont cell walls. *Protoplasma*. 105:207-11.
- Lichens. Fungi. Alga. Culture techniques. Symbiosis.
372. Bubrick, P., M. Galen and A. Frensdorff. (1984). Initial stages in fungus-alga interactions. *Lichenologist*. 16:103-10.
- Lichens. Algae. Fungi. Symbiosis. *Xanthoria*.
373. Bubrick, P., M. Galen and M. Ben-Yaacov. (1981). Antigenic similarities and differences between symbiotic and cultured phycobionts from the lichen *Xanthoria parietina*. *FEMS Microbiology Letters*. 13:435-8.
- Library. Paper. Books. Insects. Beetles. *Coleoptera*.
374. Bucsa, C. and D. Darvas. (1978). *Coleoptere xilofage* din obiective in aer liber si metode de combatere a lor. *Revista Muzeelor si Monumentelor — Muzeu*. 9:47-9.
- Wood extractives as natural biocides.
375. Bultman, J.D. and K.K. Parrish. (1979). Evaluation of some wood-extractives and related compounds as anti-borer, anti-fungal and antitermitic agents. *Internat. Biodeter. Bull.* 15(1):19-27.
- Wood. Resistance to marine organisms.
376. Bultman, J.D., E.C. Haderlie and J.R. Depalma. (1978). Comparative natural resistance of four Central American hardwoods to marine borers. *Biodeterioration. Proceedings of the Fourth International Symposium*. Berlin. T.A. Oxley, D. Allsopp and G. Becker, eds. Pitman and The Biodeterioration Society. London. 199-203.
- Wood. Insects. Tropics, Africa, SE Asia. Natural resistance.
377. Bultman, J.D., R.H. Beal and F.F.K. Ampong. (1987). Resistance of some woods from Africa and Southeast Asia to neotropical wood-destroyers. *Biodeterioration* 1. G.C. Llewellyn and C.E. O'Rear, eds. Plenum Press. New York. 75-85.
- Insects. Insecticides. Phenols. *Coptotermes*.
378. Bultman, J.D., R.H. Beal and L. Jurd. (1982). An evaluation of some benzyl- and cinnamylphenols as anti-termites toward *Coptotermes Formosanus shiraki* in a force-feeding situation. *The International Journal of Wood Preservation*. 2:51-3.
- Biocides. Oxidation of pollutants. White rot fungus.
379. Bumpus, J.A. et al. (1985). Oxidation of persistent environmental pollutants by a white rot fungus. *Science*. 228:1434-6.
- Temperature. Humidity. Control. Insects. *Trogoderma*.
380. Burges, H.D., et al. (1964). Effect of temperature and humidity on *Trogoderma anthrenoides* (Sharp) (Coleoptera: Dermestidae) and comparisons with related species. *Bull. Ento. Res.* 55:313-25.
- Plastics. Testing. Methods.
381. Burgess, R. and A.E. Darby. (1964). Two tests for the assessment of microbiological activity on plastics. *British Plastics*. 32-6.
- Plastics. Techniques. Methods.
382. Burgess, R. and A.E. Darby. (1965). Microbiological testing of plastics. *British Plastics*. 165-9.
- Textiles. Costumes. Insect-damage. Repair.
383. Burnham, E. (1989). A method of treating an insect-damaged uniform coat with a minimal account of interference with original stitching. *Textile Conservation Newsletter*. 16:22-4.
- Wood. Fungi. Assessment techniques.
384. Butcher, J.A. (1971). Analysis of the fungal population in wood. *Biodeterioration of Materials*. Vol. 2. A.H. Walters and E.H. Hueck-van der Plas, eds. John Wiley and Sons. New York. 319-25.
- Wood. Fungi. Preservation. Biocides. *Pinus*.
385. Butcher, J.A. (1968). The ecology of fungi infecting untreated and preservative-treated sapwood of *Pinus radiata* d. Don. *Biodeterioration of Materials*. A.H. Walters and J.J. Elphick, eds. Elsevier. Amsterdam. 444-59.
- Foxing. Classification.
386. Cain, C.E. and B.A. Miller (1982). Proposed classification of foxing. *The Book and Paper Group Annual*. Postprints from the Tenth Annual AIC Meetings. The American Institute for Conservation. Washington, DC. 29-30.
- Paper. Foxing.
387. Cain, C.E. and B.A. Miller. (1982). Photographic, spectral and chromatographic searches into the nature of foxing. *Preprints of the Tenth Annual Meeting of*

- the AIC. American Institute for Conservation. Washington, DC. 54-62.
- Foxing, Paper.
388. Cain, E. (1983). The analysis of degradation products extracted from selected 19th century papers. The Book and Paper Group Annual. 2:15-18.
- Surfactants.
389. Cain, R.B., A.J. Willats and J.A. Bird. (1971). Surfactant biodegradation: Metabolism and enzymology. *Biodeterioration of Materials*. Vol. 2. A.H. Walters and E.H. Hueck-van der Plas, eds. John Wiley and Sons. New York. 136-44.
- Metals, Acid corrosion, mechanisms.
390. Calderon, O.H., E.E. Staffeldt and C.B. Coleman. (1968). Metal-organic acid corrosion and some mechanisms associated with these corrosion processes. *Biodeterioration of Materials*. A.H. Walters and J.J. Elphick, eds. Elsevier. Amsterdam. 356-63.
- Desert varnish, Soil formation, Bacteria.
391. Campbell, S.E. (1979). Soil stabilization by a prokaryotic desert crust: Implications for Precambrian land biota. *Origins of Life*. 9:335-48.
- Stone, Metals, Bronze, Acid rain.
392. Camuffo, D., A. Bernardi, M. Del Monte, C. Sabbioni and S. Vincenzi. (1985). Weathering of bronze and stone monuments as a result of both atmospheric pollution and precipitation. *The Effects of Air Pollution on Historic Buildings and Monuments. Report on the Meeting held in Padua. ENV-757-I. Commission of the European Communities*. Padua. 3-16.
- Stone, Limestone, Dolomite.
393. Caner, E.N. (1981). Decay zones of limestone and dolomite. *The Conservation of Stone. II. Preprints of the Contributions to the International Symposium, Bologna. Part A: Deterioration. Centro per la Conservazione delle Sculture all'Aperto. Bologna*. 37-46.
- Stone, Computer data base, Sulfur bacteria, Italy.
394. Caneva, G., A. Roccardi, A. Marenzi and I. Napoleone. (1989). Correlation analysis in the biodeterioration of stone artworks. *International Biodeterioration. Special Issue: Biodeterioration 7. Part Two. D.R.*
- Houghton, R.N. Smith and H.O.W. Eggin, eds. Elsevier. London. 25(1-3): 161-8.
- Stone, Computer data base, Sulfur bacteria, Italy.
395. Caneva, G., A. Roccardi, A. Marenzi and I. Napoleone. (1985). Proposal for a data base on biodeterioration of stone artworks. *Vth International Congress on Deterioration and Conservation of Stone*. Vol. 2. G. Felix, ed. Presses Polytechniques Romandes. Lausanne. 587-95.
- Stone, Plants.
396. Caneva, G. and A. Altieri. (1988). Biochemical mechanisms of stone weathering induced by plant growth. *Vth International Congress on Deterioration and Conservation of Stone*. J. Ciabach, ed. Nicholas Copernicus University. Press Department. Torun. 32-44.
- Stone, Plants, Rome.
397. Caneva, G. and A. Roccardi. (1989). Harmful flora in the conservation of Roman monuments. *International Conference on Biodeterioration of Cultural Property. Preprints. Vol. II. Nat'l. Res. Lab. Conser. Cult. Prop. Luknow*. 315-25.
- Stone, Plants, Control, Biocides, Herbicides.
398. Caneva, G. and G. De Marco. (1986). Il controllo della vegetazione nelle zone archeologiche e monumentali. *Manutenzione e Conservazione del Costruito fra Tradizione ed Innovazione. Atti del Convegno di Studi. Bressanone*. G. Biscontin, ed. Libreria Progetto Editore. Padova. 553-70.
- Stone, Conservation.
399. Caneva, G. and O. Salvadori. (1989). Biodeterioration of stone. *The Deterioration and Conservation of Stone*. L. Lazzarini and R. Pieper, eds. UNESCO. Paris. 182-234.
- Stone, Plants, Fungi, Algae, Bacteria, Control, Biocides.
400. Caneva, G. and P. Tiano. (1988). La vegetazione come causa dialterazione dei monumenti esposti: Metodologie di studio e di intervento. *Risveglio di un colosso. Il restauro dell'Appennino del Giambologna*. Alinari. Firenze. 99-102.

## Wood, Counting methods, Bacteria.

401. Carey, J.K. (1979). A possible method for enumerating bacteria in wood. *Internat. Biodeter. Bull.* 15(4):119-23.

## Wood, Fungi, Colonization.

402. Carey, J.K. (1983). Colonization of wooden joinery. *Biodeterioration* 5. T.A. Oxley and S. Barry, eds. John Wiley and Sons, New York. 13-25.

## Wood, Preservatives, Biocides.

403. Carey, J.K. (1982). Assessing the performance of preservation treatments for wooden joinery. *Holzals Roh-und Werkstoff*. 40:269-74.

## Marine environment, Bacteria, Adhesion.

404. Carson, J. and D. Allsopp. (1983). Composition of fouling bacterial films on submerged materials. *Biodeterioration* 5. T.A. Oxley and S. Barry, eds. John Wiley and Sons, New York. 291-303.

## Enumeration methods, Bacteria.

405. Carson, J. and D. Allsopp. (1978). The enumeration of marine periphytic bacteria from a temporal sampling series. *Biodeterioration. Proceedings of the Fourth International Symposium*, Berlin. T.A. Oxley, D. Allsopp and G. Becker, eds. Pitman and The Biodeterioration Society, London. 193-8.

## Textiles, Iron stains, Treatments.

406. Carter, J.M. (1984). Iron stains on textiles: A study to determine their nature and to evaluate current treatments. *ICOM 7th Triennial Meeting, Copenhagen*. Preprints. Paris. 84/9/1-11.

## Ethnographic objects, Fungi, Techniques.

407. Casey, P.S. (1982). The isolation and identification of fungi on ethnographic artifacts. *Internat. Biodeter. Bull.* 18(2): 47-53.

## Wood, Conservation, Techniques.

408. Castelli, C. (1988). Problematiche e soluzioni tecniche del consolidamento del legno nelle tavole dipinte e nelle sculture lignee. *Quaderni di Skill*. 7:54-59.

## Insects, Termites, Treatment, Control.

409. Castro Bosch, J.M., P. Martinez Outerino, J.E. Machado Leon and A.R. Sanchez Ledesma. (2/89). Recomendaciones para la prevencion control y tratamiento del ataque de insectos y hongos a las piezas de madera que integran los inmuebles.

Documentos. Centro Nacional de Conservacion, Restauracion y Museologia. Ministerio de Cultura. Havana, Cuba. 16-27.

## Bacteria, Sulfur, Marine organisms.

410. Cavanaugh, C.M. (1983). Symbiotic chemoautotrophic bacteria in marine invertebrates from sulphide-rich habitats. *Nature*. 302:58-60.

## Plastics, PVC, Techniques.

411. Cavett, J.J. and M.N. Woodrow. (1968). A rapid method for determining degradation of plasticized PVC by micro-organisms. *Biodeterioration of Materials*. A.H. Walters and J.J. Elphick, eds. Elsevier, Amsterdam. 162-9.

## Paint, Aerobiological, Tombs, Tumuli, Techniques.

412. Censoni, A.L.Z., *et al.* (1980). Aerobiological research in enclosed spaces of historical and artistic interest. *Umwelt Bunco. Amt. Ber.* 79(5):434-7.

## Stone, Restoration, Conservation, Torino, Italy.

413. Cerri, M.G. (1976). Esperienze di restauro su materiali lapidei: La basilica di S. Andrea a Vercelli, il Palazzo Madama a Torino. *The Conservation of Stone I. Proceedings of the International Symposium*, Bologna. R. Rossi-Manaresi, ed. Centro per la Conservazione delle Sculture all'Aperto, Bologna. 411-20.

## Wood, Fungi, Wood pulp.

414. Chahal, D.S. and W.D. Gray. (1968). The growth of selected cellulolytic fungi on wood pulp. *Biodeterioration of Materials*. A.H. Walters and J.J. Elphick, eds. Elsevier, Amsterdam. 584-93.

## Gamma radiation, Leather, Parchment.

415. Chahine, C. and L.B. Vilmont. (1989). Effet du rayonnement gamma sur le cuir et le parchemin. *Patrimoine Culturel et Alterations Biologiques*. Sect. Francaise de l'Institut Internat. de Conservation. S.L. 97-107.

## Paper, Foxing.

416. Chalk, M.L. (1960). Foxing of prints. *PATRA*. 1(2):12.

## Rock art, Stone, Australia.

417. Chaloupka, G. (1978). Rock art deterioration and conservation in the 'Top End' of the Northern Territory. Part I. The setting and causes of rock art deterioration.

- Conservation of Rock Art. Proceedings of the International Workshop on the Conservation of Rock Art. Institute for the Conservation of Cultural Material. Sydney. p. 28. 75-80.
- Paintings. Bacteria. Venice.
418. Chalvignac, M.A. (1974). Attaque bacterienne destoiles peintes a Venise. ICCROM. Rome.
- Caves, Lascaux. Bacteria.
419. Chalvignac, M.A., J. Pochon and M.H. Moussin. (1972). Equilibre bacterien de l'atmosphere de la Grotte de Lascaux. C.R. Acad. Sci. Paris, Ser. 16:2389-90.
- Library, Paper, Fungi. Foxing.
420. Chamberlain, W. (1982). Fungus in the library. Library and Archival Security. 4:35-55.
- Wall paintings. Conservation. India.
421. Chand, H. (1974). Conservation of wall paintings in Rajasthan. Conservation of Cultural Property in India. Indian Assoc. for the Study of Cons. of Cult. Prop. New Delhi. 7:66-8.
- ATP-ATPase assessment, AEC. *E. coli*.
422. Chapman A., L. Fall and D. Atkinson. (1971). Adenylate energy charge in *E. coli* during growth and starvation. J. Bacteriol. 108(3):1072-86.
- Radiation. Paper. Insects. Fungi. Bacteria.
423. Chappas, W.J. and N. McCall. (1984). The use of ionizing radiation in disinfection of archival and manuscript materials. Biodeterioration 6. Proceedings of the Sixth International Biodeterioration Symposium. S. Barry, D.R. Houghton, G.C. Llewellyn and C.E. O'Rear, eds. CAB International Mycological Institute and The Biodeterioration Society. Slough, UK. 370-73.
- Easter Island. Conservation.
424. Charola, A.E. and L. Lazzarini. (1987). The statues of Easter Island: Deterioration and conservation problems. Weiner Berichte ueber Naturwissenschaft in der Kunst. 392-401.
- Stone, Manganese. Techniques.
425. Charola, A.E., G.E. Wheeler and R.J. Koestler. (1982). Treatment of the Abydos Reliefs: Preliminary investigations. Fourth International Congress on the Deterioration and Preservation of Stone Objects. K.L. Gauri and J.A. Gwinn, eds. The University of Louisville. Louisville, KY. 77-88.
- Stone. Fungi. Bacteria. Algae.
426. Charola, A.E., L. Lazzarini, G.E. Wheeler and R.J. Koestler. (1986). The Spanish apse from San Martin de Fuentiduena at the Cloisters, Metropolitan Museum of Art, New York. Case Studies in the Conservation of Stone and Wall Paintings: Preprints of the Contributions to the Bologna Congress. N.S. Brommelle and P. Smith, eds. International Institute for Conservation. London. 18-21.
- Insects. Control methods. Tropics. Temperate zones. Museum.
427. Chong Quek, L., M. Ruzak and M.W. Ballard. (1990). Pest control for temperate vs tropical museums: North America vs Southeast Asia. ICOM Committee for Conservation. 9th Triennial Meeting Dresden, GDR, 26-31 August 1990. Preprints. Vol. II. Paris. 817-20.
- Wood, Cold-dip treatment, Techniques.
428. Chow, P. and J.W. Gerdemann. (1980). Effects of a cold-dip treatment on natural durability of wood-base building materials against decay and dimensional change. Durability of Building Materials and Components. Proceedings of the First International Conference, Ottawa. ASTM Special Technical Publication N. 691. American Society for Testing and Materials. Philadelphia. 959-71.
- Stone, Konarak, Puri, India.
429. Chowdhary, Y.M.K.C. and B.P. Bhattacharyya. (1983). On weathering of Sun temple at Konarak and Jagannath temple at Puri. Journal of Archaeological Chemistry. 1:11-20.
- Radiation. Sterilization.
430. Christensen, E.A., H. Kristensen and K. Sehested. (1982). Radiation sterilisation. Ionising radiation. Principles and Practices of Disinfection, Preservation and Sterilisation. A.D. Russell, W.B. Hugo and G.A.J. Ayliffe, eds. Blackwell Scientific. St. Louis. 513-33.
- Fumigation. Sterilization.
431. Christensen, E.A. and H. Kristensen. (1982). Gaseous sterilisation. Principles and Practices of Disinfection, Preservation and Sterilisation. A.D. Russell, W.B. Hugo

- and G.A.J. Ayliffe, eds. Blackwell Scientific. St. Louis. 548-68.
- Wood, Lignin Humus formation.
432. Christman, R.F. and R.T. Oglesby. (1971). Microbiological degradation and the formation of humus. Lignins. Occurrence, Formation Structure and Reactions. K.V. Sarkanen and C.H. Ludwig, eds. John Wiley and Sons. New York. 769-95.
- Stone, Mechanisms.
433. Ciarallo, A., L. Festa, C. Piccioli and M. Raniello. (1985). Microflora action in the decay of stone monuments. Vth International Congress on Deterioration and Conservation of Stone. Proceedings. Vol. 2. G. Felix, ed. Presses Polytechniques Romandes. Lausanne. 607-16.
- Rock art, Australia.
434. Clarke, J. (1978). Conservation and restoration of painting and engraving sites in Western Australia. Conservation of Rock Art. Proceedings of the International Workshop on the Conservation of Rock Art. Institute for the Conservation of Cultural Material. Sydney. 89-94, 28.
- Lichens, Rock art, Australia.
435. Clarke, J. (1976). A lichen control experiment at an Aboriginal rock engraving site. Bolgart, Western Australia. ICCM Bulletin. 2(3):15-17.
- Rock art, Australia.
436. Clarke, J.D. (1975). Conservation requirements of an Aboriginal engraving site at Port Hedland, Pilbara, Western Australia. Conservation in Archaeology and the Applied Arts. Preprints of the Contributions to the Stockholm Congress. International Institute for Conservation. London. 79-86.
- Stone, Humidity.
437. Clifferi, R. and O. Clifferi. (1960). Alcune caratteristiche chimiche dell'acido humico dei peloidi termominerali. Atti. Ist. Botanico. Lab. Critolog. Pavia. 17(5):263-73.
- Wood, Preservation, Control, Biocides.
438. Cockcroft, R. (1983). The twelfth report of the International Research Group on Wood Preservation. The International Journal of Wood Preservation. 3(1):39-43.
- Wood, Preservation, Spain.
439. Cockcroft, R. and A. Lopez De Roma. (1983). Wood Preservation in Spain. STU Information Nr.373. Styrelsen Foer Teknisk Utveckling. Stockholm.
- UV, Radiation, Insects, Cockroaches
440. Cohen, S.H., J.A. Sousa and F. Roach. (1973). Effects of UV irradiation on nymphs of five species of cockroaches. J. Economic Entomology. 66(4):859-62.
- Methods, Fluorescence, Bacteria, Techniques.
441. Coleman, A.W. (1980). Enhanced detection of bacteria by fluorochrome staining of DNA. Limnol. Oceanogr. 25(5):948-51.
- Bacteria, Survival, Spores, Algae.
442. Coleman, A.W. (1983). The roles of resting spores and akinetes in chlorophyte survival. Survival Strategies of the Algae. G.A. Fryxell, ed. Cambridge University Press. Cambridge. 1-22.
- Insecticides, Fumigation, Wood, Biocides.
443. Coleman, G.R. (1978). Insecticidal smokes for the conservation of structural timbers. Conservation of Wood in Painting and the Decorative Arts. International Institute for Conservation. London. 23-6.
- Insecticides, Fumigation, Permethrin, Beetles, *Xestobium*.
444. Coleman, G.R. (1977). Toxicity of permethrin smoke to adult death watch beetle *Xestobium rufivillosum*. Internat. Biodeter. Bull. 13(1-2):49-50.
- Fungicides, Paints, Side effects.
445. Coleman, L.J. and J.F. Hall. (1972). Some side effects of fungicides in paints. Biodeterioration of Materials. Vol. 2. A.H. Walters and E.H. Hueck-van der Plas, eds. John Wiley and Sons. New York. 360-9.
- Methods, Microbiology, Text.
446. Collins, C.H. and P.M. Lyne. (1984). Microbiological Methods. 5th edition. Butterworths. Boston.
- Stained Glass, French.
447. Collongues, R. et al. (1976). Nouveaux aspects du phenomene de corrosion des vitraux anciens des eglises francaises. Verres Refract. 30(1):43-55.
- Wood, Cellulose, Biosynthesis.
448. Colvin, J.R. (1970). Biosynthesis of cellulose B. Structure and formation of the

- cellulose microfibril. Cellulose and Cellulose Derivatives. High Polymers. Vol. 5., 4th edition. N.M. Bikales and L. Segal, eds. Wiley-Interscience, New York. 695-718.
- Soil burial, Techniques.
449. Connolly, R.A. (1972). Soil burial of materials and structures. *Biodeterioration of Materials*. Vol. 2. A.H. Walters and E.H. Hueck-van der Plas, eds. John Wiley and Sons, New York. 168-71.
- ATP-ATPase assessment.
450. Constantini M.G., R. Zippel and E. Sturani. (1977). Levels of ribonucleoside triphosphate and rate of RNA synthesis in *N. Crassa*. *Biochim. Biophys. Acta*. 476:272-8.
- Stone, Deterioration causes.
451. Constantinides, D. (1973). Quelques cas particuliers de deterioration des pierres. 1st International Symposium on the Deterioration of Building Stones. V. Romanowski, ed. Les Imprimeries Reunies de Chambéry. Chambéry. 109-11.
- Library, Archives, Conservation techniques.
452. Cook, I.L. (1976). Conservation technology for library and archive. Proceedings of the National Seminar on the Conservation of Cultural Material. Institute for the Conservation of Cultural Material. Perth. 280-97.
- Stone, Marble, Discolorations.
453. Cook, R. and G. Martin. (1987). Preliminary investigation into discolourations occurring in white marble. Recent Advances in the Conservation and Analysis of Artifacts. Jubilee Conservation Conference. Univ. London. Institute of Archaeology. Summer School. London. 359-64.
- Fungi, Control, Moisture, Techniques.
454. Cornish, J.P. and C.H. Sanders. (1983). Curing condensation and mould growth. *Building Research Establishment News*. 59:12-13.
- Paintings, Mildew, Control, Techniques, Biocides, Mildewicides.
455. Cortet, O. (1989). Le service de restauration des peintures des Muses Nationaux: Face aux moisissures. *Patrimoine Culturel et Alterations Biologiques*. Section Francaise de l'Institut Internat. de Conser. S.L. 227-34.
- Metals, Iron, Sulfur, Bacteria.
456. Cragnolino, G. and O.H. Tuovinen. (1984). The role of sulphate reducing and sulfur oxidizing bacteria in the localized corrosion of iron-base alloys- a review. *Internat. Biodeter.* 20(1):9-26.
- Fumigants, Wood, Biocides, Insecticides, Soil.
457. Craven, D. (1977). Soil fumigants: Advances in protecting wood from decay. *Technology and Conservation*. 2(4):22-6.
- Biocides, Chlorine dioxide.
458. Cravens, B.B. (1966). Stabilized chlorine dioxide for microorganism control. *Tappi*. 49(8):53-5.
- Biocides, Insecticides, Permethrin, Fenvalerate, Termites, Australia.
459. Creffield, J.W. and C.D. Howick. (1984). Comparison of permethrin and fenvalerate as termiticides and their significance to Australian quarantine regulations. International Research Group on Wood Preservation. Stockholm.
- Paper, Library, Book, Documents, Techniques.
460. Crespo, C. and V. Vinas. (1986). La preservation et la restauration des documents et ouvrages en papier: Une etude ramp, accompagnee de principes directeurs. UNESCO — Programme General d'Information. Paris.
- Polymers, Degradation.
461. Crighton, J.S. (1988). Degradation of polymeric materials. Preprints of Contributions to the Modern Organic Materials Meeting. Scottish Society for Conservation and Restoration. Edinburgh. 11-19.
- Wall paintings, Frescoes, Fungi, Pavia, Italy.
462. Crippa, A. (1983). Fungi isolated from mural paintings in old churches of Pavia (It.). *Atti. della Soc. Italiana di Scienza Naturali e del Museo Civico do Storia Naturale di Milano*. 124(1/2):2-10.
- Biocides, Oil.
463. Crouch, B. (1983). Evaluation of biocides for use in North Sea oil operations. *Biodeterioration* 5. T.A. Oxley and S. Barry, eds. John Wiley and Sons. New York. 725-30.
- Biocides, Pentachlorophenol, Wood.
464. Cserjesi, A.J. and J.W. Roff. (1964). Retention of pentachlorophenol in lumber

- dipped in water solutions. *Forest Products Journal*.
- Fungi, Cellulose.**
465. Cui, F.M., *et al.* (1984). A comparison of some biochemical properties of cellulases from different fungi. *Acta Mycologia Sinica*, 3(1):59-64.
- Wood, Marine environment, Succession.**
466. Cundell, A.M. and R. Mitchell. (1977). Microbial succession on a wooden surface exposed to the sea. *Internat. Biodeter. Bull.* 13(3):67-73.
- Paper, Insects, Library, Papers, Archives.**
467. Cunha, G.M., N.P. Tucker and S.E. Cushing. (1972). Insect damage. *Library and Archives Conservation. The Boston Athenaeum's 1971 Seminar*. G.M. Cunha and N.P. Tucker, eds. *The Library of the Boston Athenaeum*. Boston.
- Fungi, Library, Paper.**
468. Cunha, G.M., N.P. Tucker and S.E. Cushing. (1972). Fungus deterioration. *Library and Archives Conservation. Seminar on the Application of Chemical and Physical Methods*. G.M. Cunha and N.P. Tucker, eds. *The Library of the Boston Athenaeum*. Boston. 57-8.
- Biocides, Techniques.**
469. Curri, S. (1981). L'aggressione biologica alle opere d'arte: Allestimento di antibiogrammi e scelta di biocidi. *La Conservazione del Costruito: I Materiali e le Tecniche*. Cooperativa Libreria Universitaria del Politecnico, Milano. 81-103.
- Stone, Acropolis, Athens.**
470. Curri, S.B. (1979). Aspetti dell'aggressione biologica ai monumenti dell'Acropoli di Atene. *Deterioration and Conservation of Stones. Proceedings of the 3rd International Symposium*. Università degli Studi, Istituto di Chimica Industriale. Padova. 261-80.
- Biocides, Fresco, Stone, Techniques.**
471. Curri, S.B. (1979). Biocide testing and enzymological studies on damaged stone and fresco surfaces: Preparation of antibiograms. *Biochem. Exp. Biol.* 15(1): 97-104.
- Biocides, Fresco, Stone, Techniques.**
472. Curri, S.B. (1978). Biocide testing and enzymological studies on damaged stone and fresco surfaces: Preparation of antibiograms. UNESCO RILEM. UNESCO. Paris. 1-13.
- Stone, Techniques.**
473. Curri, S.B. (1979). Inquinamento atmosferico e aggressioni biologiche alle opere d'arte: Proposte metodologiche. *Acqua e Aria*. 4:309-14.
- Stone, Lipids.**
474. Curri, S.B. (1974). Lipids on the surface of works of art and limestone degradation. *Proceedings 12th ISF World Congress*, Milan, 1-3 September 27-33.
- Biocides, Stone, Techniques.**
475. Curri, S.B. (1979). The microbiological attack on the surface of Fidia's statue Cecrops and Pandrossos: I. Preparation of antibiograms and results of some biological and biochemical analyses. *Biochem. Exp. Biol.* 15(2):203-7.
- Biocides, Stone, Techniques.**
476. Curri, S.B. (1979). The microbiological attack on the surface of Fidia's statue Cecrops and Pandrossos: II. Evaluation of the activity of some biocides on the polluted marble. *Biochem. Exp. Biol.* 15(3):299-344.
- Stone, General.**
477. Curri, S.B. (1982). Aspetti dell'aggressione biologica al cenacolo leonardesco. *Arte Lombarda Nuova Serie*. 62(2):47-50.
- Stone, Histochemical techniques.**
478. Curri, S.B. and A. Paleni. (1981). Histochemical procedures for the evaluation of organic components in deteriorated stone materials. *The Conservation of Stone. II. Preprints of the Contributions to the Inter. Symp., Part A: Deterioration*. R. Rossi-Manaresi, ed. Centro per la Conservazione delle Sculture all'Aperto. Bologna. 445-54.
- Stone, Karnak Temples, Egypt.**
479. Curri, S.B. and A. Paleni. (1976). Some aspects of the growth of chemolithotrophic micro-organisms on the Karnak Temples. *The Conservation of Stone. I. Preprints of the Contributions to the Inter. Symp., Part A: Deterioration*. R. Rossi-Manaresi, ed. Centro per la Conservazione delle Sculture all'Aperto. Bologna. 267-79.

## Stone, Algae, Fatty acids, Lipids.

480. Curri, S.B. and A. Rigolia. (1970). Lipids and fatty acids in thermal algae. *Biochem. Biol. Sper.* 9:185-90.

## Stone, Biogenesis.

481. Curri, S.B. and C.B. Curri. (1983). Study of lithoclastic phenomena of biological genesis (It.). *Acqua e Aria.* 1:17-27.

## Stone, Restauration.

482. Curri, S.B., R.J. Farrauto, L. Formica, R.D. Harvey and A. Paleni. (1982). Preliminari al restauro del portale del Palazzo dei Principi di Correggio. *Deterioration and Preservation of Stones: Proceedings of the 3rd International Symposium.* Universita degli Studi. Istituto di Chimica Industriale. Padova. 461-70.

## Wood, Structure. Decay processes.

483. Cutler, D.F. (1975). The anatomy of wood and the process of its decay. Problems in the Conservation of Waterlogged Wood. *Maritime Monographs and Reports N. 16.* W.A. Oddy, ed. National Maritime Museum. London. 16:1-7.

## Wood, Shipworm, Bacteria.

484. Cutter, J.M. and F.A. Rosenberg. (1972). The role of cellulolytic bacteria in the digestive processes of the shipworm. *Biodeterioration of Materials.* Vol. 2. A.H. Walters and E.H. Hueck-Van Der Plas, eds. Applied Science. London. 42-51.

## Wood, Insects, Isoptera, Coleoptera, Europe.

485. Cymorek, S. (1984). Insect pests in wooden art objects and antiques in Europe. 1. General aspects. 2. Isoptera. 3. Coleoptera. 4. Cerambycidae. *Holz-Zentralblatt.* 110:638-854.

Wood, Insects, Anobiidae, *Nicobium*.

486. Cymorek, S. (1972). *Nicobium castaneum* (col. Anobiidae), a pest in wood materials and works of art. *Biodeterioration of Materials.* Vol. 2. A.H. Walters and E.H. Hueck-Van Der Plas, eds. Applied Science. London. 408-15.

Paper, Fungi, *Penicillium*.

487. Czerwinska, E. and R. Kowalik. (1956). Penicillia destroying archival papers (Po. Eng. Summary). *Acta Microbiologica Polonica.* 5:299-302.

## Photographs.

488. Czerwinska, E. and R. Kowalik. (1978). Contribution to the protection of audio-

visual records against destructive microflora. ICOM Committee for Conservation. 5th Triennial Meeting. Paris.

## Photography, Prints, Audiovisual.

489. Czerwinska, E. and R. Kowalik. (1979). Microdeterioration of audiovisual collections Part 1. Protection of audiovisual aids against destructive microflora. Part 2. Microbial problems in prints. *Restaurator.* 3:63-80.

## Photographs, Prints.

490. Czerwinska, E. and R. Kowalik. (1978). Microbial problems in photographic print collections. ICOM Committee for Conservation. 5th Triennial Meeting. Preprints. International Council of Museums. Paris.

## Plastics, Fungi.

491. Czerwinska, E., R. Kowalik and T. Wisniewski. (1963). Determination of the resistance of plastics to moulds. *Acta Microbiologica Polonica.* 12:69-76.

## Wood, Conservation.

492. Daifuku, H. (1983). The conservation of wood. *International Symposium on the Conservation and Restoration of Cultural Property: The Conservation of Wooden Cultural Property.* National Research Institute of Cultural Properties. Tokyo. 13-39.

## Plastics, Polyurethanes, Assessment, Techniques, Methods.

493. Dale, R. and D.J. Squirrell. (1990). A rapid method for assessing the resistance of polyurethanes to biodeterioration. *Internat. Biodeter.* 26(6):335-68.

## Building materials, Blackening.

494. Dan, T.K. and V.P. Sreedharan. (1982). The mechanism of blackening of the surfaces. *Internat. Biodeter.* Bull. 18(4): 99-104.

## Paintings, Vienna.

495. Dangas, I. and M. Stefanaggi. (1989). Un exemple d'intervention *in situ*: Problemes biologiques des peintures de la crypte de Saint-Savin-sur-Gartempe (Vienne). *Patrimoine Culturel et Alterations Biologiques.* Section Francaise de l'Institut Internat. de Conser. S.L. 193-9.

Manganese spots. Pottery.

496. Daniels, V. (1981). Manganese-containing stains on excavated pottery shards. *MASCA Journal*. 1(8):230-31.

Stone, Bacteria. Israel, Jerusalem.

497. Danin, A. (1983). Weathering of limestone in Jerusalem by cyanobacteria. *Zeitschrift für Geomorphologie, Neue Folge*. 27:413-21.

Stone, Bacteria, Lichens. Jerusalem, Rome.

498. Danin, A. and G. Canvea. (1990). Deterioration of limestone walls in Jerusalem and marble monuments in Rome caused by cyanobacteria and cyanophilous lichens. *Internat. Biodeter.* 26(6):397-418.

Stone, Cyanobacteria, Limestone, Dolomite, Lichens.

499. Danin, A., R. Gerson and J. Garty. (1983). Weathering patterns on hard limestone and dolomite by endolithic lichens and cyanobacteria: Supporting evidence for eolian contribution to terra rossa soil. *Soil Science*. 136:213-7.

Cellulose containing plastics, Fungal resistance.

500. Darby, R.T. (1967). Testing cellulose-containing plastics for resistance to fungi. *Internat. Biodeter. Bull.* 3(2):65-6.

Algae, Text.

501. Darley, W.M. (1982). *Algal Biology: A Physiological Approach*. Basic Microbiology. Vol. 9. Blackwell Scientific, London.

Stone, High humidity, Milan.

502. Dassu, G., M. Bassi, G. Alessandrini and P. Zanolini. (1983). The Church of San Cristoforo sul Naviglio in Milan: A case of degradation in a highly damp environment. Fourth International Congress on the Deterioration and Preservation of Stone Objects. *Proceedings*. K.L. Gauri and J.A. Gwinn, eds. The University of Louisville, Louisville, KY. 341-2.

Paintings, Watercolor paints, Conservation.

503. Datta, P.K. (1976). Conservation of some watercolour paintings. *Conservation of Cultural Property in India*. 9:44-5.

Anoxants, Insects, Alternate fumigation techniques.

504. Davis, R. and E.G. Jay. (1977). The

current state of controlled atmospheres as a method of insect control. *Michigan State University Horticulture Report*. 28:201-11.

Anoxants, Insects, Alternate fumigation techniques.

505. Davis, R. and E.G. Jay. (1983). An overview of modified atmospheres for insect control. *Association of Operative Millers Bulletin*. 4026-9.

Biocides, Considerations.

506. Dawson, J. (1982). Some considerations in choosing a biocide. *Proceedings of the ICOM Waterlogged Wood Working Group Conference*. ICOM Waterlogged Wood Working Group, Ottawa. 269-77.

Insecticides, Biocides effects on materials.

507. Dawson, J. (1984). Effects of pesticides on museum materials. *IIC-CG 10th Ann. Conf.* Ottawa.

Fumigation, Museums.

508. Dawson, J. (1980). To fumigate or not to fumigate: The use of fumigants in museums. *IIC-CG 6th Ann. Conf.* Ottawa.

Wood, Art objects.

509. Dawson, J.E. (1980). Biodegradation of wood. *Proceedings of the Furniture and Wooden Objects Symposium*. IIC-CG, Ottawa. 13-26.

Wood, Waterlogged, Storage methods.

510. Dawson, J.E., R. Ravindra and R.H. Lafontaine. (1982). A review of storage methods of waterlogged wood. *Proceedings of the ICOM Waterlogged Wood Working Group Conference*. IIC Committee for Conservation, Ottawa. 227-35.

Stone, Sandstone, Fungi, Spain, Salamanca Cathedral.

511. De la Torre, M.A., G. Gomez-Alarcon, P. Melgarejo and C. Saiz-Jimenez. (In press). Fungi in weathered sandstone from Salamanca Cathedral, Spain. *The Science of the Total Environment*.

Paints, Marine environment, Techniques.

512. De Wolf, P. (1972). Some new considerations on the testing of antifouling paints. *Biodeterioration of Materials*. Vol. 2. A.H. Walters and E.H. Hueck-Van Der Plas, eds. Applied Science, London. 449-55.

Wood, Climatic factors.

513. Degroot, R.C. (1981). *Influence of climate*

- upon hazards for wood decay. Durability of Building Materials and Components. Second International Conference. National Bureau of Standards. Washington, DC. 288-96.
- Stone, Lichens.
514. Del Monte, M. (1989). I monumenti in pietra e i licheni. *Rassegna dei beni culturali*. 3:12-14, 16-17.
- Stone, Weathering, Reggio Emilia Cathedral.
515. Del Monte, M. and C. Sabbioni. (1986). Chemical and biological weathering of an historical building: Reggio Emilia Cathedral. *The Science of the Total Environment*. 50:165-82.
- Stone, Weathering crust, Scialbatura, Patina.
516. Del Monte, M. and C. Sabbioni. (1987). A study of the patina called scialbatura. *Studies in Conservation*. 32:114-121.
- Stone, Calcium oxalates.
517. Del Monte, M., C. Sabbioni and G. Zappia. (1987). The origin of calcium oxalates on historical buildings, monuments and natural outcrops. *The Science of the Total Environment*. 67: 17-39.
- ATP-ATPase assessment, Luciferase.
518. DeLuca, M., L. Wannlund and W.D. McElroy. (1979). Factors affecting the kinetics of light emission from crude and purified firefly luciferase. *Anal. Biochem.* 95:194-8.
- Stone, Ankor Wat, Cambodia.
519. Delvert, J. (1963). Recherches sur l'erosion des gres des monuments d'Angkor. *Bulletin de l'Ecole Francaise d'Extreme Orient*. 51:453-534.
- Plastics, Fungi.
520. Demmer, F. (1968). Beitrage zur Frage der pilzresistenz vollsynthetischer kunststoffe. *Material und Organismen*. 3:19-58.
- Bacteria, SEM, Marine fouling.
521. Dempsey, M.J. (1981). Marine bacterial fouling: A scanning electron microscope study. *Marine Biology*. 61:305-15.
- Sterilization, Filtration.
522. Denyer, S.P. A.D. Russel and W.B. Hugo. (1982). Filtration sterilisation. Principles and Practices of Disinfection. Preservation and Sterilisation. A.D. Russell, W.B. Hugo and G.A.J. Ayliffe, eds. Blackwell Scientific. St. Louis. 569-609.
- Fungicides, Non-toxic anti-fungal agents.
523. Dersarkissian, M. and M. Goodberry. (1980). Experiments with non-toxic anti-fungal agents. *Studies in Conservation*. 25:28-36.
- Wood, Tannins, Fungi, Yeasts.
524. Deschamps, A.M. and L. Leulliette. (1984). Tannin degradation by yeasts from decaying barks. *Internat. Biodeter.* 20(4):237-42.
- Wood, Insects, Protection.
525. Deschiens, R. and C. Coste. (1957). The protection of works of art in carved wood from the attacks of wood-eating insects. *Museum*. 10(4):55-9.
- Wood, Treatment.
526. Detanger, B. and L. de Nadaillac. (1972). Contribution a l'etude et au traitement des bois Georges d'Eau. ICOM. Rome. 4/9.
- Bacteria, Minerals.
527. Deveze, L., J. Le Petit and R. Matheron. (1966). Note preliminaire sur la prescence dans les eaux et les sediments marins de bacteries solubilisant certains mineraux insolubles. *Bull. Inst. Oceanogr. Monaco*. 36:1370-7.
- Stone, Microclimate, Environment.
528. Devina, R.A., *et al.* (1978). Principles of introducing optimum microclimate in architectural monuments. ICOM. Rome. 18/6.
- Wall paintings, Nagaur Fort.
529. Dhawan, S. and N. Pathak. (1989). Biodeterioration of Sheesh Mahal wall paintings of Nagaur Fort. Examination and Conservation of Wall Paintings of Sheesh Mahal, Nagaur. O.P. Agrawal, ed. Intach Conservation Centre. Lucknow. 37-44.
- Foxing, Paper, Miniatures, Lithographs.
530. Dhawan, S. and O.P. Agrawal. (1986). Fungal flora of miniature paper paintings and lithographs. *Internat. Biodeter. Bull.* 22(2):95-9.
- Wall paintings, Fungi, Temperature, Ajanta.
531. Dhawan, S., N. Pathak, K.L. Garg and A. Misra. (1989). Effect of temperature on some fungi isolates Ajanta wall paintings. International Conference on Biodeteriora-

- tion of Cultural Property. Preprints. Vol. II. Nat'l. Res. Lab. Conser. Cult. Prop. Lucknow. 245-57.
- Cellulose, Fungi, Control, Paint.  
532. Dholakia, J.N. and H.S. Chatpar. (1980). Control of some fungi capable of degrading cellulose and also water-based poster colours. *Internat. Biodeter. Bull.* 16(1):17-21.
- Wood, Fungi, *Serpula*.  
533. Dirol, D. (1978). Etude in vitro la colonisation et de la degradation structurale du bois d'aubier de Pin sylvestre par la Merule: *Serpula lacrymans*. *Revue de Mycologie.* 42:277-92.
- Wood, Fungi, Cell alteration.  
534. Dirol, D. and F. Ravilly. (1979). Les differentes formes d'alteration de la paroi cellulaire par quelques champignons lignivores. *Ann. Biol.* XVII 1:478-92.
- Lichens, Taxonomy.  
535. Dobson, F. (1981). *Lichens: An Illustrated Guide.* Richmond Publishing Co. Richmond, UK.
- Wood, Fungi, *Serpula*.  
536. Doi, S. (1984). The effectiveness test of chemicals against *Serpula lacryman*. International Research Group on Wood Preservation. Stockholm.
- Paints, Marine environment.  
537. Dolgopolskaya, M.A. and E.S. Gurevich. (1968). Biological and physico chemical factors influencing the efficacy of anti-fouling paints. *Biodeterioration of Materials.* A.H. Walters and J.J. Elphick, eds. Elsevier. Amsterdam. 680-84.
- Stone, Easter Island.  
538. Domasłowski, W. (1981). Les statues en pierre de l'île de Paques. Etat actuel, causes de deterioration, proportions pour la conservation. UNESCO. Paris.
- Wall paintings, Air pollution, Chemical, Biological alteration.  
539. Doychino, S.L. and E.N. Hadjivulcheva. (1981). Air pollutants and their role in the chemical and microbiological deterioration of the Boyana church mural paintings. *Biol. Biochim.* 34(4):567-70.
- Rock art, Caves, Stone, Climate.  
540. Dragovich, D. (1981). Cavern microclimates in relation to preservation of rock arts. *Studies in Conservation.* 26:143-9.
- Paint films, Techniques.  
541. Drescher, R.F. (1958). Microbiology of paint films. IV. Isolation and identification of the microflora on exterior emulsion paints *American Paint Journal.* 42(27): 80-102.
- Plastics, Biocides.  
542. Dring, I.D.K. (1985). Chemical preservation of plastics against microbiological attack. *Biodeterioration and Biodegradation of Plastics and Polymers.* Proceedings of the Biodeterioration Society. Occasional Publication N. 1. K.J. Seal, ed. The Biodeterioration Society. Kew, UK. 103-10.
- Bacteria, Organic acid secretion, Ketogluconic acid.  
543. Duff, R.B. and D.M. Webley. (1959). 2-ketogluconic acid as a natural chelator produced by soil bacteria. *Chemistry and Industry.* 1376-7.
- Stone, Bacteria, Organic acid secretion.  
544. Duff, R.B., D.M. Webley and R.O. Scott. (1963). Solubilization of minerals and related materials by 2-ketogluconic acid producing bacteria. *Soil Sciences.* 95: 105-114.
- Concrete, Building materials.  
545. Dugniolle, E. (1973). Corrosion biologique des betons en contact avec les eaux residuaires. *Revue du Centre Scientifique et Technique de la Construction.* 4:26-8.
- Stone, General.  
546. Dukes, W.H. (1972). Conservation of stone: causes of decay. *Architects' Journal.* 156:429-32.
- Wood, Underwater archaeology.  
547. Dumas, F. (1972). Ancient wrecks. Underwater Archaeology. A Nascent Discipline. Museums and Monuments, N. 13. UNESCO. Paris. 27-34.
- Wood, Water storage.  
548. Dunleavy, J.A. and W.M. Fogarty. (1972). Studies on the permeability increase of refractory spruce wood during water storage. *Biodeterioration of Materials.* Vol. 2. A.H. Walters and E.H. Hueck-Van Der Plas, eds. Applied Science. London. 330-5.
- Stone, Bacteria, Protection, Biocides.  
549. Dupuy, P., G. Trotet and F. Grossin. (1976). Protection des monuments contre

- les cyanophices en milieu arbite et humide. The Conservation of Stone I. Proceedings International Symposium. R. Rossi-Manaresi, ed. Centro per la Conservazione delle Sculture all'Aperto. Bologna. 205-20.
- Books, library, Paper, Archives, Insects.
550. Dvoryashina, Z.P. (1979). Some regularities of book-storage contamination by insects. *Restaurator*. 3:109-16.
- Wood, Marine environment, Preservation.
551. Eaton, R.A. (1986). Preservation of wood in the sea. *The Biology of Marine Fungi*. S.T. Moss, ed. Cambridge University Press. Cambridge. 355-65.
- Wood, Tropics, Marine environment, Preservation.
552. Eaton, R.A. (1985). Preservation of marine timbers. *Preservation of Timber in the Tropics*. W.P.K. Findlay, ed. Martinus Nijhoff/ Dr. W. Junk Publishers. Dordrecht. 157-91.
- Wood, Fungi, cooling towers, Untreated.
553. Eaton, R.A. and J. Irvine. (1971). Decay of untreated wood by cooling tower fungi. *Biodeterioration of Materials*. Vol. 2. A.H. Walters and E.H. Hueck-van der Plas, eds. John Wiley and Sons. New York. 192-200.
- Minerals, Fungi, Silicates, Yeasts.
554. Eckhardt, F.E.W. (1978). Microbial degradation of silicates. Release of cations from aluminosilicate minerals by yeasts and filamentous fungi. *Biodeterioration*. Proceedings of the Fourth International Symposium, Berlin. T.A. Oxley, D. Allsopp and G. Becker, eds. Pitman and The Biodeterioration Society. London. 107-16.
- Stone, Sandstone, Bacteria.
555. Eckhardt, F.E.W. (1978). Microorganisms and weathering of a sandstone monument. *Environmental Biogeochemistry and Geomicrobiology*. Vol 2: *The Terrestrial Environment*. W.E. Krumbein, ed. Ann Arbor Science. Ann Arbor, MI. 675-86.
- Foxing, Paper.
556. Eckhardt, F.E.W. (1966). Restaurierung Einer Aquarellkpoie. *Maltechnik*. 72: 11-18.
- Stone, Silicates.
557. Eckhardt, F.E.W. (1979). Gesteinsverwitterung durch mickroorganismen. versuche zur verwitterung gesteinsbildender silikatischer minerale. *Kolloquium ueber Steinkonservierung*. Stiftung Volkswagenwerk. Hannover. 46-65.
- Stone, Wall paintings, Frescoes, Plaster.
558. Eckhardt, F.E.W. (1985). Mechanism of the microbial degradation of minerals in sandstone monuments, medieval frescoes and plaster. *Vth International Congress on Deterioration and Conservation of Stone*. Proceedings. G.Felix, ed. Presses Polytechniques Romandes. Lausanne. 643-52.
- Stone, Bacteria, Fungi, Culture media influence.
559. Eckhardt, F.E.W. (1988). Influence of culture media employed in studying microbial weathering of building stones and monuments by heterotrophic bacteria and fungi. *VIth International Congress on Deterioration and Conservation of Stone*. Supplement. Nicholas Copernicus University. Press Department. Torun. 71-81.
- Wood, Boron detection with curcumin.
560. Edlund, M.L. (1982). Utilization of curcumin for detection of presence of boron in wood. *The International Journal of wood Preservation*. 2(3):133.
- Wood, Preservation, Sapstain.
561. Edlund, M.L. and B. Henningsson. (1982). Field and laboratory studies on anti-sapstain preservatives. *The International Journal of Wood Preservation*. 2(3):107-18.
- Wood, Biocides, Borate, Glycol.
562. Edlund, M.L., B. Henningsson, A. Kaeaerik and P.E. Dicker. (1983). A chemical and mycological evaluation of fused borate rods and a borate/ glycol solution for remedial treatment of window joinery. *International Research Group on Wood Preservation*. Stockholm.
- Wall paintings, Frescoes, Raman microscopy, Italy.
563. Edwards, H.G.M., D.W.Farwell, M.R.D. Seaward and C. Giacobini. (1990). Preliminary Raman microscopic analyses of a lichen encrustation involved in the biodeterioration of Renaissance frescoes in central Italy. *Internat. Biodeter*. 26:
- Books, Paper, Storage.
564. Edwards, R. and C. Horton. (1979). Pest control relating to the storage of books. *Paper Conservation News*. 9:3-4.

- Insects, Insecticides, Pesticides, Museums.  
565. Edwards, S.R., B.M. Bell and M.E. King. (1981). Pest control in museums: A status report. Association of Systematics Collections, Museum of Natural History, University of Kansas, Lawrence, KA.
- ATP-ATPase assessment, Growth.  
566. Edwards, S.W. and D. Lloyd. (1977). Changes in oxygen uptake rates, enzyme activities, cytochrome amounts and adenine. *J. Gen. Micro.* 102:135-44.
- Metals, Steel, Marine environment, Algae, North Sea.  
567. Edyvean, R.G.J. and L.A. Terry. (1983). The influence of micro-algae on corrosion of structural steels used in the North Sea. *Biodeterioration* 5. T.A. Oxley and S. Barry, eds. John Wiley and Sons, New York. 336-47.
- Metals, Marine fouling, Oil platforms, North Sea.  
568. Edyvean, R.G.J., L.A. Terry and G.B. Picken. (1985). Marine fouling and its effects on offshore structures in the North Sea. A review. *Internat. Biodeter.* 21(4): 277-84.
- Fungi, Cellulose, Soil.  
569. Eggins H.O.W. and G.J.F. Pugh. (1962). Isolation of cellulose-decomposing fungi from the soil. *Nature.* 183:94-5.
- General.  
570. Eggins, H.O.W. and T.A. Oxley. (1980). Biodeterioration and biodegradation. *Internat. Biodeter. Bull.* 16(2):53-6.
- Wood, Cellulose, Techniques.  
571. Eggins, H.O.W., K.A. Malik and R.F. Sharp. (1968). Some techniques to investigate the colonization of cellulosic and wood substrates. *Biodeterioration of Materials.* A.H. Walters and J.J. Elphick, eds. Elsevier, Amsterdam. 120-30.
- Stone, Geology.  
572. Ehrlich, H.L. (1981). *Geomicrobiology.* Marcel Dekker, New York.
- Insecticides, Insects, Glue, Longhorn beetle.  
573. Elbez, G. and M.M. Serment. (1984). Inclusion of insecticide in glue and its effect on the strength of gluing and protection against the house longhorn beetle. Groupe de travail no.2. Les transformations physico-mechaniques. Sous-groupe 2.5 — Preservations. Colloques sciences et industries du bois. Paris. 325-45.
- Paper, Parchment, Drawings, Conservation.  
574. Ellis, M.H. (1980). Drawings on parchment: Special conservation problems for collectors. *Drawing.* 2(4):85-6.
- Drawings, Paper, Conservation.  
575. Ellis, M.H. (1980). Metalpoint drawings: Special conservation problems for collectors. *Drawing.* 2(3):59-61.
- Fungi, Gluconic acid, *Penicillium*.  
576. Elnaghy, M.A. and S.E. Megalla. (1975). Gluconic acid production by *Penicillium puberulum*. *Folia Microbiol.* 20:504-8.
- Fungi, Culturing, Mycological Institute.  
577. Elphick, J.J. (1965). The Commonwealth Mycological Institute Kew, Surrey, England. *Internat. Biodeter. Bull.* 1(1): 8-9.
- Biocides, Fungicides, Nematicides, Regulations.  
578. Elson, J.E. (1978). Fungicide-nematicide testing and pesticide registrations. *Methods for Evaluating Plant Fungicides, Nematicides and Bactericides.* Am. Phytopathological Soc. 1-2.
- Insects, Control.  
579. Emden, H.F. (1974). *Pest Control and its Ecology.* Studies in Biology. 50. Edward Arnold, London.
- Concrete, Biocides, Testing, Sewage systems, Sulfuric acid, Bacteria, *Thiobacillus*.  
580. Emmel, T., H. Brill, W. Sand and E. Bock. (1988). Screening for biocides to inhibit biogenic sulphuric acid corrosion in sewage pipeline. *Biodeterioration* 7. D.R. Houghton, R.N. Smith and H.O.W. Eggins, eds. Elsevier, New York. 118-22.
- Fungi, Japan, Wood.  
581. Emoto, Y. (1959). On the prevention of fungus injuries at the Toshogu Shrine, Nikko. 16:1-10.
- Wood, Japan, Fungi.  
582. Emoto, Y. (1963). Relapse of fungal damage in Yakushiji Temple, Nara. *Sci. Pap. Jap. Antiq. Art Craft.* 17:1-5.
- Fungicides, Paints, Latex.  
583. Enninga, R. and W.J. Bordes. (1968). Fungicides in latex paints. *Biodeterioration*

- of Materials. A.H. Walters and J.J. Elphick, eds. Elsevier, Southampton, 326-32.
- Wood, Cellulose, Fungi, *Chrysosporium*.  
584. Eriksson, K.E. and B. Pettersson. (1971). Extracellular enzyme system utilized by the fungus *Chrysosporium lignorum* for the breakdown of cellulose. Biodeterioration of Materials. Vol. 2. A.H. Walters and E.H. Hueck-van der Plas, eds. John Wiley and Sons. New York. 116-20.
- Wood, Fungi, *Stereum*.  
585. Eriksson, K.E. and B. Pettersson. (1971). Purification and characterization of xylanase from the rot fungus *Stereum sanguinolentum*. Internat. Biodeter. Bull. 7(3):115-19.
- Wood, Fungi, Acids, White-rot, Soft-rot, Brown-rot.  
586. Eriksson, K.E., J.K. Gupta and A. Nishida. (1984). Syringe acid metabolism by some white-rot, soft-rot and brown-rot fungi. J. Gen. Microbiol. 130(10):2457-64.
- Wood, Morphology of degradation, Cellulose, Hemicellulose, Lignin, Fungi, Bacteria.  
587. Eriksson, K.E.L., R.A. Blanchette and P. Ander. (1990). Springer Series in Wood Science. Microbial and Enzymatic Degradation of Wood and Wood Components. T.E. Timell, ed. Springer-Verlag. New York.
- ATP assessment, Data analysis.  
588. Erkebrecher, C.W. and S.J. Crabtree, Jr. (1976). Computer-assisted analysis of ATP data. Appl. Env. Micro. 32(3):451-4.
- Biocides, Fluorine, Chrome, Arsenic.  
589. Ermusch, N.A., A.J. Kalninsch and I.W. Apine. (1978). Zusammensetzung, eigenschaften und Zusammenwirkungsmecanismus eines fluor-, chrom-, arsen-, und borverbindingenthaltenden bioschdenholzschutzmittels. Biodeterioration. Proceedings of the Fourth International Symposium, Berlin. T.A. Oxley, D. Allsopp and G. Becker, eds. Pitman and The Biodeterioration Society. London. 89-98.
- Wood, Marine environment.  
590. Eslyn, W.E. and J.W. Clark. (1976). Appraising deterioration in submerged piling. Material und Organismen. 3:43-52.
- Wood, Fungi, Willow, Cotton logs.  
591. Eslyn, W.E. and F.F. Lombard. (1984). Fungi associated with decayed wood in stored willow and cotton logs. Mycologia. 76(3):548-50.
- Wall paintings, Frescoes.  
592. Espinosa, A. (1987). Conservation and restoration of the murals of the Temple of the Paintings in Bonampak, Chiapas. In *Situ Archaeological Conservation: Proceedings of Meetings*. H.W.M. Hodges, ed. Inst. Nac. de Antropologia e Historia and J. Paul Getty. Marina del Rey, CA. 84-9.
- Biocides, Wood, Organotins.  
593. Evans, C.J. and R. Hill. (1981). Organotins in wood preservation. Journal of the Oil and Colour Chemists' Association. 64(6):215-23.
- Wood, Gamma radiation.  
594. Eymery, R. and L. de Nadaillac. (1972). Utilisation du rayonnement gamma pour la conservation des objets en bois. ICOM. Paris. 4/10.
- Stone, Marble, Black crusts.  
595. Fassina, V., L. Lazzarini and G. Biscontin. (1977). Effects of atmospheric pollutants on the composition of black crusts deposited on Venetian marbles and stones. Second International Symposium on the Deterioration of Building Stones. Proceedings. Universite Technique Nationale. Athens. 201-11.
- Plastics, Algae.  
596. Favali, M.A., N. Barbieri and M. Bassi. (1978). A green alga growing on a plastic film used to protect archaeological remains. Internat. Biodeter. Bull. 14(3): 89-93.
- Bird, Stone.  
597. Feare, C.J. (1988). Bird damage: A constant threat in an ever changing scene. Biodeterioration 7. D.R. Houghton, R.N. Smith and H.O.W. Eggins, eds. Elsevier. New York. 274-9.
- Herbicides.  
598. Fearn, J.E. (1978). The Effects of Herbicides on Masonry. National Bureau of Standards. Washington, DC.
- Stone, Conservation.  
599. Feilden, B.M. (1982). Conservation of Historic Buildings. Butterworths. London. 131-52.

- Wood, Protection, Biocides, Chemistry.  
600. Feist, W.C. and D.N.S. Hon. (1984). Chemistry of weathering and protection. *Advances in Chemistry Series 207. The Chemistry of Solid Wood*. R. Rowell, ed. American Chemical Society, Washington, DC. 401-51.
- Wood, Chemistry, Ultrastructure.  
601. Fengel, D. and G. Wegener. (1984). *Wood. Chemistry, Ultrastructure, Reactions*. Walter de Gruyter, Berlin.
- Bacteria, *Streptomyces*, Water.  
602. Fermor, T.R. and H.O.W. Egging. (1980). The effect of water activity on growth of *Streptomyces* species. *Internat. Biodeter. Bull.* 16(4):95-101.
- Textiles, Biocides, Bacteria, *Actinomycetes*, Methods.  
603. Fermor, T.R. and H.O.W. Egging. (1981). The use of *actinomycetes* in textile biocide testing. *Internat. Biodeter. Bull.* 17(1): 15-17.
- Copra, Fungi.  
604. Fernandez, W. (1987). Oil loss in copra due to fungi: A review. *The Philippine Agriculturist*. 70(1-2):29-40.
- Stone, Conservation, Sulfur.  
605. Ferrari, R., F. Passarelli, M. Spano and G. Starace. (1982). Utilizzazione dell'anidride solforosa da parte di un ceppo di batteri solfoossidanti in relazione all'alterazione dei materiali calcarei. *Deterioration and Preservation of Stones: Proceedings of the 3rd International Symposium*. Universita degli Studi. Istituto di Chimica Industriale. Padova. 281-7.
- Polyurethanes, Plastics.  
606. Filip, Z. (1985). Microbial degradation of polyurethanes. *Biodeterioration and Biodegradation of Plastics and Polymers*. Proceedings of the Biodeterioration Society. Occasional Publication N. 1. K.J. Seal, ed. The Biodeterioration Society. Kew, UK. 51-5.
- Wood, Tropics, Durability, Nature.  
607. Findlay, W.P.K. (1985). The nature and durability of wood. *Preservation of Timber in the Tropics*. W.P.K. Findlay, ed. Martinus Nijhoff/Dr. W. Junk Publishers. Dordrecht. 1-3.
- Paper, Library, Photographic, Fumigation, Water damage.  
608. Fischer, D.J. (1977). Conservation research: Fumigation and sterilization of flood-contaminated library, office, photographic and archival materials. *Preservation of Paper and Textile of Historic and Artistic Value*. *Advances in Chemistry, Series N. 164*. J.C. Williams, ed. American Chemical Society, Washington, DC. 139-48.
- Paper, Parchment, Leather, Biocides, Freeze drying.  
609. Flieder, F., F. Leclerc and C. Chahine. (1978). Effect de la lyophilization sur la comportement mecanique et chimique du papier, du cuir, et du parchmin. *ICOM*. Paris. 14/8.
- Algae, Marine fouling.  
610. Fletcher, R.L. (1978). Experimental studies on rhizoid production in some marine fouling algae. *Biodeterioration. Proceedings of the Fourth International Symposium*. Berlin. T.A. Oxley, D. Allsopp and G. Becker, eds. Pitman and The Biodeterioration Society. London. 257-73.
- Foxing, Paper.  
611. Flieder, F. (1961). Etude de la resistance biologique des procedes de renforcement des documents graphiques. *Recent Advances in Conservation. Contributions to the IIC Rome Conference*. G. Thomson, ed. Butterworths. London. 65-9.
- Foxing, Moisture, Paper.  
612. Flieder, F. (1961). Lutte contre les moisissures des materiaux constitutifs des documents graphiques. *Recent Advances in Conservation. Contributions to the IIC Rome Conference*. Butterworths. London. 70-2.
- Photographic, Biocides, Treatments.  
613. Flieder, F. (1978). Les deteriorations biologiques des phototypes argentiques et les remedes a y apporter. *Aspects de la Photographie Scientifique. Actes du Colloque International. Centre National de la Recherche Scientifique*. Paris. 299-303.
- Leather, Disinfection, Biocides.  
614. Flieder, F., C. Chanine and G. Honore. (1972). Action de trois traitements de desinfection sur des peaux de veau.

- mouton et chevre tannees vegetalment. ICOM. Paris. 4/8
- Freezing. Temperatures. Insects. Effects on materials.
615. Florian, M.L. (1986). The freezing process — effects on insects and artifact materials. *Leather Conservation News*. 3(1):1-17.
- Ethylene oxide. Freezing temperatures. Insects.
616. Florian, M.L. (1987). The effects on artifact materials of the fumigant ethylene oxide and freezing used in insect control. *Proceedings of the ICOM Sixth Triennial Meeting*. Paris. 199-208.
- Lichens. Rock art. Stones. Control.
617. Florian, M.L.E. (1985). A review: The lichen role in rock art - dating, deterioration and control. *IIC-CG*. IIC-CG. Ottawa. 95-8.
- Fungicides. Fur. Leather.
618. Florian, M.L.E. (1976). Fungicide treatment of Eskimo skin and fur artifacts. *J. IIC-CG*. IIC-CG. Ottawa. 2(1):10-17.
- Water damage. Artifacts.
619. Florian, M.L.E. (1977). Waterlogged artifacts: The nature of materials. *J. Canadian Conservation Institute*. IIC-CG. Ottawa. 2:11-15.
- Wood. Archaeological. Review.
620. Florian, M.L.E. (1990). Scope and history of archaeological wood. *Advances in Chemistry Series*. Archaeological Wood. R.M. Rowell and R.J. Barbour, eds. American Chemical Society, Washington DC. 3-32.
- Fungicides. Conservation treatments.
621. Florian, M.L.E. and D. Dudley. (1976). The inherent fungicidal features of some conservation processes. *AIC Preprints*. American Institute for Conservation. Washington, D.C. 41-7.
- Lichens. Stones.
622. Forero, L.E. (1986).<sup>2</sup>Invest. biologica en el parque arqueologico de San Agustin (Huila): Erradicacion y control de liquenes, hepaticas y musgos que deterioran la estatua agust. *Restauracion Hoy*. 1(1):5-9.
- Biocides. Minerals.
623. Foye, W.O. (1977). Antimicrobial activities of mineral elements. *Microorganisms and Minerals Microbiology Series*. Vol. 3. E.D. Weinberg, ed. Marcel Dekker, New York. 387-410.
- Stone. Donatello.
624. Franchi, R., G. Galli and C. Manganeli del Fa. (1978). Researches on the deterioration of stonework. VI. The Donatello Pulpit. *Studies in Conservation*. 23:23-37.
- Calcium oxalate. Stone.
625. Franzini, M., C. Gratziu and E. Wicks. (1984). Calcium oxalate films on marble monuments. *Rend. Soc. Ital. Mineral. Petrol.* 39(1):59-70.
- Foxing. Fungi pigments. Spectroscopy.
626. Fratadocchi, B., R. Savoia, F. Minto and A. Breccia. (1972). Non-destructive analysis of fungus pigments in works of graphic art by spectroscopic techniques. *ICOM*. Paris. 1-11.
- Cellulose. Soil. Techniques.
627. French, D.D. (1984). The problem of 'cementation' when using cotton strips as a measure of cellulose decay in soils. *Internat. Biodeter.* 20(3):169-72.
- Desert varnish. Algae, SEM, LM.
628. Friedman, E.I. (1971). Light and scanning electron microscopy of the endolithic desert algal habitat. *Phycologia*. 10:411-28.
- Stone. Shale. Lichens. Mechanical damage.
629. Fry, E.J. (1924). A suggested explanation of the mechanical action of lithophytic lichens on rocks (shale). *Annals of Botany*. 38:175-96.
- Stone. Lichens.
630. Fry, M.F. (1985). The problems of ornamental stonework: Lichen. *Stone Industries*. 20(2):22-5.
- Wood. Fungi. Microscopy.
631. Fukuda, K. and T. Haraguchi. (1982). Action of microfungi on wood. II. Microscopical observations on the woods attacked by microfungi. *The Japan Wood Research Society*. 28(1):75-80.
- Biomass assessment.
632. Fung, D.Y.C. (1988). Rapid methods and automation in microbiology for biomass estimation. *Biodeterioration* 7. D.R.

- Houghton, R.N. Smith and H.O.W. Egging, eds. Elsevier. New York. 647-56.
- Stone, Cambodia.  
633. Fusey, P. and G. Hyvert. (1964). Les alterations physico-chimiques et biologiques des gres des monuments Khmers. Academie des Sciences, Paris. Comptes-Rendus Hebdomadaires des Seances. Groupe 13. 258(26):6573-5.
- Conservation, Burma, India.  
634. Gairola, T.R. (1970). India and the conservation of cultural property in adjoining countries with special reference to Burma. Stud. Museol. 6-8:9-13.
- Stone, Preservation, Conservation, India.  
635. Gairola, T.R. (1968). Monuments: Examples of the preservation of monuments in India. The Conservation of Cultural Property with Special Reference to Tropical Conditions. Museums and Monuments, N. 11. UNESCO. Paris. 139-52.
- Biocides, Fungicides, Ascomycetes, Deuteromycetes, Imidazole.  
636. Gajdzinski, M. and A. Mroczkiewicz. (1983). Toxicity of imidazole derivatives towards selected Ascomycetes and Deuteromycetes (De.). Material und Organismen. 18(3):183-94.
- Insecticides, Biocides, Wood borers.  
637. Gajdzinski, M. and K. Lutomski. (1979). A device for rapid injection of fluid insecticides into wood borer galleries. International Journal of Wood Preservation. 1:41-3.
- Bacteria, *Thiobacillus*, Culture techniques.  
638. Galizzi, A., E.U. Ferrari and L. Ginetti. (1976). Identification of thiobacilli by replica plating. The Conservation of Stone I. Proceedings of the International Symposium, Bologna. R. Rossi-Manaresi, ed. Centro per la Conservazione delle Sculture all'Aperto. Bologna. 221-32.
- Foxing, Paper, Library, Archives.  
639. Gallo, F. (1961). Biological agents which damage paper materials in libraries and archives. Recent Advances in Conservation. Contributions to the IIC Rome Conference. G. Thomson, ed. Butterworths. London. 55-61.
- Paper, Books, Fungicides, Biocides.  
640. Gallo, F. (1975). Recent advances in the field of disinfection of book materials. ICOM. Paris. 15/7.
- Library, Archives, Paper, Preventions, Biocides.  
641. Gallo, F. (1980). I fattori che favoriscono gli attacchi degli agenti biologici nelle biblioteche e negli archivi e i metodi per prevenire e arrestare tali attacchi. Bollettino dell'Istituto Centrale per la Patologia del Libro Alfonso Gallo. Istituto Centrale per la Patologia del Libro. Rome. 36:195-213.
- Paper.  
642. Gallo, F., O' Leary, S. and A.B. Quaix. (1985). Biological Factors in Deterioration of Paper. ICCROM Technical Notes. Rome.
- Library, Paper.  
643. Gallo, F. and A.B. Strzelczyk. (1971). Indagine preliminare sulle alterazioni microbiche della pergamena. Bollettino dell'Istituto di Patologia del Libro. 1-2: 71-87.
- Gamma radiation, Paper, Library, Archives.  
644. Gallo, F., C. Marconi and M. Montanari. (1978). Saggi sulla sensibilita ai microorganismi di carte trattate con i raggi gamma e con l'ossido di etilene. Bollettino dell'Istituto di Patologia del Libro. 63-93.
- Insecticides, Safety problems.  
645. Gallo, P. (1961). Problems in the use of insecticides on occupied premises. Recent Advances in Conservation. Contributions to the IIC Rome Conference. G. Thomson, ed. Butterworths. London.
- Foxing, Paper.  
646. Gallo, P. and M. Hey. (1988). Foxing — A new approach. The Paper Conservator. 12:101-2.
- Lichens, Culture methods.  
647. Galun, M., K. Marton and L. Behr. (1972). A method for the culture of lichen thalli under controlled conditions. Arch. Mikrobiol. 83:189-92.
- Wood, Treatment.  
648. Gambetta, A. (1983). Biodegradamento e trattamento dei manufatti in legno. Legno nel Restauro e Restauro del Legno. Atti del Congresso Nazionale. Rirenze. Vol. 1. G. Tampone, ed. Palutan. Milano. 91-101.
- Wood, Instruments, Protection.  
649. Gambetta, A. (1987). Biodegradamento

- del legno degli strumenti musicali e metodi di protezione. Per una Carta Europea del Restauro. Conservazione. Testauro E riuso degli Strumenti Musicali Antichi. Quaderni della Rivista Italiana di Musicologia, 15. E. Ferrari Barassi and M. Laini, eds. Leo S. Olschki. Firenze. 119-25.
- Wood, Fungi, Art objects.
650. Gambetta, A. and E. Orlandi. (1972). Fungal species on wooden artistic works under particular wet conditions. *Biodeterioration of Materials*. Vol. 2. A.H. Walters and E.H. Hueck-van der Plas, eds. John Wiley and Sons. New York. 388-91.
- Wood, Insects.
651. Gambetta, A. and E. Orlandi. (1983). Su alcuni insetti distruttori del legno. *Legno nel Restauro e Restauro del Legno*. Congresso Nazionale. Firenze. G. Tampone and G. Trotta, eds. Tipografia Giuntina. Firenze. 87-9.
- Paper, Humidity, Aging, Temperature.
652. Gaminski, E. L., E. Parks and E.E. Toyh. (1978). The effects of temperature and moisture on the accelerated aging of paper. *Restaurator*. 2(3-4):175-8.
- Stone, Calcareous, Deterioration, Conservation.
653. Ganorkar, M.C., T.A. Rao, R. Sreenivasa and M. Bhaskar. (1987). Deterioration and conservation of calcareous stones. *ICOM Committee for Conservation: 8th Triennial Meeting. Preprints*. Vol. 2. K. Grimstad, ed. The Getty Conservation Institute. Marina del Rey, CA. 479-86.
- Stone, Lichens, Bryophytes, Spain, Building materials.
654. Garcia-Rowe, J. and C. Saiz-Jimenez. (1991). Lichens and bryophytes as agents of deterioration of building materials in Spanish cathedrals. *International Biodeterioration. Special Issue: Biodeterioration of Cultural Property*. R.J. Koestler, ed. 28: 151-163
- Metals, Sulfur, Bacteria.
655. Garg, G.N., B. Santal and G.N. Pandey. (1978). Studies on microbiological corrosion of metals by sulphate reducing bacteria. *Biodeterioration. Proceedings of the Fourth International Symposium*. Berlin. T.A. Oxley, D. Allsopp and G. Becker, eds. Pitman and The Biodeterioration Society. London. 99-106.
- Stone, Lichens, Review.
656. Garg, K.L., S. Dhawan and O.P. Agrawal. (1988). Deterioration of stone and building materials by algae and lichens: A review. *Nat'l. Res. Lab. Conser. Cult. Prop.* Lucknow.
- General, Art objects.
657. Gargani, G. (1971). Biological factors in deterioration of works of art. *Atti. Accad. Sci. Ferrara*. 49:133-42.
- Fungi, Fresco, Wall painting, Florence.
658. Gargani, G. (1968). Fungus contamination of Florence art masterpieces before and after the 1966 disaster. *Biodeterioration of Materials*. A.H. Walters and J.J. Elphick, eds. Elsevier. Amsterdam. 252-7.
- General, Biocides, Protection, France.
659. Garnier, M.G. (1965). Aperçu de l'évolution des recherches en France concernant la protection des matériaux contre les agents biologiques de dégradation. *Internat. Biodeter. Bull.* 1(2):27-9.
- Fungi, Marine environment.
660. Garth-Jones, E.B. and J. Irvine. (1971). The role of marine fungi in the biodeterioration of materials. *Biodeterioration of Materials*. Vol. 2. A.H. Walters and E.H. Hueck-van der Plas, eds. John Wiley and Sons. New York. 422-31.
- Lichens, Amber, Geology, Pyrite.
661. Garty, J., C. Giele and W.E. Krumbein. (1982). On the occurrence of pyrite in a lichen-like inclusion in Eocene amber, Baltic. *Palaeogeography, Palaeoclimatology, Palaeoecology*. 39:139-47.
- Paint, Biocides, Plaster.
662. Gattner, H. and K. Wagner. (1983). Chemical control of microbial growth on paint films and plasters — A contribution to the current situation. *Biodeterioration* 5. T.A. Oxley and S. Barry, eds. John Wiley and Sons. New York. 713-16.
- Lichens, Trace element release.
663. Gayathri, P. (1982). On release of trace elements from lichens. *Birla Archaeological and Cultural Research Institute. Reserch Bulletin*. 4:23-8.
- Biomass assessment, Bacteria, Methods, Identification, Rapid.
664. Gaylarde, C. and P. Cook. (1990). New rapid methods for the identification of

- sulphate-reducing bacteria. *Internat. Biodeter.* 26(5):337-45.
- ATP-ATPase assessment. Detection.
665. Gaylarde, C.C. (1990). Advances in detection of microbiologically induced corrosion. *Internat. Biodeter.* 26(1):11-22.
- Stones. Lichens, Silica, Calcite.
666. Gehrman, C.K., K. Petersen and W.E. Krumbein. (1988). Silicate and calcicole lichens on Jewish tombstones. Interactions with the environment and biocorrosion. VIth International Congress on Deterioration and Conservation of Stone. Supplement. Nicholas Copernicus University. Press Department. Torun. 33-8.
- Library. Fungi. Review.
667. Georgescu, R. (1984). Review of microbiodeterioration of library materials. Part 2. Chapters 5-9. *The Abbey Newsletter.* 8(6):96-8.
- Stone. Polychrome, Insecticides, Fungicides, Biocides. Problems.
668. Gerard, A. (1989). Sculptures polychromes et mobiliers: Problemes de desinsectisation et de desinfection. *Patrimoine Culturel et Alterations Biologiques.* Section Francaise de l'Institut International de Conser. S.L. 207-10.
- Paintings. Wall, Easel, Fungi.
669. Gettens, R.J., M. Pease and G.L. Stout. (1941). The problem of mold growth in paintings. *Technical Studies in the Fine Arts.* Vol. IX. No. 3. 127-43.
- Wood. Insects. *Limnoria*. Fungi.
670. Geyer, H. (1982). The influence of wood inhabiting marine fungi on the food selection, feeding activity and reproduction of *Limnoria tripunctata menzies* (Crustacea, Isopoda). *The International Journal of Wood Preservation.* 2(2):77-89.
- Stone. Conservation, Venice. Review.
671. Ghigonetto, S. (1985). La conservation de la pierre a Venise de 1969 a 1982. Vth International Congress on Deterioration and Conservation of Stone. Vol. 2. G. Felix, ed. Presses Polytechniques Romandes. Lausanne. 1073-82.
- Stone. Sculpture, Algae.
672. Giaccone, G., M.L. Velocchia-Rinaldi and C. Giacobini. (1976). Forme biologiche delle alghesistenti sculture all'aperto. *The Conservation of Stone I. Preprints of the International Symposium.* R. Rossi-Manaresi, ed. Centro per la Conservazione delle Sculture all'Aperto. Bologna. 245-56.
- Stone. Lichens, Algae. Treatment.
673. Giacobini, C. and C. Bettini. (1978). Traitement des vestiges archeologiques deteriores par les lichens et les algues. *International Symposium on Deterioration and Protection of Stone Monuments.* UNESCO. Paris. 4.3.1-9.
- Stone, Algae, Fungi, Lichen, Biocides.
674. Giacobini, C., C. Bettini and A. Villa. (1982). Il controllo dei licheni, alghe e muschi. *Deterioration and Preservation of Stones.* Proceedings of the 3rd International Symposium. Universita degli Studi. Istituto di Chimica Industriale. Padova. 305-12.
- Wall painting. Alteration.
675. Giacobini, C., *et al.* (1982). Una caratteristica alterazione delle murature e degli intonaci. *Deterioration and Preservation of Stones.* Proceedings of the 3rd International Symposium. Universita degli Studi. Istituto di Chimica Industriale. Padova. 289-99.
- Wall paintings, Easel paintings, Problems, Projects.
676. Giacobini, C., M. Pedica and M. Spinucci. (1989). Problems and future projects on the study of biodeterioration: Mural and canvas paintings. *International Conference on Biodeterioration of Cultural Property.* Preprints. Vol. I. Nat'l. Res. Lab. Conser. Cult. Prop. Lucknow. 93-112.
- Wall paintings, Frescoes, Tombs, Bacteria, *Actinomyces*, Humidity.
677. Giacobini, C., M.A. de Cicco, I. Tiglie and G. Accardo. (1988). *Actinomyces* and biodeterioration in the field of fine art. *Biodeterioration 7.* D.R. Houghton, R.N. Smith and H.O.W. Egging, eds. Elsevier. New York. 418-23.
- Lichens, Conservation, Stone, Monuments, Techniques.
678. Giacobini, C., M.P. Nugari, M.P. Micheli, B. Mazzone and M.R.D. Seaward. (1985). Lichenology and the conservation of ancient monuments: An interdisciplinary study. *Biodeterioration 6.* Proceedings of the Sixth International

- Biodeterioration Symposium. S. Barry, D.R. Houghton, G.C. Llewellyn and C.E. O'Rear, eds. CAB International Mycological Institute and The Biodeterioration Society. Slough, UK. 386-92.
- Organic compounds, Degradation.**  
679. Gibson, D.T. (1984). *Microbial Degradation of Organic Compounds*. Microbiology Series. Vol. 13. Marcel Dekker. New York.
- Insects, Rodents, Review control methods.**  
680. Gibson, J.A. (1988). Review of rodent and insect damage to stored products and non-pesticidal methods of control. *Biodeterioration 7*. D.R. Houghton, R.N. Smith and H.O.W. Eggins, eds. Elsevier. New York. 286-91.
- Anoxants, Alternate fumigation strategies.**  
681. Gilberg, M. (1989). Inert atmosphere fumigation of museum objects. *Studies in Conservation*. 3-4:80-4.
- Metals, Bronzes, Black spots.**  
682. Gilberg, M. (1987). Black spots on bronzes. *Newsletter/ICOM Committee for Conservation Metals Working Group*. Paris. 3:12.
- Anoxants, Fumigation, Alternate techniques.**  
683. Gilberg, M. (1990). Inert atmospheres disinfestation using Ageless oxygen scavenger. ICOM Committee for Conservation. 9th Triennial Meeting Dresden, GDR. 26-31 August 1990. Preprints. Vol. II. Paris. 812-16.
- Wood, Preservatives, Techniques.**  
684. Gjovik, L.R. and D.I. Gutzmer. (1983). Comparison of wood preservatives in stake tests (1983 Progress Report). Research Notes, Forest Products Laboratory. USDA Forest Service. Madison, WI.
- Ethylene oxide, Fumigation, Insecticides, Fungicides, Biocides.**  
685. Goldgraben, R. (1980). Preliminary benefits analysis of ethylene oxide as a fumigant in libraries, The MITRE Corporation, Metrek Division. MacLean, VA.
- General, USSR.**  
686. Gorlenko, M. (1983). Some biological aspects of biodeterioration. *Biodeterioration 5*. T.A. Oxley and S. Barry, eds. John Wiley and Sons. New York. 578-81.
- Biocides, Mercury toxicity, Fungicides.**  
687. Gotelli, C.A., *et al.* (1985). Early biochemical effects of an organic mercury fungicide on infants: Dose makes the poison. *Science*. 227:638-40.
- Algae, Control.**  
688. Grant, C. (1982). Fouling of terrestrial substrates by algae and implications for control — A review. *Internat. Biodeter. Bull.* 18:57-65.
- Biocides, Methods, Algacides, Techniques.**  
689. Grant, C. and A.F. Bravery. (1981). Laboratory evaluation of algacidal biocides for use on construction materials 1. An assessment of some current test methods. *Internat. Biodeter. Bull.* 17(4):113-23.
- Biocides, Methods, Stone, Algacides, Quaternary Ammonium, Techniques.**  
690. Grant, C. and A.F. Bravery. (1981). Laboratory evaluation of algacidal biocides on construction materials. 2. Use of the vermiculite bed technique to evaluate a quaternary ammonium biocide. *Internat. Biodeter. Bull.* 17(4):125-31.
- Stone, Techniques, Algae, Biocides.**  
691. Grant, C. and A.F. Bravery. (1985). A new method for assessing the resistance of stone to algal disfigurement and the efficacy of chemical inhibitors. Vth International Congress on Deterioration and Conservation of Stone. Proceedings. G. Felix, ed. Presses Polytechniques Romandes. Lausanne. 663-74.
- Stone, Algae, Biocides, Techniques, Vermiculite.**  
692. Grant, C. and A.F. Bravery. (1985). Laboratory evaluation of algacidal biocides on constructional materials. 3. Use of the vermiculite bed technique to evaluate toxic washes, surface coatings. *Internat. Biodeter.* 21(4):285-93.
- Biocides, Stone, Building materials, Testing.**  
693. Grant, C. and A.F. Bravery. (1987). Evaluation of biocides for use on building materials. Preservatives in the Food, Pharmaceutical and Environmental Industries. 133-44.
- Wood, Methods, Fungi, Techniques.**  
694. Grant, C. and G. Savory. (1969). Methods for isolation and identification of fungus

- on wood. *Internat. Biodeter. Bull.* 5(2): 77-94.
- Fungi, Humidity, Moisture requirements.
695. Grant, C., C.A. Hunter, B. Flannigan and A.F. Bravery. (1989). The moisture requirements of moulds isolated from domestic dwellings. *Internat. Biodeter.* 25(4):259-84.
- Termites, Insects, Text.
696. Grasse, P.P. (1986). *Termitologia. Anatomie, Physiologie, Biologie — Systematique des Termites. Tome III: Comportement, Socialite, Ecologie, Evolution, Systematique.* Masson. Paris.
- Polymers, Resins, Plastics.
697. Grassie, N., E. Czaro, R.D. Gilbert, M.A. Golub, D.K.C. Hodgeman and P. Hrdlovic. (1982). *The Development Series. Developments in Polymer Degradation. Part 4.* Applied Science. London.
- Wood, Waterlogged, Techniques.
698. Grattan, D.W. and C. Mathias. (1986). Analysis of waterlogged wood: The value of chemical analysis and other simple methods in evaluating condition. *Somerset Levels Papers.* 12:6-12.
- Wood, Long-term exposure.
699. Greaves, H. and J.F. Levy. (1968). Microbial associations in the deterioration of wood under long-term exposure. *Biodeterioration of Materials.* A.H. Walters and J.J. Elphick, eds. Elsevier. Amsterdam. 429-43.
- Ethylene oxide, Fumigation, Residues, Museum objects.
700. Green, L. and V. Daniels. (1987). Investigation of the residues formed in the fumigation of museum objects using ethylene oxide. *Recent Advances in the Conservation and Analysis of Artifacts, Jubilee Conservation Conference.* Univ. London. Institute of Archaeology. Summer School. London. 309-14.
- Wood, Biochemistry of decay.
701. Green, N.B. (1980). The biochemical basis of wood decay micro-morphology. *Journal of the Institute of Wood Services.* 8(47):221-8.
- Glass, Lichens, *Parmellia*, New Zealand.
702. Green, T. and W. Snelgar. (1977). *Parmellia scabrosa* on glass in New Zealand. *Lichenologist.* 9:170-2.
- Sterilization, Control.
703. Green, V.W. (1982). Control of sterilisation processes. *Principles and Practices of Disinfection, Preservation and Sterilisation.* A.D. Russell, W.B. Hugo and G.A.J. Ayliffe, eds. Blackwell Scientific. St. Louis. 610-30.
- Leather, Textiles, Resistance.
704. Grichkova, A., Y. Petouchkova and A. Trezvov. (1988). La conservation des cuirs et textiles de musee a l'aide de polymeres resistants au vieillissement et aux biodeteriorations. *Conservation-Restoration of Leather and Wood; Training of Restorers; Sixth International Restorer Seminar.* I. Eri and G. Sarkozy, eds. National Centre of Museums. Budapest. 311-16.
- Plastics, Biodegradable.
705. Griffin, G.J.L. (1985). Biodegradable plastics. *Biodeterioration and Biodegradation of Plastics and Polymers. Proceedings of the Biodeterioration Society. Occasional Publication N. 1.* K.J. Seal, ed. The Biodeterioration Society. Kew, UK. 11-26.
- Plastics, Starch, Woodlice, Insects.
706. Griffin, G.J.L. and K. Tarverdi. (1983). Macrobiodeterioration of thermoplastics: Starch filler as an attractant for woodlice. *Biodeterioration 5.* T.A. Oxley and S. Barry, eds. John Wiley and Sons. New York. 557-67.
- Stone, Conservation, Treatment, Literature review.
707. Griffin, P.S., Indictor, N. and R.J. Koestler (1991). The biodeterioration of stone: A review of deterioration mechanisms, conservation case histories and treatment. *International Biodeterioration. Special Issue: Biodeterioration of Cultural Property.* R.J. Koestler, ed. Elsevier. London. 28: 187-207
- Bacteria, Methods, Taxonomy.
708. Griffiths, A.J. (1984). A descriptive nomenclature for isolates of cyanobacteria. *Br. Phycol. J.* 19(3):233-8.
- Wood, Fungi, Basidiomycetes, Preservatives.
709. Grinda, M. (1983). Effect of the number of specimens in a test vessel on the results of wood preservative tests with wood decomposing basidiomycetes (De.). *Material und Organismen.* 18(3):195-208.

- Stone, Bacteria, *Thiobacillus*. Isolation techniques.
710. Gugliandolo, C. and T.L. Maugeri. (1988). Isolation of *Thiobacillus* spp from stone. VIth International Congress on Deterioration and Conservation of Stone. Supplement. Nicholas Copernicus University. Press Department. Torun. 92-101.
- Wood, Rock, Marine environment. Bivalves.
711. Haderkie, E.C. (1983). Monitoring growth rates in wood- and rock-boring marine bivalves using radiographic techniques. *Biodeterioration* 5. T.A. Oxley and S. Barry, eds. John Wiley and Sons. New York. 304-18.
- Marine organisms, Fouling.
712. Haderlie, E.C. (1971). Marine fouling and boring organisms at 200 feet depth in open water of Monterey Bay, California. *Biodeterioration of Materials*. Vol. 2. A.H. Walters and E.H. Hueck-van der Plas, eds. John Wiley and Sons. New York. 432-42.
- Marine organisms, fouling, California.
713. Haderlie, E.C. (1968). Marine boring and fouling organisms in open water of Monterey Bay, California. *Biodeterioration of Materials*. A.H. Walters and J.J. Elphick, eds. Elsevier. Amsterdam. 658-79.
- Insects, Termites.
714. Haenel, H. (1984). Biologische bekaempfung von termiten mit dem pilz metarhizium anisopliae. *Holzschutz — Forschung und Praxis*. Ein Symposium. DRW -Verlag Weinbrenner-KG Leinfelden -Echterdingen. 62-3.
- Wood, Cellulose.
715. Haigler, C.H. (1985). The functions and biogenesis of native cellulose. *Cellulose Chemistry and its Applications*. Ellis Horwood Series in Chemical Science. T.P. Nevell and S.H. Zeronian, eds. Ellis Horwood. Chichester, UK. 31-83.
- Leather, Fungicides, Environmental control.
716. Haines, B. (1985). Fungicides and environmental controls for leather. *Recent Advances in Leather Conservation: Proceedings of a Refresher Course*. S. Fogle, ed. American Institute for Conservation. Washington, DC. 50-3.
- Library, Archives, Fungicides, Biocides.
717. Haines, J.H. and S.A. Kohler. (1986). An evaluation of *ortho*-phenyl phenol as a fungicidal fumigation for archives and libraries. *Journal of the American Institute for Conservation*. 25(1):49-55.
- Stone, Lichens, Maya, Honduras.
718. Hale, M. (1979). Conservacion de monumentos arqueologicos Mayas en Copan, Honduras: El programa biologico. *Yaxkin*. 3(2):135-49.
- Wood, Soft rot, Fungi, *Phialiphora*.
719. Hale, M.D. and R.A. Eaton. (1983). Soft rot decay of wood: The infection and cavity-forming processes of *Phialiphora hoffmannii* (van Beyma) Schol-Schwarz. *Biodeterioration* 5. T.A. Oxley and S. Barry, eds. John Wiley and Sons. New York. 54-63.
- Lichens, Biology.
720. Hale, M.E. (1983). *The Biology of the Lichens*. 3rd edition. Edward Arnold. London.
- Stone, Biocides, Maya, Honduras, Tropics.
721. Hale, M.E. (1975). Control of biological growths on Mayan archaeological ruins in Guatemala and Honduras. *National Geographic Research Reports*. The National Geographic Society, Washington, DC. 305-21.
- Stone, Lichens, Quartz.
722. Hallbauer, D.K. and H.M. Jahns. (1977). Attack of lichens on quartzitic rock surfaces. *Lichenologist*. 9(2):119-22.
- Plastics, PVC, Fungi.
723. Hamilton, N.F. (1983). Biodeterioration of flexible polyvinyl chloride films by fungal organisms. *Biodeterioration* 5. T.A. Oxley and S. Barry, eds. John Wiley and Sons. New York. 663-78.
- ATP-ATPase assessment, Bacteria.
724. Hamilton, R.D. and O. Holm-Hansen. (1967). Adenosine triphosphate content of marine bacteria. *Limnology and Oceanography*. 12:319-24.
- Textiles.
725. Hamlyn, P.F. (1983). Microbiological deterioration of textiles. *Textiles*. 12(3): 73-6.
- ATP-ATPase assessment, Methods, Techniques.
726. Hammerstedt, R.H. (1973). An automated method for ATP analysis utilizing the luciferin-luciferase reaction. *Anal. Biochem*. 52:449-55.

- Biocides, Methods, Herbicides, Techniques.  
727. Hance, R.J. and C.E. McKone. (1976). The determination of herbicides. Herbicides. Vol. 2.L.J. Audus, ed. Academic Press. New York. 393-445.
- Wood, Conservation.  
728. Hanse, H. (1972). La conservation des combles et des cloisons en bois du moyen age et du 17e siecle. Symposium on the weathering of wood. VI. ICOMOS. Paris. 123-9.
- Metals, *Cladosporium*, Fungi.  
729. Hansen, D., D. Tighe-Ford and G. George. (1981). Role of the mycelium in the corrosive activity of *Cladosporium resinae* in a diesel/water system. Internat. Biodeter. Bull. 17(4):103-12.
- Wood, Biocides.  
730. Hansen, J. (1983). Biocides from laboratory to practice. Biodeterioration 5. T.A. Oxley and S. Barry, eds. John Wiley and Sons. New York. 127-31.
- Wood, Fungi, *Stereum*, Lignin, Enzyme extract.  
731. Haraguchi, T., M. Fukushima, S. Fukuda and N. Morohoshi. (1983). Degradation of milled-wood lignin by an enzyme prepared from a wood-destroying fungus, *Stereum frustulosum*. Biodeterioration 5. T.A. Oxley and S. Barry, eds. John Wiley and Sons. New York. 75-83.
- Wood, Biocides, Testing, Gamma radiation, Cyanide, Dieldrin, Beetles, Fumigation, *Xestobium*.  
732. Harris, E.C. (1977). A long term field trial of gamma-HCH/dieldrin smoke against death watch beetle (*Xestobium rufovillosum*) in an ancient oak roof. Internat. Biodeter. Bull. 13(3):61-5.
- Insects, Termites, Control.  
733. Harris, W.V. (1971). Termites: Their recognition and control. 2nd edition. Longman. Bristol, UK.
- Wall paintings.  
734. Hartlieb, I., K. Messner and H. Riedl. (1982). Wachstum von schimmelpilzen in malgrunden und ihre bekampfung. Maltechnik. 88 189-97.
- Plastics, Bacterial.  
735. Harvey, M., et al. (1984). Methanogenic activity and structural characteristics of the microbial biofilm on a needle-punched polyester support. Appl. Env. Microbiol. 48(1):633-8.
- Insecticides, Control, Lindane, Termites, Biocides.  
736. Hasan, S.B., M. Jayaram and J.K. Majumder. (1984). Use of by-products of the Lindane isolation process (x-factor and hexachlor) in termite control. Internat. Pest Control. 26(2):48-50.
- Wood, Cellulose, Biosynthesis.  
737. Hassid, W.Z. (1970). Biosynthesis of cellulose A. Biosynthesis of cellulose and related plant cell-wall polysaccharides. Cellulose Derivatives. High Polymers. Vol.5., 4th edition. N.M. Bikales and L. Segal, eds. Wiley-Interscience. New York. 679-94.
- Wall paintings, Fungi.  
738. Hatch, A. (1934). Notes on the experimental studies made for prevention of mold growth on mural paintings. Technical Studies in the Field of the Fine Arts. 2(3):129-37.
- Wood, Consolidants, SEM.  
739. Hatchfield, P.B. and R.J. Koestler. (1987). Scanning electron microscopic examination of archaeological wood microstructure altered by consolidation treatments. Scanning Microscopy. O. Johari, ed. Scanning Microscopy International. Chicago (AMF O'Hare), IL. 1(3): 1059-69.
- Hair, Airborne microbes, Humidity, Museum collections.  
740. Hawks, C.A. and W.F. Rowe. (1988). Deterioration of hair by airborne microorganisms: Implications for museum biological collections. Biodeterioration 7. D.R. Houghton, R.N. Smith and H.O.W. Eggins, eds. Elsevier. New York. 461-5.
- Lichens, Pollution monitors.  
741. Hawksworth, D.L. and F. Rose. (1976). Lichens as Pollution Monitors. The Institute of Biology. N. 66. Edward Arnold. London.
- Fungi, Dictionary.  
742. Hawksworth, D.L., B.C. Sutton and G.C. Ainsworth. (1983). Ainsworth and Bisby's Dictionary of the Fungi. 7th edition. Commonwealth Mycological Institute Kew, UK.

## Plastics.

743. Hazeu, W. (1967). Results of the first inter-laboratory experiment on biodeterioration of plastics. *Internat. Biodeter. Bull.* 3(1):15-18, 1.

## Cellulose, Methods, Fungi, Techniques.

744. Hazeu, W. and H.O.W. Eggins. (1966). Isolation methods for cellulolytic fungi. *Internat. Biodeter. Bull.* 2(2):135-45.

## Plastics, Rubber.

745. Heap, W.M. and S.H. Morrell. (1968). Microbiological deterioration of rubbers and plastics. *Journal of Applied Chemistry.* 18:189-94.

## Wood, Archaeological, Chemistry.

746. Hedges, J.I. (1990). The chemistry of archaeological wood. *Advances in Chemistry Series, Archaeological Wood.* R.M. Rowell and R.J. Barbour, eds. American Chemical Society, Washington DC. 111-40.

## Wood, Preservation.

747. Hedley, M.E. (1983). Practical considerations in assessing the importance of biodeterioration of board materials and its prevention. *Biodeterioration 5.* T.A. Oxley and S. Barry, eds. John Wiley and Sons. New York. 117-26.

## Wood, Marine organisms, Fungi, Salinity, Osmotic pressure.

748. Hegarty, B.M. and P.M.T. Curran. (1984). The effect of salinity/osmotic pressure on the wood decay capacity of marine and non-marine fungi. *Internat. Biodeter.* 20(2):79-84.

## Wood, Beech, Environmental parameters.

749. Hegarty, B.M. and P.M.T. Curran. (1985). The biodeterioration of beech by marine and non-marine fungi in response to temperature, pH, light and dark. *Internat. Biodeter.* 21(1):11-17.

## Wood, Biocides, Copper-chrome-arsenic, Ireland.

750. Hegarty, B.M. and P.M.T. Curran. (1986). Biodeterioration and microdistribution of copper-chrome-arsenic (CCA) in wood submerged in Irish coastal waters. *Journal of the Institute of Wood Science.* 6(10):245-53.

## Fungi, Tropics.

751. Heim, R., F. Flieder and J. Nicot. (1968). Combating the molds which develop on

cultural property in tropical climates. *The Conservation of Cultural Property with Special Reference to Tropical Conditions.* Museums and Monuments, N. 11. UNESCO. Paris. 41-52.

## Stone, Egypt.

752. Helmi, F.M. (1988). Deterioration phenomenon in the North Temple Karanis, Near Fayoum, Egypt. VIth International Congress on Deterioration and Conservation of Stone. J. Ciabach, ed. Nicholas Copernicus University. Press Department. Torun. 166-74.

## Stone, Techniques, Cleaning, Fungi, Bacteria, Biopack.

753. Hempel, K. (1976). The biological pack. *UNESCO RILEM.* Paris. 7.6:1-5.

## Stone, Minerals, Fungi, Silica.

754. Henderson, M.E.K and R.B. Duff. (1963). The release of metallic and silicate ions from minerals, rocks and soil by fungal activity. *J. Soil Sci.* 14(2):236-46.

## Fungi, Minerals attack.

755. Hendey, N.I. (1966). How fungi attack materials. *Science Journal.* 43-9.

## Photographs, Fumigation.

756. Hendriks, K. and B. Lesser. (1984). Investigations on the fumigation of photographic materials. *AIC Photographic Materials Group Fourth Annual Winter Meeting.* The American Institute for Conservation. Washington, DC.

## Wood, Fungi, Birch, Aspen, Pulpwood, Ecology.

757. Henningsson, B. (1968). Ecology of decay fungi in birch and aspen pulpwood. *Biodeterioration of Materials.* A.H. Walters and J.J. Elphick, eds. Elsevier. Amsterdam. 408-23.

## Wood, Birch, Aspen, Pulpwood, Sulphate yield.

758. Henningsson, B. (1972). Yield and properties of sulphate pulp from decayed birch and aspen pulpwood. *Biodeterioration of Materials.* Vol. 2. A.H. Walters and E.H. Hueck-Van Der Plas, eds. Applied Science. London. 336-45.

## Wood, Preservation, Sweden.

759. Henningsson, B., A. Kaarik, H. Lundstrom and T. Nilsson. (1983). Current Swedish research on biodeterioration and preservation of wood. *Biodeterioration 5.*

- T.A. Oxley and S. Barry, eds. John Wiley and Sons. New York. 106-16.
- Wood, Lignin, IR spectroscopy, Structure.  
760. Hergent, H.L. (1971). Infrared spectra. Lignins: Occurrence, Formation Structure and Reactions. K.V. Sarkanen and C.H. Ludwig, eds. John Wiley and Sons. New York. 267-97.
- Wood, Insects, Art objects.  
761. Hickin, N. (1971). Wood-destroying insects and works of art. Proc. New York Conf. on Conservation of Stone and Wooden Objects. Conservation of Wooden Objects. Vol. 2. 75-80.
- Insects, Bookworms, Library.  
762. Hickin, N. (1985). Bookworms: The Insect Pests of Books. Sheppard Press. London.
- Wood, Insects, Art objects.  
763. Hickin, N.E. (1978). Insect damage to wood in the decorative arts — a world problem. Preprints of Conservation of Wood in Painting and the Decorative Arts. International Institute for Conservation. London. 19-22.
- Wood, Insects, Preservation, Control.  
764. Hickin, N.E. (1977). Preservation and control of structural wood destroying insects. Material und Organismen. 12(2):97-110.
- Wood, Dyed cellulose, Fungi, Brown-rot, White-rot.  
765. Highley, T.L. (1983). Measurement of cellulase activity in brown-and-white-rot fungi on dyed cellulose. Material und Organismen. 18(3):161-70.
- Wood, Treatments, Waterfront wood.  
766. Highley, T.L. (1980). In-place treatments for control of decay in waterfront structures. Forest Products Journal. 30(9):49-51.
- Wood, Treatments, Water structures.  
767. Highley, T.L. (1983). Protecting piles from decay and treatments. The International Journal of Wood Preservation. 3(2):73-6.
- Wood, Fumigation, Waterfront wood.  
768. Highley, T.L. and W.E. Eslyn. (1982). Using fumigants to control interior decay in waterfront timbers. Forest Products Journal. 32(2):32-4.
- Wood, Biocides, Organotins.  
769. Hill, R. and P.J. Smith. (1983). A laboratory evaluation of symmetrical and unsymmetrical triorganotin compounds as wood preservatives. The International Journal of Wood Preservation. 3(2):77-82.
- Plastics, Techniques, Methods, *Pseudomonas*, Bacteria.  
770. Hitz, H.R. and R. Zinkernagel. (1967). Test tube method for evaluation of biodegradation of plasticised PVC by *Pseudomonas aeruginosa* NCTC 8060. Internat. Biodeter. Bull. 3(1):21-3.
- Paint, Fungicides.  
771. Hoffman, E. (1971). The development of fungus-resistant paints. Biodeterioration of Materials. Vol. 2. A.H. Walters and E.H. Hueck-van der Plas, eds. John Wiley and Sons. New York. 370-75.
- Algae, Terrestrial.  
772. Hoffman, L. (1989). Algae of terrestrial habitats. The Botanical Review. 55: 77-105.
- Wood, Archaeological, Chemical Analysis, Techniques.  
773. Hoffmann, P. (1982). Chemical wood analysis as a means of characterizing archaeological wood. Proceedings of the Waterlogged Wood Working Group Conference. ICOM. Ottawa. 73-83.
- Stone, Environment, Crusts.  
774. Hoke, E. (1978). Investigations of weathering crusts on Salzberg stone monuments. Studies in Conservation. 23:118-26.
- Bioassay techniques, Methods, Fluorescence, Bacteria.  
775. Holah, J.T., R.P. Betts and R.H. Thorpe. (1988). The use of epifluorescence microscopy to determine surface hygiene. International Biodeterioration. Special Issue: Biodeterioration 7. Part Two. D.R. Houghton, R.N. Smith and H.O.W. Eggin, eds. Elsevier. London. 25:147-54.
- ATP-ATPase assessment, Algae.  
776. Holm-Hansen O. (1970). ATP levels in algal cells as influenced by environmental conditions. Plant and Cell Physiology. 11:689-700.
- ATP-ATPase assessment, Biomass.  
777. Holm-Hansen O. and C.R. Booth. (1966). The measurement of adenosine

- triphosphate in the ocean and its ecological significance. *Limnology and Oceanography*. 11:510-19.
- ATP-ATPase assessment, Biomass.
778. Holm-Hansen, O. (1969). Determination of microbial biomass in ocean profiles. *Limnology Oceanography*. 14:740-47.
- Growth, Environmental influences.
779. Hopton, J.W. (1988). Physical conditions and microbial growth: Some implications for biodeterioration. *Biodeterioration* 7. D.R. Houghton, R.N. Smith and H.O.W. Eggins, eds. Elsevier. London. 441-8.
- Gamma radiation, Paper.
780. Horakova, H. and F. Martinek. (1984). Disinfection of archive documents by ionizing radiation. *Restaurator*. 6:205-16.
- Marine fouling, Organisms, Mechanisms.
781. Houghton, D.R. (1968). Mechanisms of marine fouling. *Biodeterioration of Materials*. A.H. Walters and J.J. Elphick, eds. Elsevier. Amsterdam. 55-61.
- Insecticides, Pesticides, Regulation, Canada.
782. Houghton, E.R. and F.J. Cedar. (1978). Pesticide regulation in Canada. *Biodeterioration. Proceedings of the Fourth International Symposium, Berlin*. T.A. Oxley, D. Allsopp and G. Becker, eds. Pitman and The Biodeterioration Society. London. 331-7.
- Insects, Freeze-drying, Exhibition.
783. Hower, R.O. (1962). *Freeze-Drying Biological Specimens. Information Leaflet 324*. Smithsonian Institution. Washington, DC.
- Papers, Books, Library, Archives, Biocides, Fungicides.
784. Htar, K.T. (1970). A comparative study of three fungicides for preservation of books. *Union of Burma Journal of Life Sciences*. 3(1):87-9.
- Techniques, Testing methods, Principles.
785. Hueck, H.J. (1969). Experiences with biological tests in the field of biodeterioration of materials. 3. Some principles of the testing of material protectants. *Internat. Biodeter. Bull.* 5(2):63-6.
- Textiles, Art objects.
786. Hueck, H.J. (1965). The biodeterioration of textiles and its prevention in antiquities and works of art. *TNO-News*. 20:301-7.
- Textiles, Insects, Control.
787. Hueck, H.J. (1972). Textile pests and their control. *Textile Conservation*. J.E. Leene, ed. Butterworths. London. 76-97.
- Textiles, Techniques, Prevention, Biocides.
788. Hueck, H.J. (1965). *Biodeterioration of textiles and its prevention. Conservation of Textiles*. Preprints. 2nd edition. International Institute for Conservation. London. 94-104.
- General, Overview, Appraisal.
789. Hueck, H.J. (1968). The biodeterioration of materials — an appraisal. *Biodeterioration of Materials*. A.H. Walters and J.J. Elphick, eds. Elsevier. Amsterdam. 6-12.
- Techniques, Laboratory methods, General.
790. Hueck, H.J. and J. La Brijn. (1965). Experience with biological tests in the field of the biodeterioration of materials. 1. General laboratory technique. *Internat. Biodeter. Bull.* 2(1):7-13.
- Biocides, Fungicides, Textiles, Pentachlorophenyl.
791. Hueck, H.J., J. La Brijn, J.A. Copper and J. Van Ham. (1968). Investigations on the biological activity of pentachlorophenyl esters. *Biodeterioration of Materials*. A.H. Walters and J.J. Elphick, eds. Elsevier. Amsterdam. 539-45.
- Textiles, Methods, Fungi, Mildew, Techniques.
792. Hueck, H.J., M. Siebenhar and J. La Brijn. (1965). Experiences with biological tests in the field of the biodeterioration of materials. 2. Mildew tests on textiles. *Internat. Biodeter. Bull.* 2(1):14-21.
- Stone, General, Algae, Fungi.
793. Hueck-van der Plas, E.H. (1968). The micro-biological deterioration of porous building materials. *Internat. Biodeter. Bull.* 4(1):11-28.
- General.
794. Hueck-van der Plas, H.J. (1965). Statement of co-operative research: Co-operative research in biodeterioration. *Internat. Biodeter. Bull.* 1(1):1-7.
- ATP-ATPase assessment, Algae, Biocides.
795. Hughes, B.C. (1983). Rapid determination of relative ATP levels in toxin-treated unicellular algae. *Biodeterioration* 5. T.A.

- Oxley and S. Barry, eds. John Wiley and Sons. New York. 319-35.
- Stone, Moss, Penetration, *Tortula*.  
796. Hughes, J.G. (1982). Penetration by rhizoids of the moss *Tortula muralis* Hedw. into well cemented oolitic limestone. Internat. Biodeter. Bull. 18(2):43-50.
- Paper, Packaging.  
797. Hughes, R.L. (1968). Microbiological deterioration in the paper, printing and packaging industries. Biodeterioration of Materials. A.H. Walters and J.J. Elphick, eds. Elsevier. Amsterdam. 281-90.
- Sterilization, Biocides, Mechanisms.  
798. Hugo, W.B. (1982). Disinfection mechanisms. In: Principles and Practices of Disinfection, Preservation and Sterilisation. A.D. Russell, W.B. Hugo and G.A.J. Ayliffe, eds. Blackwell Scientific, St. Louis. 158-85.
- Biocides, Types of antimicrobial agents.  
799. Hugo, W.B. and A.D. Russell. (1982). Types of antimicrobial agents. Principles and Practices of Disinfection, Preservation and Sterilisation. A.D. Russell, W.B. Hugo and G.A.J. Ayliffe, eds. Blackwell Scientific, St. Louis. 8-106.
- Paper, Water staining, Cellulose, Literature review.  
800. Hutchins, J.K. (1983). Water-stained cellulose: A literature review. J. Amer. Instit. Conser. 22:57-61.
- Wood, Fungi, Lignin.  
801. Huttermann, A. and A. Haars. (1978). Macromolecular aspects of lignin degradation. Biodeterioration. Proceedings of the Fourth International Symposium, Berlin. T.A. Oxley, D. Allsopp and G. Becker, eds. Pitman and The Biodeterioration Society. London. 165-70.
- Stone, Borobudur, Control, Biocides.  
802. Hyvert, G. (1973). Borobudur, les bas-reliefs. Matériaux — facteurs responsables des dégradations — programme de conservation. Studies in Conservation. 18:131-55.
- Stone, Biocides, Borobudur, Restoration.  
803. Hyvert, G. (1978). Restauration du temple Borobudur. Conservation des pierres. Deterioration and Protection of Stone Monuments. International Symposium. UNESCO. RILEM. Paris.
- Stone, Bacteria, *Actinomyces*, Cambodia.  
804. Hyvert, G. (1966). Quelques *actinomyces* isolés sur les gres des monuments cambodgiens. Revue de Mycologie. 31(2):179-86.
- Insects, Techniques, Methods, Identification.  
805. Illuminati, G. (1942). Metodo di determinazione degli insetti articolati dalle erosioni prodotte. Bollettino dell'Istituto di Patologia del Libro. 20:77-8.
- Stone, Bacteria, Spain.  
806. Inigo Leal, B. and T. Esteban. (1967). Estudio de la infección bacteriana de la portada del monasterio de Santa Maria de Ripoll. Simposio sobre la Alteracion de los Materiales Ptreos Utilizados en los Monumentos, Madrid. Instituto Central de Conservacion y Restauracion. Madrid. 187-93.
- Tombs, Tumuli.  
807. Inokuma, K. (1984). Excavation and short historical survey of Takamatsuzuka ancient tumulus. International Symposium on the Conservation and Restoration of Cultural Property. Preprints. Y. Emoto and S. Miura, eds. Tokyo National Research Institute of Cultural Properties. Tokyo. 83-6.
- Plastics, PVC, Japan.  
808. Inoue, M. (1983). Study of fungal contamination of agricultural polyvinyl chloride film in Japan. Biodeterioration 5. T.A. Oxley and S. Barry, eds. John Wiley and Sons. New York. 535-7.
- Conservation, General.  
809. Insall, D. (1982). Le monde de la conservation. Monumentum. 25(2):83-108.
- Wood, Stone, Building materials, Protection.  
810. Insall, D.W. (1958). The care of old buildings. A practical guide for architects and owners. Society for the Protection of Ancient Buildings. London.
- Wood, Proceedings.  
811. International Union Of Forestry Research Organizations. (1986). Division 5: Forest Products. Proceedings, 18th IUFRO World Congress. Ljubljana, Yugoslavia. IUFRO World Congress Organizing Committee. Ljubljana, Yugoslavia.
- Wall Paintings, Paint, Fungi.  
812. Ionita, I. (1973). Contributions to the

- study of the biodeterioration of the works of art and historical monuments: Fungi involved in deterioration of mural painting. *Revue Roumaine Biologie*. 18(3):179-89.
- Stone, Fungi.
813. Ionita, I. (1971). Contributions to the study of the biodeterioration of works of art and historic monuments. III. Species of fungi isolated from stone monuments. *Revue Roumaine Biologie*. 16(6):433-6.
- Easel paintings, Fungi, *Aspergillus*.
814. Ionita, I. (1971). Contributions to the study of the biodeterioration of the works of art and of historic monuments. II. Species of fungi isolated from oil and tempera paintings. *Revue Roumaine Biologie*. 16(5):377-81.
- Insects, *Kaloterms*.
815. Isetta, A.M. (1967). Ricerche sulla capacita dei reali di *Kaloterms flavicollis* fabr. Di fondare nuovi nidi. *Bollettino dell'Istituto di Patologia del Libro*. 1-2. 55-67.
- Plastics, Waste disposal.
816. Ismay, E. (1985). Plastics and waste disposal. Biodeterioration and Biodegradation of Plastics and Polymers. Proceedings of the Biodeterioration Society. Occasional Publication N. 1. K.J. Seal, ed. The Biodeterioration Society. Kew, UK. 28-33.
- Buildings, Wood, Stone, Japan.
817. Ito, N. (1980). Conservation within historic buildings in Japan. Conservation within Historic Buildings. Preprints. International Institute for Conservation. London. 34-6.
- Fungi, *Alternaria*, Stone, Wood.
818. Ivanova, A.M. (1983). Studies on the stability of cultural and morphological features of *Alternaria alternata* (Fr.) Keissler isolated from non-metal materials (Ru.). *Mikologiya i Fitopatologiya*. 18(2):94-8.
- Mechanisms, Techniques.
819. Iverson, W.P. (1968). Mechanisms of microbial corrosion. Biodeterioration of Materials. A.H. Walters and J.J. Elphick, eds. Elsevier. Amsterdam. 28-43.
- Plastics.
820. Ives, G.C., J.A. Mead and M.M. Riley. (1971). Microbiological attack. Handbook of Plastics Test Methods. The Plastics Institute. London. 389-97.
- Leather, Vellum, Preparation.
821. Jackel, K. (1984). Traditional preparation of leather and vellum for use in bookbinding. *The Abbey Newsletter*. 8(1):17-19.
- Wood, Protection.
822. Jacquot, C. (1965). La protection des bois abattus. *Cahiers du Centre Technique du Bois, Serie II, Exploitations Forestieres et Scieries*. 66.
- Wood, Resistance, Fungi, India.
823. Jacquot, C. and D. Lapetite. (1960). Sur la resistance naturelle du bois de quelques coniferes exotique introduits en France aux attaques de champignons. *Revue de Pathologie Vegetale et d'Entomologie Agricole de France*. XXXIX(1):19-33.
- Stone, Treatments, Chemicals.
824. Jain, R.K. (1976). Chemical treatment of Vishwanath temple and Khajuraho. Conservation of Cultural Property in India. 9:63.
- Paints, Coatings, Microbiology.
825. Jakubowski, J.A., J. Gyuris and S.L. Simpson. (1983). Microbiology of modern coating systems. *J. Coatings and Tech.* 55(705):49-653.
- Plastics, Biochemistry.
826. Janke, D. and W. Fritsche. (1985). Nature and significance of microbial cometabolism of xenobiotics. *J. Basic Microbiol.* 25(9):603-19.
- Paper, Fungi, Treatment.
827. Janposri, K. (1989). Fungal treatment of art on paper. Their treatment, removal and prevention. International Conference on Biodeterioration of Cultural Property. Preprints. Vol. II. Nat'l. Res. Lab. Conser. Cult. Prop. Lucknow. 309-14.
- ATP-ATPase assessment, Phytoplankton, Biomass.
828. Jassby, A.D. (1975). An evaluation of ATP estimations of bacterial biomass in the presence of phytoplankton. *Limnol. Oceanog.* 20:646-8.
- Stone, Conservation, Treatments.
829. Jaton, C. (1975). Essais de traitement sur des pierres alterees. *ICOM. Paris*. 5/2.

Stone, Sedimentary rock, Bacteria, Fungi, Sulfur, Lichens, Algae.

830. Jaton, C. (1972). Alterations microbiologiques des pierres. ICOM. Paris. 2/12.

Stone, Mechanisms of alteration.

831. Jaton, C. (1973). Aspects microbiologiques des alterations des pierres des monuments. International Symposium on the Deterioration and Preservation of Building Stones. V. Romanowski, ed. Les Imprimeries Reunies de Chambéry. Chambéry. 149-54.

Stone, Churches, Alteration.

832. Jaton, C. (1972). Alterations microbiologiques de l'église monolithe d'Aubeterre sur Dronne. Revue d'Ecologie et de Biologie du Sol. 9(3):471-7.

Stone, Treatment.

833. Jaton, C., A. Bouineau and R. Coignard. (1982). Essais de traitement de pierres. Fourth International Congress on the Deterioration and Preservation of Stone Objects. K.L. Gauri and J.A. Gwinn, eds. The University of Louisville. Louisville, KY. 206-17.

Stone, Treatment, Experimental walls.

834. Jaton, C. and G. Oriol. (1978). Ecologie microbienne de murs experimentation en pierre calcaire et traitements indirects avec des hydrofuges. International Symposium on Deterioration and Protection of Stone Monuments. UNESCO. Paris. 1-29.

Brick, Alteration.

835. Jaton, C. and G. Oriol. (1979). Process microbiologiques des alterations des briques. Il Mattone di Venezia. Stato delle Conoscenze Tecnico-Scientifiche. Atti del Convegno, Venezia, Fondazione Cini. Lab. per lo Studio della Dinamica delle Grandi Masse. Venezia. 163-70.

Stone, Colonization, Capillary zone, Moisture.

836. Jaton, C. and G. Oriol. (1976). Colonisation des pierres (Saint-Vaast et Tuffeau) par des microorganismes dan les zone de remontee d'eau parcapillarite. Lithoclastia. 13-18.

Stone, Mechanisms.

837. Jaton, C., G. Oriol and A. Brunet. (1985). Action des vegetaux sur les materiaux pierreux. Vth International Congress on Deterioration and Conservation of Stone. Proceedings. Vol. 2. G. Felix, ed. Presses Polytechniques Romandes. Lausanne. 577-86.

Algacides, Biocides, Stone.

838. Jaton, C., J. Brunet and J.M. Bettembourg. (1976). Selection des produits algacides. Laboratoire de Recherche des Monuments Historiques. Champs-sur-Marne.

Anoxants, Carbon dioxide, Insects.

839. Jay, E.G. (1971). Suggested conditions and procedures for using carbon dioxide to control insects in grain storage facilities. ARS Report. USDA, Agricultural Research Services. Washington. DC. 46-51.

Anoxants, Carbon dioxide, Insects.

840. Jay, E.G. (1980). Methods of applying carbon dioxide to control insects in grain storage facilities. Advances in Agricultural Technology. USDA, ARS, Southern Region. Washington, DC. AAT-S-13.

Anoxants, Insects, *Tribolium*, Four modified atmospheres.

841. Jay, E.G. and W. Cuff. (1981). Weight loss and mortality of three life stages of *Tribolium castaneum* when exposed to four modified atmospheres. J. Stored Products Research. 17:117-24.

Anoxants, Insects, RH affects.

842. Jay, E.G., R.T. Arbogast and G.C. Pearman. (1971). Relative humidity: Its importance in the control of stored-product insects with modified atmospheric gas concentrations. J. Stored Products Research. 6:325-9.

Wall Paintings, da Vinci.

843. Jeanson, C.Y. and S.B. Curri. (1976). Microstructures mineralogiques et biologiques dans les materiaux du support d'une peinture murale de Leonard de Vinci. Proceedings of Section Lipids and Works of Art of the 13th World Congress of the International Society for Fat Research. Poligrafico Artioli. Modena. 43-54.

Disinfection, Effect on materials.

844. Jedrzejewska, H. (1968). Damaging influence of disinfecting agents on sensitive ancient materials. Contributions to the London Conference on Museum Climatology. G. Thomson, ed. IIC. London. 95-101.

Wall paintings, Fungi, *Beauvaria*.

845. Jeffries, P. (1986). Growth of *Beauvaria alba* on mural paintings in Canterbury Cathedral. Internat. Biodeter. Bull. 22(1):11-13.

## Fungi, Museum, Art object.

846. Jeyaraj, V. (1989). Fungal attack on museum objects. International Conference on Biodeterioration of Cultural Property. Preprints. Vol. 1. Nat'l. Res. Lab. Conser. Cult. Prop. Lucknow. 137-44.

## Wood, Fungi, Polyoxin-inhibitors, chitin.

847. Johnson, B.R. (1982). Effects of polyoxin inhibitors of fungal chitin synthesis on the decay of wood. *Internat. Biodeter. Bull.* 18(2):37-42.

## Wood, Durability testing, Accelerated aging, Techniques.

848. Johnson, G.C., J.D. Thornton, J.W. Creffield and C.D. Howick. (1983). Natural durability studies in an accelerated field simulator — a novel approach. International Research Group on Wood Preservation. Stockholm.

## Stone, Calcite, Fungi, Diagenesis.

849. Jones, B. and S.G. Pemberton. (1987). The role of fungi in the diagenetic alteration of spar calcite. *Canadian J. Earth Sciences.* 24:903-14.

## Lichens, Minerals.

850. Jones, D. and M.J. Wilson. (1985). Chemical activity of lichens on mineral surfaces — a review. *Internat. Biodeter. Bull.* 21(2):99-104.

## Lichens, Minerals, Crustose, Acids, Weathering, Control.

851. Jones, D., M.J. Wilson and W.J. McHardy. (1988). Effects of lichens on mineral surfaces. *Biodeterioration* 7. D.R. Houghton, R.N. Smith and H.O.W. Egging, eds. Elsevier. New York. 129-34.

## Wood, Fungi, Marine environment.

852. Jones, E.B.G. (1968). The distribution of marine fungi on wood submerged in the sea. *Biodeterioration of Materials*. A.H. Walters and J.J. Elphick, eds. Elsevier. Amsterdam. 460-85.

## Plastics, Marine organisms, Fungi.

853. Jones, E.B.G. and T. Le Campion-Alsumard. (1970). The biodeterioration of polyurethane by marine fungi. *Internat. Biodeter. Bull.* 6(3):119-24.

## Techniques, Screening, Methods, Problems.

854. Jones, E.S.L. (1968). Some problems posed by quality screening for biodeterioration. *Biodeterioration of Materials*. A.H. Walters and J.J. Elphick, eds. Elsevier. Amsterdam. 188-95.

Insects, X-ray detection, *Lyctus*.

855. Jones, S.R. and P.D. Ritchie. (1937). Radiographic detection of *Lyctus* larvae in situ. *Technical Studies in the Field of the Fine Arts.* 5(3):179-81.

## Insects, Termites, Distribution.

856. Jucci, C. (1956). I fattori climatici della distribuzione geografica ed ecologica delle termiti. *Bollettino dell'Istituto di Patologia del Libro.* 70-5.

## Insects, Prevention.

857. Juette, B.A.H.G. (1986). Preventie van aantasting door schimmels en insecten. Bestrijding van Insekten en Schimmels in Musea. Centraal Laboratorium voor Onderzoek. Amsterdam. 20-4, 58.

Wood, Lignin, Fungi, *Schizophyllum*.

858. Jurasek, L. (1968). Lignolytic action of *Schizophyllum commune*. *Biodeterioration of Materials*. A.H. Walters and J.J. Elphick, eds. Elsevier. Amsterdam. 565-70.

## Wood, Preservation, Biocides, Museum object.

859. Kaila, P. (1984). Myllymaki — a test project of preserving wooden monument as museum object. ICOMOS Comite Bois/WoodCommittee. Proceedings of the V. International Symposium. Alvhheim and Eide. Ovre Ervik. 83-91.

## Fungicides, Philosophy of use.

860. Kaplan, A.M. (1968). The control of biodeterioration by fungicides — philosophy. *Biodeterioration of Materials*. A.H. Walters and J.J. Elphick, eds. Elsevier. Amsterdam. 196-204.

## Textiles, Resins, Cellulose.

861. Kaplan, A.M., M. Mandels and M. Greenberger. (1971). Mode of actions of resins in preventing microbial degradation of cellulosic textiles. *Biodeterioration of Materials*. Vol. 2. A.H. Walters and E.H. Hueck-van der Plas, eds. John Wiley and Sons. New York. 268-78.

## Polymers, Techniques, Theory.

862. Kaplan, A.M. (1985). Microbial transformations of polymeric materials: Applied and theoretical considerations. *Biodeterioration and Biodegradation of Plastics and Polymers*. Proceedings of the Biodeterioration Society. Occasional Publication N. 1. K.J. Seal, ed. The Biodeterioration Society. Kew, UK. 1-10.

## ATP assessment. Biomass.

863. Karl D.M. (1980). Cellular nucleotide measurements and applications in microbial ecology. *Microbiological Reviews*. 44(4):739-96.

## GTP. Assessment methods. Bioassay.

864. Karl D.M. (1978). A rapid sensitive method for the measurement of guanine ribonucleotides in bacterial and environmental extracts. *Anal. Biochem.* 89:581-95.

## ATP-ATPase assessment. GTP.

865. Karl, D.M. (1979). ATP and GTP determinations in intertidal sediments. *Methodology for Biomass Determinations and Microbial Activities in Sediments*. Lichfield and Seyfried, eds. ASTM. New York.

## ATP. GTP.

866. Karl, D.M. (1978). Occurrence and ecological significance of GTP in the ocean and in microbial cells. *Appl. Env. Microbiol.* 36(9):349-55.

## ATP assessment. Biomass.

867. Kasperison, A. and S. Lindgren. (1986). The adenosine triphosphate-bioluminescence method for quantification of microbial activity in feeds. *Biodeterioration 6*. Proceedings of the Sixth International Biodeterioration Symposium. S. Barry, D.R. Houghton, G.C. Llewellyn and C.E. O'Rear, eds. CAB International Mycological Institute and The Biodeterioration Society. Slough, UK. 316-20.

## Paper. Conservation.

868. Kathpalia, Y.P. (1973). Conservation and restoration of archive material. UNESCO. RILEM. Paris.

## Stone. Protection. Biocides.

869. Kaufmann, J. (1960). Corrosion et protection des pierres calcaires des monuments. *Corrosion-Anticorrosion*. 8(3):87-95.

## Pigments. Identification. Methods. Mass spectroscopy.

870. Keisch, B. (1970). On the use of isotope mass spectrometry in the identification of artist's pigments. *Studies in Conservation*. 15:1-11.

## Plastics. Techniques.

871. Kelley, J. (1985). The testing of plastics for resistance to micro-organisms. *Biodeteri-*

*oration and Biodegradation of Plastics and Polymers*. Proceedings of the Biodeterioration Society. Occasional Publication N. 1. K.J. Seal, ed. The Biodeterioration Society. Kew, UK. 111-24.

## Fumigants. Pesticides. Insecticides. Sulfuryl fluoride.

872. Kenaga, E.E. (1957). Some biological, chemical and physical properties of sulfuryl fluoride as an insecticidal fumigant. *J. Economic Entomology*. 50(1):1-6.

## High Temperature. Insects.

873. Kenaga, E.E. and F.W. Fletcher. (1942). Effects of high temperature on several household and storage grain pests. *J. Economic Entomology*. 35(6):944.

## Glass. Fungi

874. Kerner-Gang, W. (1968). Zur frage der entstehung vonschimmelpilzspuren auf optischen gläsern. *Material und Organismen*. 3:1-17.

## Foxing. Paper.

875. Kerner-Gang, W. (1978). Massnahmen zur bekämpfung von mikroorganismen an archivalien. *Biodeterioration*. Proceedings of the Fourth International Symposium, Berlin. T.A. Oxley, D. Allsopp and G. Becker, eds. Pitman and The Biodeterioration Society. London. 9-14.

## Library. Archives.

876. Kerner-Gang, W. (1980). Massnahmen zur bekämpfung von mikroorganismen an archivalien. *Dauerhaftigkeit von papier*. Vortraege des 4. Internationalen Graphischen Restauratorentages. *Zeitschrift für Bibliothekswesen und Bibliographie*. Sonderheft 31. Klostermann. Frankfurt-am-Main. 31:211-24.

## Archives. Library. Paper.

877. Kerner-Gang, W. (1974). Mikrobiologische untersuchungen and eingesiegelten archivalien. *Material und Organismen*. 9(1):13-20.

## Stone. Geology. Art objects. Preservation.

878. Kertesz, P. and P. Attila-Nemeth. (1985). Petrography and microbiology in monuments and art objects preservation. *Fifth International Restorer Seminar*. Vol. 2. UNESCO, Paris. 135-9.

## Minerals. Silicates.

879. Kervran, L. (1973). Alterations

- metamorphiques de certaines roches. Application a des mineraux aluminosiliceux notamment. International Symposium on the Deterioration of Building Stones. V. Romanowski, ed. Les Imprimeries Reunies de Chambéry. Chambéry. 171-6.
- Plastics, Polymers, Activity of microbes.
880. Kestelman, V.N. and G.L. Vilnina. (1971). The influence of polymers on fermentative and other activities of microorganisms. *Internat. Biodeter. Bull.* 7(3):99-103.
- Plastics, Polymers, Corrosion.
881. Kestelman, W.N., V.L. Jarovenko and E.I. Malinkova. (1971). A comprehensive investigation of the corrosion of polymeric materials used in the microbiological industry. *Biodeterioration of Materials*. Vol. 2. A.H. Walters and E.H. Hueck-van der Plas, eds. John Wiley and Sons. New York. 61-5.
- Stones, Building material, Major deterioration factors.
882. Kieslinger, A. (1968). Les Principaux facteurs d'alteration des pierres a batir. *Monumentum*. 2:53-73.
- Stone, Deterioration.
883. Kieslinger, A. (1933). Etudes sur la desagregation des pierres a batir. La Conservation des Monuments d'Art et d'Histoire. Institut de Cooperation Intellectuelle. Paris. 203-9.
- Wood, Fungi, Observations.
884. King, B. and H.O.W. Egging. (1971). Some observations on decay of microfungi deteriorating wood. *Biodeterioration of Materials*. Vol. 2. A.H. Walters and E.H. Hueck-van der Plas, eds. John Wiley and Sons. New York. 145-51.
- Wood, Decomposition in soil, Nitrogen, Preservation.
885. King, B., G. Mowe, A. Bruce and G.M. Smith. (1983). Studies of nitrogen economy during microbial decomposition of wood in soil and the implications for wood preservation. *Biodeterioration 5*. T.A. Oxley and S. Barry, eds. John Wiley and Sons. New York. 44-53.
- Wood, *Coniophora*, Fungi, Enzymes.
886. King, N.J. (1968). The degradation of wood cellcomponents by the extracellular enzymes of *Coniophora cerebella*. *Biodeterioration of Materials*. A.H. Walters and J.J. Elphick, eds. Elsevier. Amsterdam. 558-64.
- Wood, Nitrogen, Bacteria.
887. King, W., W.J. Henderson and M.E. Murphy. (1980). A bacterial contribution to wood nitrogen. *Internat. Biodeter. Bull.* 16(3):79-84.
- Nitrogen translocation, Wood, Fungi.
888. King, B. and J. Waite. (1979). Translocation of nitrogen to wood by fungi. *Internat. Biodeter. Bull.* 15(1):29-35.
- Insects, Museums.
889. Kingslover, J. (1981). Illustrated guide to common insects in museums. In: *Pest Control in Museums: A Status Report* (1980). S.R. Edwards, B.M. Bell and M.E. King Assoc. System Collection. Lawrence, Kansas.
- Microwave radiation, Acid decomposition.
890. Kingston, H.M. and L.B. Jassie. (1986). Microwave energy for acid decomposition at elevated temperatures and pressures using biological and botanical samples. *Analytical Chemistry*. 58(12):2534-41.
- Straw, Thatch.
891. Kirby, J.J.H. and A.D.M. Rayner. (1989). The deterioration of thatched roofs. *Internat. Biodeter.* 25(1-3):21-6.
- Marine environment, Marine fouling.
892. Kirchman, D. and R. Mitchell. (1983). Biochemical interactions between microorganisms and marine fouling invertebrates. *Biodeterioration 5*. T.A. Oxley and S. Barry, eds. John Wiley and Sons. New York. 281-90.
- Wood, Lignin, Fungi, Growth requirements.
893. Kirk T.K., W.J. Connors and J.G. Zeikus. (1976). Requirement for a growth substrate during lignin decomposition by two wood-rotting fungi. *Appl. Env. Microbiol.* 32(1):192-4.
- Plastics, Methods, Culturing, Techniques.
894. Klausmeier, R.E. (1971). Mix or pure culture inocula for assessing biodeterioration of plastics: An interlaboratory study. *Biodeterioration of Materials*. Vol. 2. A.H. Walters and E.H. Hueck-van der Plas, eds. John Wiley and Sons. New York. 201-7.
- Stone, General.
895. Knopman, D. (1975). Conservation of

- stone artworks: Barely a role for science. *Science*. 190:1187-8.
- Stone.
896. Koehler, W. and K. Krannich. (1981). Untersuchungen zu schadenursachen an marmorskulpten; microbiologische schadenursachen, die zum totalverlust einer skulpter führten. *Neue Museumskunde*. 24(4):272-4.
- General, Introduction, Cultural objects, Museums.
897. Koestler, R.J. (1990). Biodeterioration of cultural property: Introduction. *Biodeterioration Research 3*. G.C. Llewellyn and C.E. O'Rear, eds. Plenum Press. New York. 503-4.
- Stone, SEM, Microbiology, Fungi, Calcite, Dolomite.
898. Koestler, R.J., A.E. Charola, M. Wypyski and J.J. Lee. (1985). Microbiologically induced deterioration of dolomitic and calcitic stone as viewed by scanning electron microscopy. *Vth International Congress on Deterioration and Conservation of Stone. Proceedings. Vol. 2*. G. Felix, ed. Presses Polytechniques Romandes. Lausanne. 617-26.
- Consolidants, Polymers, Resins, Fungi, Techniques, Methods.
899. Koestler, R.J. and E.D. Santoro. (1988). Assessment of the Susceptibility to Biodeterioration of Selected Polymers and Resins. GCI Scientific Program Report. The Getty Conservation Institute. Marina del Rey, CA.
- Museums, Research suggestions, Needs.
900. Koestler, R.J. and E.D. Santoro. (1990). Biodeterioration in museums — observations. *Biodeterioration Research 3*. G.C. Llewellyn and C.E. O'Rear, eds. Plenum Press. New York. 505-11.
- Polymers, Resins, Silane.
901. Koestler, R.J., E.D. Santoro, F. Preusser and A. Rodarte. (1987). Reaction of methyl tri-methoxy silane to mixed cultures of microorganisms. *Biodeterioration Research 1*. G.C. Llewellyn and C.E. O'Rear, eds. Plenum Press. New York. 317-21.
- Consolidants, Polymers, Resins, Fungi, Acrylic, Silane, PVA, Acryloid B72.
902. Koestler, R.J., E.D. Santoro, J. Druzik, F. Preusser, L. Koeppe and M. Derrick. (1988). Status report: Ongoing studies of the susceptibility of stone consolidants to microbiologically induced deterioration. *Biodeterioration 7*. D.R. Houghton, R.N. Smith and H.O.W. Egging, eds. Elsevier. New York. 441-9.
- Medieval glass, SEM, Fungi.
903. Koestler, R.J., E.D. Santoro, L. Ransick, R.H. Brill and M. Lynn. (1987). Preliminary scanning electron microscopy study of microbiologically induced deterioration of high alkali low-lime glass. *Biodeterioration Research 1*. G.C. Llewellyn and C.E. O'Rear, eds. Plenum Press. New York. 295-307.
- Marine organisms, *Amphistigina*, Symbiosis.
904. Koestler, R.J., J.J. Lee and R.P. Reidy. (1985). Cytological investigation of digestion and re-establishment of symbiosis in the larger benthic foraminifera *Amphistigina lessonii*. *Endocytobiosis and Cell Research*. 2:21-54.
- Easel paintings, Biocides, Sulfuryl fluoride, Quaternary ammonium, OPP, Nitrogen.
905. Koestler, R.J., E. Parreira, E.D. Santoro and P. Noble. (in press). The effect of selected biocides on easel painting material. *1st Simposi International Sobre Biodeterioro*. Madrid.
- Plastics, Cellophane, Bacteria, Deep sea.
906. Kohlmeier, J. (1978). Bacterial attack on wood and cellophane in the deep sea. *Biodeterioration. Proceedings of the Fourth International Symposium*. Berlin. T.A. Oxley, D. Allsopp and G. Becker, eds. Pitman and The Biodeterioration Society. London. 187-92.
- Paper, Leather, Wax seals.
907. Kowalik, R. (1960). Micro-organisms destroying paper, leather and wax seals pathogenic for man. *Muzeum Mickiewicza*. Warsaw.
- Paper, Library, Archives.
908. Kowalik, R. (1980). Microbiodeterioration of library materials Part 1, Chapters 1-3. *Restaurator*. 4:99-114.
- Paper, Library.
909. Kowalik, R. (1980). Microbiodeterioration of library materials Part 2, Chapter 4. *Microbiodecomposition of basic organic library materials*. *Restaurator*. 4(3-4): 135-221.

Paper. Problems. Fungi.

910. Kowalik, R. (1969). Some problems of microbiological deterioration of paper. *Annali della Scuola Speciale per Archivisti e Bibliotecari dell' Università di Roma*. 9(1-2):61-80.

Paper. Library. Insects. Protection.

911. Kowalik, R. (1979). Some remarks of a microbiologist on protection of library materials against insects. *Restaurator*. 3:117-22.

Foxing. Paper.

912. Kowalik, R. (1984). Microbiodeterioration of library materials. *Restaurator*. 6:61-15.

Textiles.

913. Kowalik, R. (1980). Decomposition of textile by microorganisms. *Restaurator*. 4(3-4):135-52.

Wood. Decomposition.

914. Kowalik, R. (1980). Decomposition of wood by microorganisms. *Restaurator*. 4(3-4):153-63.

Parchment.

915. Kowalik, R. (1980). Decomposition of parchment by microorganisms. *Restaurator* 4(3-4):200-8.

Leather.

916. Kowalik, R. (1980). Decomposition of leather by microorganisms. *Restaurator*. 4(3-4):209-19.

Paper

917. Kowalik, R. (1952). Mikroorganizmy niszczące papier zabytkowy. *Prace*. 49-67.

Library. Archives. Adhesives. Wax seals. Ink. Paint. Testing methods. Biocides.

918. Kowalik, R. (1984). Microbiodeterioration of library materials. Part 2. Microbiodecomposition of auxiliary materials. Chapter 5-9. *Restaurator*. 6:61-115.

Paper. Leather. Wax seals.

919. Kowalik, R. and I. Sandurska. (1956). Micro-organisms destroying paper, leather and wax seals in the air of archives. *Acta Microb. Polon.* 5(1-2):277-84.

Papyrus. Microbiology

920. Kowalik, R. and I. Sandurska. (1973). Microflora of papyrus from samples of

Cairo museums. *Studies in Conservation*. 18:1-24.

Wood. Stone. Building materials. Environmental factors.

921. Kreijger, P.C. (1983). Environmental factors affecting building and its durability. *Durabilite des Betons et des Pierres*. FMB — College International des Sciences de la Construction. Conseil International de la Langue Francaise. Paris. 37-80.

Minerals. Algae. Calcification.

922. Krumbein, W.E. (1979). Calcification by bacteria and algae. *Biogeochemical Cycling of Mineral-Forming Elements*. P.A. Trudinger and D.J. Swaine, eds. Elsevier. New York. 47-68.

Geomicrobiology. Israel. Geology.

923. Krumbein, W.E. (1978). Geomicrobiology and geochemistry of the "Nari-Lime-Crust" (Israel). Recent Developments in Carbonate Sedimentology in Central Europe. G. Muller and G.M. Friedman, eds. Springer-Verlag. New York. 138-47.

Metals. Manganese. Fungi. Bacteria.

924. Krumbein, W.E. (1971). Manganese-oxidizing fungi and bacteria. *Die Naturwissenschaften*. Springer-Verlag. New York. 56-7.

Bacteria. Aragonite. Marine.

925. Krumbein, W.E. (1974). On the precipitation of aragonite on the surface of marine bacteria. *Die Naturwissenschaften*. Springer-Verlag. New York. 4(167):1-3.

Stone. Algae. Beachrock. Bacteria.

926. Krumbein, W.E. (1979). Photolithotropic and chemoorganotropic activity of bacteria and algae as related to beachrock formation and degradation (Gulf of Aquaba, Sinai). *Geomicrobiology Journal*. 1(2):139-203.

Stone. Diagenesis. Degradation.

927. Krumbein, W.E. (1972). Role des microorganismes dans la genese la diagenese de la degradation des roches en place. *Rev. Ecol. Biol. Sol.* 9(3):283-319.

Minerals. Biotransfer. Bacteria.

928. Krumbein, W.E. (1986). Biotransfer of minerals by microbes and microbial mats. *Biomineralization in Lower Plants and Animals*. Clarendon. Oxford. 55-72.

## Stone, Minerals.

929. Krumbein, W.E. (1988). Biology of stone and minerals in buildings. Biodeterioration, biotransfer, bioprotection. VIth International Congress on Deterioration and Conservation of Stone. Supplement. Nicholas Copernicus University. Press Department. Torun. 1-12.

## Stone, Minerals.

930. Krumbein, W.E. (1988). Microbial interactions with mineral materials. Biodeterioration 7. D.R. Houghton, R.N. Smith and H.O.W. Egging, eds. Elsevier. New York. 78-100.

## Weathering, General, Philosophical.

931. Krumbein, W.E. and B.D. Dyer. (1985). This planet is alive — Weathering and biology, a multi-faceted problem. The Chemistry of Weathering. J.I. Drever, ed. 143-60.

## Paint, Microbiology, Plaster.

932. Krumbein, W.E. and C. Lange. (1978). Decay of plaster, paintings and wall material of the interior of buildings via microbial activity. Environmental Biogeochemistry and Geomicrobiology. Vol. 2: The Terrestrial Environment. W.E. Krumbein, ed. Ann Arbor Science, Ann Arbor. MI 687-97

## Biomass assessment, Methods, Manganese using microbes.

933. Krumbein, W.E. and H.J. Altman. (1973). A new method for the detection and enumeration of manganese oxidizing and reducing microorganisms. Helgolander Wiss. Meeresunters. 25:347-56.

## Stone, Bacteria.

934. Krumbein, W.E. and J. Pochon. (1964). Ecologie bacterienne des pierres alterees des monuments. Annales de l'Institut Pasteur. Masson et Cie. Paris. 725-31.

## Metals, Manganese, Israel, Iron, Desert varnish.

935. Krumbein, W.E. and K. Jens. (1981). Biogenic rock varnishes of the Negev Desert (Israel). An ecological study of iron and manganese transformation by cyanobacteria and fungi. Oecologica. 50:25-38.

## Materials.

936. Krzysik, F. (1968). Drewno jako material w zabytk ach. Ochrona Zabytkow. 21(1):11-16.

## Wood, Preservatives, Organic.

937. Kubel, H. (1984). New organic wood preservatives and wood preservation — a development study. Development Study. National Timber Research Institute. CSIR. 52:35.

## Plastics, Sheets.

938. Kuester, E. and A. Azadi-Bakhsh. (1973). Studies on microbial degradation of plastic films. Proceedings of the Conference Degradability of Polymers and Plastics. IIC. London.

## Wood, Conservation, Sculptures, Japan.

939. Kurata, B. (1978). Conservation of wooden sculptures in Japan. International Symposium on the Conservation and Restoration of Cultural Property: Conservation of Wood. Proceedings. National Research Laboratory for Cultural Property. Tokyo. 67-75.

## Fungi, Sandstone, Physiology.

940. Kuroczkin, J., K. Bode, K. Petersen and W.E. Krumbein. (1988). Some physiological characteristics of fungi isolated from sandstone. VIth International Congress on Deterioration and Conservation of Stone. Supplement. Nicholas Copernicus University. Press Department. Torun. 21-5.

## Methods, Insects, Identification of parts.

941. Kurtz, O.L. and K.L. Harris. (1962). Micro-analytical Entomology for Food Sanitation Control. Assoc. of Off. Agri. Chemists. Washington, DC.

## SEM, Methods, Bacteria.

942. Kutz, S.M., D.L. Bentley and N.A. Sinclair. (1985). Improved fixation of cellulose-acetate reverse-osmosis membrane for scanning electron microscopy. Appl. Env. Microbiol. 49(2):446-50.

## Rubber, Soil microorganisms.

943. Kwiatkowska, D., B.J. Zyska and L.P. Zankowicz. (1978). Microbiological deterioration of natural rubber sheet by soil microorganisms. Biodeterioration. Proceedings of the Fourth International Symposium, Berlin. T.A. Oxley, D. Allsopp and G. Becker, eds. Pitman and The Biodeterioration Society. London. 135-41.

## Paper, Conservation.

944. Laczynska, J. and D. Mitraszewska. (1968). Konserwacja renesansowego pul

- pitumuzycznego z biecza. *Ochrona Zabytkow*. 21(3):57-60.
- Wall paintings, Caves, Lascaux.
945. Lahanier, C. and J. Ligot. (1985). Lascaux returned to the night. A Future for our Past. 25:8-9.
- Wood, Cellulose, Fungi.
946. Lakshmikant, M.S. (1989). Biodeterioration of cultural property by cellulolytic fungi. International Conference on Biodeterioration of Cultural Property. Preprints. Vol. II. Nat'l. Res. Lab. Conser. Cult. Prop. Lucknow. 196-202.
- Stone, Tropics, Case histories.
947. Lal, B.B. (1978). Weathering and preservation of stone monuments under tropical conditions: Some case histories. Internat. Symp. on the Deterioration and Protection of Stone Monuments. UNESCO. Paris. 1-36.
- Insecticides, Biocides, Organophosphorus.
948. Lal, R. (1982). Accumulation, metabolism and effects of organophosphorus insecticides on microorganisms. *Advances in Applied Microbiology*. 28:149-200.
- Wood, Cellulose, *Aspergillus*, Fungi.
949. Lal, S.K. (1989). The stability of *Aspergillus* enzymes in bio-degradation of cellulose materials. International Conference on Biodeterioration of Cultural Property. Preprints, Vol. I. Nat'l. Res. Lab. Conser. Cult. Prop. Lucknow. 145-9.
- Stone, Lichens.
950. Lallement, R. and S. Deruelle. (1978). Presence de lichens sur les monuments en pierre: Nuisance au protection. UNESCO. RILEM. Paris.
- Fungicides, Tropics, Wood, Pentachlorophenol.
951. Lamas Robles, R., M.O. Vazquez Vigil and D.E. Castelo Escobar. (1982). Utilizacion de pentachlorofenato sodico como agente fungicida en maderas tropicales. *Technologia y Sociedad*. 3(12):13-18.
- Building materials, Water.
952. Latta, J.K. (1968). Water and buildings materials. *Canadian Building Digest* 1-100. *Canadian Building Digest* N. 30. National Research Council of Canada. Ottawa.
- Textiles, Biocides, Fungicides.
953. Laval, Y. (1988). The use of antimicrobials on textiles. *Canadian Textile Journal*. 105(6):36-7.
- Wall paintings, Murals, Bacteria.
954. Lazar, I. (1971). Investigations on the presence and role of bacteria in deteriorated zones of Cozia Monastery painting. *Revue Roumaine Biologie. Serie de Botanique*. 16(6):437-44.
- Wall paintings, Fresco, Bacteria, Moldavia.
955. Lazar, I. and L. Dumitru. (1973). Bacteria and their role in the deterioration of the frescoes of the complex of monasteries from northern Moldavia. *Revue Roumaine Biologie. Serie de Botanique*. 18(3):191-7.
- Stone, Patina, Scialbatura.
956. Lazzarini, L., and O. Salvadori. (1989). A reassessment of the formation of the patina called scialbatura. *Studies in Conservation*. 34:20-6.
- Cellulose, Fungi.
957. Le Grand, Y. and P. Thivand. (1967). Etude de la degradation enzymatique de la cellulose fractionnement sur gel de dextrans d'une poudre cellulolytique d'organine. *Internat. Biodeter. Bull.* 3(2): 67-76.
- Gamma radiation, Paper.
958. Leclerc, F. (1989). Effets des rayons gamma sur le papier: Etat de la question. *Patrimoine Culturel et Alterations Biologiques*. Preprints. Section Francaise de l'Institut Internat. de Conser. S.L. 91-5.
- Wood, Fungi, Insects, Tropics.
959. Lee, J. (1983). Collecting wooden ethnographic carvings in the tropics. *Biodeterioration* 5. T.A. Oxley and S. Barry, eds. John Wiley and Sons. New York. 404-8.
- Miniatures, Wood, India, Treatment, Fungi.
960. Lee, M.W. (1983). Removal of active mold growth and treatment of structural damage in nine erotic Indian miniatures. Preprints. American Institute for Conservation. Washington, DC. 140-9.
- Foxing, Paper, Fungi, Fumigation alternatives.
961. Lee, M.W. (1988). Alternatives to fumigation: A review of techniques for the removal of mold growth from works of art on paper. Preprints of the AIC, New

- Orleans, LA. American Institute for Conservation, Washington, DC.
- Conservation, Lascaux, Bacteria.
962. Lefevre, M. (1974). La "Maladie Verte" de Lascaux. *Studies in Conservation*, 19:126-56.
- Caves, Lascaux, Algae, Bacteria, Treatment.
963. Lefevre, M. and G.S. La Porte. (1969). The maladie verte of Lascaux, diagnosis and treatment. *Studies in Speleology*, 2(1):35-44.
- Wall paintings, Caves, Lascaux.
964. Lefevre, M., G. Laporte and J. Bauer. (1964). Sur les microorganismes envahissant les peintures rupestres de la grotte prehistorique de Lascaux. *Comptes-Rendus de l'Academie des Sciences de Paris*, 258:5116-18.
- Wall paintings, Caves, Lascaux, Bacteria, Algae.
965. Lefevre, M., J. Pochon, G. Laporte and M.A. Chalvignac. (1964). Sur la decontamination bacterienne et algale de la grotte de Lascaux. *Comptes-Rendus de l'Academie des Sciences de Paris*, 258:6576-8.
- Stone, Cleaning.
966. Lehman, J. (1974). The dirtying and decay of stone materials in architecture and their cleaning. *Ochrona Zabytkow*, 27(3):193-206.
- Stone, Biocides, Preservation, Cleaning, Poland.
967. Lehmann, J. (1976). Quelques nouvelles recherches sur le nettoyage et la preservation des sculptures en pierre exposees a l'exterieur en Pologne. The Conservation of Stone. I. Proceedings of the International Symposium. R. Rossi-Manaresi, ed. Centro per la Conservazione delle Sculture all'Aperto. Bologna. 477-83.
- Wood, Identification, MAS, NMR, Tropical species.
968. Leightley, L.E. (1984). The use of 13 CCP, MAS, NMR in the chemical identification of decayed and undecayed tropical timber species. International Research Group on Wood Preservation. Stockholm.
- Wood Microbiology Marine
969. Leightley, L.E. and R.A. Eaton. (1978). Micromorphology of wood decay by marine microorganisms. *Biodeterioration*, Proceedings of the Fourth International Symposium, Berlin. T.A. Oxley, D. Allsopp and G. Becker, eds. Pitman and The Biodeterioration Society, London. 83-8
- Wood, Timber, Marine organisms.
970. Leightley, L.E. and R.A. Eaton. (1978). Mechanisms of decay of timber by aquatic micro-organisms. Record of the 1977 Annual Convention of the British Wood Preserving Association, Cambridge. British Wood Preserving Association, London. 221-46.
- Insecticides, Insects, *Callosobruchus*.
971. Lekha, C., et al. (1982). Relative toxicity of some insecticides to the adult *Callosobruchus chinensis*. *Linn. Bull. Grain Technol.* 20(1):60-1.
- Glue, Conservation, Protection.
972. Lelikova, D.S. (1973). Protection of the flour glue used for restoration of graphic art items from biodeterioration. *Proc. Symp. Biodeter. Bldg. Ind. Mater. Moscow*, 177-82.
- Stone, Protection, Brick.
973. Lelikova, D.S. and G.N. Tomashevich. (1975). Protection of quarry stone and brick of architectural monuments against physico-chemical effects and biological deterioration. ICOM, Committee for Conservation, Paris. 5/4/4.1-9.
- Methods, Sulfur, Bacteria, Techniques.
974. Lepidi, A.A. and G. Schippa. (1972). Growth of a sulphide oxidizing bacterium estimated by various methods and a new method of sulphide determination. Proceedings of the 1st International Symposium of Building Stone. V. Romanowski, ed. Les Imprimeries Reunies de Chambéry. Chambéry. 139-41.
- Stone, Environment, Heterotrophs, Chemotrophs.
975. Lepidi, A.A. and G. Schippa. (1972). Some aspects of the growth of chemotrophic and heterotrophic microorganisms on calcareous surfaces. Proceedings of the 1st International Symposium of Building Stone. V. Romanowski, ed. Les Imprimeries Reunies de Chambéry. Chambéry. 143-8.
- Wood, Fungi, *Polystictus*, Carbon, Nitrogen, Growth.
976. Levi, M.P. and E.B. Cowling. (1968). The effect of carbon to nitrogen ratio of substrate on the growth, composition,

- cellulose production and wood-destroying capacity of *Polystictus versicolor*. Biodeterioration of Materials. A.H. Walters and J.J. Elphick, eds. Elsevier. Amsterdam. 575-83.
- Test, Methods, Bacteria.
977. Levine, M. (1959). An Introduction to Laboratory Technique in Bacteriology. 3rd edition. Macmillan Co. New York.
- Wood, Fungi, Fence posts, Ecology.
978. Levy, J.F. (1968). Studies on the ecology of fungi in wooden fence posts. Biodeterioration of Materials. A.H. Walters and J.J. Elphick, eds. Elsevier. Amsterdam. 424-8.
- Wood, Treatment, Problems.
979. Levy, J.F. (1984). Wood problems and treatment. Decorative Wood. Proceedings. D. Carthy and C. McWilliam, eds. Scottish Society for Conservation and Restoration. Edinburgh. 1-9.
- Textiles, Modern manufacturing procedures.
980. Lewin, M. and S.B. Sello. (1983). Handbook of fiber science and technology: Volume II. Chemical processing of fibers and fabrics. Functional finishes. Part A. International Fiber Science and Technology Series 2. Marcel Dekker. New York.
- Algae, Physiology, Biochemistry.
981. Lewin, R.A. (1962). Physiology and Biochemistry of Algae. Academic Press. New York.
- Stone, SEM, Conservation, Plants.
982. Lewin, S.Z. and A.E. Charola. (1981). Plant life on stone surfaces and its relation to stone conservation. Scanning Electron Microscopy. I. O. Johari, ed. SEM, Inc. O'Hare (Chicago). 562-8.
- Stone, Assessment techniques, Bioassay, Bacteria.
983. Lewis, F., E. May and A.F. Bravery. (1985). Isolation and enumeration of autotrophic and heterotrophic bacteria from decayed stone. Vth International Congress on Deterioration and Conservation of Stone. Proceedings. Vol. 2. G. Felix, ed. Presses Polytechniques Romandes. Lausanne. 633-41.
- Stone, Culture testing, Nutrient requirements, pH effects, Weight loss.
984. Lewis, F.J., E. May and A.F. Bravery. (1988). Metabolic activities of bacteria isolated from building stone and their relationship to stone decay. Biodeterioration 7. D.R. Houghton, R.N. Smith and H.O.W. Egging, eds. Elsevier. New York. 107-12.
- Stone, Methods, Techniques, Bacteria.
985. Lewis, F.J., E. May and R. Greenwood (1988). A laboratory method for assessing the potential of bacteria to cause decay of building stone. Vth International Congress on Deterioration and Conservation of Stone. Supplement. Nicholas Copernicus University. Press Department. Torun. 48-58.
- Stone, Sandstone, Bacteria.
986. Lewis, F.J., E. May, B. Daley and A.F. Bravery. (1987). The role of heterotrophic bacteria in the decay of sandstone from ancient monuments. Biodeterioration of Constructional Materials. Publication Service Lancashire Polytechnic. Kew, UK. 45-53.
- Insects, Herbarium.
987. Lewis, W.H. (1971). Selective insect damage in a tropical herbarium collection. Ann. Missouri Bot. Gard. 58(1):91-2.
- Radiation, Control, Treatment.
988. Ley, F.J. (1988). The control of microorganisms using ionising radiation. Biodeterioration 7. D.R. Houghton, R.N. Smith and H.O.W. Egging, eds. Elsevier. London. 523-8.
- Stone, Cleaning, Fungal-stains.
989. Leznicka, S., A. Strzelczyk and D. Wandrychowska. (1988). Removing of fungal stains from stone-works. Vth International Congress on Deterioration and Conservation of Stone. Supplement. Nicholas Copernicus University. Press Department. Torun. 102-10.
- Resins, Consolidants, Stone, Fungi.
990. Leznicka, S., J. Kuroczkin, W.E. Krumbain, A. Strzelczyk and K. Petersen. (1991). Studies on the growth of selected fungal strains on limestones impregnated with silicone resins (Steinfestiger H and Elastosil E-41). International Biodeterioration. Special Issue: Biodeterioration of Cultural Property. R.J. Koestler, ed. Elsevier. London. 28: 91-111.
- Paper, Treatment, Prevention, Foxing.
991. Liams, T.M. and T.D. Beckwith. (1935). Some notes on the causes and prevention of foxing in books. Library Quarterly of America. 5:4

## Biocides, Art Objects.

992. Liberti, S. (1955). Nuovi ritrovati nella disinfestazione delle opere d'arte. *Bollettino dell'Istituto Centrale del Restauro*. 19(2):155-76.

## Wood, Mortar, Fungi.

993. Libotte, V. (1984). Developpements des champignons dans les boiseries et les joints de mortier. *Revue du Centre Scientifique et Technique de la Construction*. 3/4:37-9.

## Wood, Bamboo, Preservation, Asia.

994. Liese, W. (1980). Preservation of bamboos. Bamboo Research in Asia. Proceedings of a Workshop held in Singapore. International Development Research Centre. Canada. 165-72.

## Foxing, Fungi.

995. Ligterink, F.J., H.J. Porck and W.J.T. Smit. (1989). Foxingflecken sowie verfärbungen in blatrandern und rundum die druckerschwarze. *Restauro*. 2:225-33.

## Buildings, Fungi, Tropics.

996. Lim, G., T.K. Tan and A. Toh. (1989). The fungal problem in buildings in the humid tropics. *Internat. Biodeter.* 25(1-3):27-37.

## Anoxants, Insects, Weevils.

997. Lindgren, D.L. and L.E. Vincent. (1970). Effect of atmospheric gases alone or in combination on the mortality of granary and rice weevils. *J. Economic Entomology*. 63(6):1926-9.

## Wood, Preservatives, Techniques.

998. Line, M.A. (1983). A simple technique for determining the toxic diffusion of wood preservatives. *Biodeterioration* 5. T.A. Oxley and S. Barry, eds. John Wiley and Sons. New York. 132-4.

## Wood, Catalase assessment.

999. Line, M.A. (1983). Catalase activity as an indicator of microbial colonization of wood. *Biodeterioration* 5. T.A. Oxley and S. Barry, eds. John Wiley and Sons. New York. 38-43.

## Wood, Biomass assessment, Methods, Catalase.

1000. Line, M.A. (1984). The potential utilization of catalase techniques for the non-destructive assay of wood decay. *Internat. Biodeter. Bull.* 20(2):85-91.

## Glass, Conservation, Ceramics.

1001. Lins, A. (1977). Ceramics and glass conservation: Preventive measures. *Museum News. AAM*. 55:5-9

## Textiles, Fungi, Biocides, Treatment.

1002. Little-Ragusich, S. (1984). Emergency treatment for mold growth. *Textile Conservation Newsletter-Canada*. 6-7.

## ATP, Growth.

1003. Littmann, E.S. Jr (1986). Use of ATP to monitor microbial quality of Hydroxypropylguar based fracturing fluids. *Biodeterioration* 6. Proceedings of the Sixth International Biodeterioration Symposium. S. Barry, D.R. Houghton, G.C. Llewellyn and C.E. O'Rear, eds. CAB International Mycological Institute and The Biodeterioration Society. Slough, UK. 400-4.

## Biocides, TFM.

1004. Liu, D. and M.E. Fox. (1978). Biodegradation of TFM in a cyclone fermentor system. *Biodeterioration*. Proceedings of the Fourth International Symposium, Berlin. T.A. Oxley, D. Allsopp and G. Becker, eds. Pitman and The Biodeterioration Society. London. 315-21.

## Methods, Fungi, Tape collection technique.

1005. Lloyd, A.O. (1965). An adhesive tape technique for the microscopic examination of surfaces supporting or suspected of supporting mould growth. *Internat. Biodeter. Bull.* 1(1):10-12.

## Biocides, Methods, Lichenicides, Testing, Techniques.

1006. Lloyd, A.O. (1971). An approach to the testing of lichen inhibitors. *Biodeterioration of Materials*. Vol. 2. A.H. Walters and E.H. Hueck-van der Plas, eds. John Wiley and Sons. New York. 185-91.

## Stone, Marble, Lichen, Venice.

1007. Lloyd, A.O. (1974). Lichen attack on marble at Torcello — Venice. *Atti Congresso Petrolio e Ambiente*. Roma. Editor e Poligrafico Artioli. Modena. 221-4.

## Textiles, Techniques, Methods.

1008. Lloyd, A.O. (1968). The evaluation of rot resistance of cellulosic textiles. *Biodeterioration of Materials*. A.H. Walters and J.J. Elphick, eds. Elsevier. London. 170-7.

## Methods, SEM.

1009. Locci, R. (1971). Direct examination of

- biodeteriorated material microflora by scanning electron microscopy. *Biodeterioration of Materials*. Vol. 2. A.H. Walters and E.H. Hueck-van der Plas, eds. John Wiley and Sons. New York. 416-21.
- Wood, Insects, Fungi, Control, Biocides, Insecticides.
1010. Loiseau, P. (1978). Les parasites du bois dans la construction et les moyens de lutte contre leurs attaques. *Bulletin d'Informations Techniques du Centre Technique du Bois*. 83:31-6.
- Wood, Spain, Conservation.
1011. Lopez de Roma, A. and R. Cockcroft. (1983). Wood conservation in Spain. *Information Styrelsen for Teknisk Utveckling* No. 373. Stockholm.
- Paint, Biocides, Lead, Tin, Antifouling.
1012. Lorenz, J. (1972). Organic derivatives of tin and lead in antifouling paints. *Biodeterioration of Materials*. Vol. 2. A.H. Walters and E.H. Hueck-Van Der Plas, eds. Applied Science. London. 443-8.
- Marine environment, Biocides, Chlorine.
1013. Lovegrove, T. and T.W. Robinson. (1968). The prevention of fouling by localized chlorine generation. *Biodeterioration of Materials*. A.H. Walters and J.J. Elphick, eds. Elsevier. Amsterdam. 617-38.
- Glass, Conservation.
1014. Lowe, J. (1975). The conservation of stained glass. *Conservation in Archaeology and the Applied Arts*. IIC, London. 93-7.
- Fungicides, Non-metallic fungicides.
1015. Lukens, R.J. (1968). Fungitoxic action of nonmetallic organic fungicides. *Biodeterioration of Materials*. A.H. Walters and J.J. Elphick, eds. Elsevier. Southampton. 486-97.
- Anoxants, Insects, Carbon dioxide, *Plodia*, eggs.
1016. Lum, P. and B. Flaherty. (1972). Effect of carbon dioxide on production and hatchability of eggs of *Plodia interpunctella* (Lepidoptera: Phycitidae). *Annals of the Entomological Society America*. 65(4): 976-7.
- ATP, Extraction.
1017. Lundin A. and A. Thore. (1975). Comparison of methods for extraction of bacterial adenine nucleotides determined by firefly assay. *Appl. Micro*. 30(5):713-21.
- ATP assessment, Biomass.
1018. Lundin, *et al.* (1986). Estimation of biomass in growing cell lines by ATP assay. *Methods in Enzymology* Vol. 133: Bioluminescence and Chemiluminescence. M.A. DeLuca and W.D. McElroy, eds.
- Wood, Beech, Fungicides, Styrene, Methyl methacrylate, Diisocyanate.
1019. Lutomski, K. (1975). Resistance of beech wood modified with styrene, methyl methacrylate and diisocyanate against the action of fungi. *Material und Organismen*. 10(4):255-61.
- Insecticides, Regulations, FRG.
1020. Lyre, H. (1978). Pesticidal regulations in the Federal Republic of Germany. *Biodeterioration*. Proceedings of the Fourth International Symposium, Berlin. T.A. Oxley, D. Allsopp and G. Becker, eds. Pitman and The Biodeterioration Society. London. 339-40.
- Textiles, Assessment methods.
1021. MacCarthy, B.J. (1987). Rapid methods for the detection of biodeterioration in textiles. *Internat. Biodeter*. 33(6):357-64.
- Paper, Books, Insects.
1022. Mackenny Hughes, A.W. (1952). Insect pests of book and paper. *Archives*. 7:19-22.
- Chlorophyll, light
1023. Mackinney, G. (1941). Absorption of light by chlorophyll solutions. *J. Biol. Chem*. 140:315-22.
- Metals, Copper, Marine environment.
1024. Macleod, I.D. (1982). Formation of marine concretions on copper and its alloys. *The International Journal of Nautical Archaeology*. 2(4):267-75.
- Paper, Books, Restoration.
1025. Macmullen, O. (1978). Paper repair in older printed books. *The Paper Conservator*. 3:18-27.
- Wood, Insects, Treatments, Prevention.
1026. Maffre, M. (1976). L'attaque des bois d'oeuvre par les insectes. *Prevention, remedes*. Cahiers Techniques du Moniteur. 6:45-53.
- Wood, Fungi, Protection, Hydrophobic agents, Biocides.
1027. Makes, E. and J. Puhlinger. (1988). The protection of wood against moulds from

- hydrophobics to inhibitors of enzymes. Some strategies. Wiener Berichte ueber Naturwissenschaft in der Kunst. 4-5:151-79.
- Paintings. Lining paste removal  
1028. Makes, F. (1984). Enzymatic removal of lining paste from paintings. ICOM. 7th Triennial Meetings. Preprints. International Institute for Conservation. London. 84.2.26-30.
- Paintings. Cleaning. Enzymes.  
1029. Makes, F. (1981). Enzymatic consolidation of paintings. 6th Triennial Meeting. Preprints. International Institute for Conservation. Paris.
- Easel paintings, Enzyme treatment.  
1030. Makes, F. (1982). Enzymatic consolidation of a painting: Seventeenth century landscape from Skokloster Palace. Science and Technology in the Service of Conservation. Preprints. International Institute for Conservation. London. 135-8.
- Fungicides. Polychloroorganics.  
1031. Malama, A.A., *et al.* (1984). Antifungal activity of some C4-polychlororganic compounds (Ru.). Mikologiya i Fitopatologiya. 18(2):125-9.
- Wood. Protection methods.  
1032. Malaval, P. (1984). Comment proteger les ouvrages en bois? Cahiers Techniques du Batiment. 65:55-61.
- W.  
1033. Mali, P. and G. Pecenko. (1979). Uporaba utrjevalnih in impregnacijskih sredstev v restavraciji. Varstvo Spomenikov 22:225-32.
- Insects. Handbook, Control.  
1034. Mallis, A. (1982). Handbook of Pest Control. 6th edition. Franzak and Foster Co. Cleveland, OH.
- Stone, Durability, Alteration.  
1035. Mamillan, M. (1983). Alteration et durabilite des pierres. Durabilite des Betons et des Pierres: Seminaire Organise avec la Collaboration de l'UNESCO par le College International des Sciences de la Construction. FMB - College International des Sciences de la Construction. Conseil International de la Langue Francaise. Paris. 149-74.
- Stone, Masonry, Deterioration.  
1036. Mamillan, M. (1983). Alteration des maconneries en pierre. Restauration des Ouvrages et des Structures. J.M. Delbecq and G. Sacchi, eds. Presses de l'Ecole Nationale des Ponts et Chaussees. Paris. 337-67.
- Polymers, Resins. Catapol.  
1037. Mamonova, I.V., E.P. Melnikova, M.V. Solovsky, E.F. Panarin, N.A. Zaikina and V. Gromov. (1988). Catapol, a new polymer in restoration. VIth International Congress on Deterioration and Conservation of Stone. Supplement. Nicholas Copernicus University. Press Department. Torun. 262-7.
- Stone, Rocks, Mycoflora.  
1038. Manoharachary, C. (1986). Mycoflora of soil samples associated with rocks. Journal of Archaeological Chemistry. M.C. Ganorkar, ed. 4:17-18.
- Bacteria, Sulfur.  
1039. Mara, D.D. and D.J.A. Williams. (1972). The mechanism of sulphide corrosion by sulphate-reducing bacteria. Biodeterioration of Materials. Vol. 2. A.H. Walters and E.H. Hueck-van der Plas, eds. John Wiley and Sons. New York. 103-13.
- Stone, Deterioration factors, Conservation considerations.  
1040. Marchesini, L. (1973). Facteurs de choix dans les interventions pour la conservation des materiaux pierreux. International Symposium on the Deterioration of Building Stones. V. Romanowski, ed. Les Imprimeries Reunies de Chambéry. Chambéry. 29-31.
- Fungi, Bone.  
1041. Marchiafava, V. (1974). Fungal osteoclasia: A model of dead bone resorption. Calcified Tissue Research 14:195-210.
- Minerals, Manganese, Biogeochemistry.  
1042. Marshall, K.C. (1979). Biogeochemistry of manganese minerals. Biogeochemical Cycling of Mineral Farming Elements. P.A. Trudinger and D.J. Swaine, eds. Elsevier. Amsterdam. 253-92.
- Fungi, Textbook, Myxomycetes.  
1043. Martin, G.W. and C.J. Alexopoulos. (1969). The Myxomycetes. University of Iowa Press. Iowa City.
- Wall Painting, Fungi, *Aspergillus*, *Cladosporium*, *Fusarium*, *Neurospora*, Bacteria.  
1044. Martinez, P., A.I. Sanchez, A.L.

- Brizuela and S. Cuello. (1987). Contaminacion microbiana en bienes culturales. Documentos. Grupo de Informacion Esfera de las Artes Visuales. La Microbiologia en el Arte. Centro Nacional de Conservacion, Restauracion y Museologia. Ministerio de Cultura. Havana, Cuba. 9/87:1-10.
- Wood, Fungi, SEM.  
1045. Martinez, P., J. Castro, A. Sanchez, J. Machado, J. Diaz and D. Rodriguez. (1/90). Aplicacion de la microscopia electronica de barrido al diagnostico del estado de conservacion de vigas de madera de la casa San Ignacio N. 364 (S. XVIII). Documentos. Centro Nacional de Conservacion, Restauracion y Museologia. Ministerio de Cultura. Havana, Cuba.
- Fungicides, Biocides, *Aspergillus*.  
1046. Martinez, P., J. Diaz Mayans, A.I. Sanchez and A.L. Brizuela. (1987). Efecto 'in vitro' de fungicidas sobre cepas de *Aspergillus niger* y *A. ficuum*. Parte I. Documentos. Grupo de Informacion Esfera de las Artes Visuales. La Microbiologia en el Arte. Centro Nacional de Conservacion, Restauracion y Museologia. Ministerio de Cultura. Havana, Cuba. 9/87:1-7.
- Lignin degradation.  
1047. Mason J.C., O.M. Birch and P. Broda. (1990). Preparation of 14C radiolabelled lignocelluloses from spring barley of differing. *J. Gen. Microbiol.* 136:227-32.
- Metals, Cooling tower.  
1048. Mason, D. (1984). Bacteria eating out a cooling tower. *New Scientist.* 14:13.
- Wall Paintings, Frescoes, Moisture, Preservation, Biocides.  
1049. Massari, G. and P. Mora. (1974). Dampness and the preservation of mural paintings. *Fungi.* 191-9.
- Bacteria, Spores, *Hormindium*.  
1050. Mattox, K.R. (1971). Zoosporogenesis and resistant cell formation in *Hormindium flaccidum*. Contributions in Phycology. B.S. Parker and R.M. Brown, eds. Kens Allen Press. Lawrence, KA. 137-44.
- Wood, Protection.  
1051. Maudlin, J.K. (1983). The forest service research program on protection of wood in use. *Pest Management.* 2(1):14-19.
- Stone, Bacteria, Techniques, Methods.  
1052. May, E. and F.J. Lewis. (1988). Strategies and techniques for the study of bacterial populations on decaying stonework. VIth International Congress on Deterioration and Conservation of Stone. Supplement. Nicholas Copernicus University. Press Department. Torun. 59-70.
- Stone, Treatment, Gravestones.  
1053. Mayer, L.R. (1979). The care of old cemeteries and gravestones. *Markers, Annual Journal of the Assoc. for Gravestone Studies.* 1:118-41.
- Wood, Fungi, Bioassay.  
1054. Mazny, J. and H. Greaves. (1984). A comparison of fungal strains used in the bioassay of wood preservatives. International Research Group on Wood Preservation. Stockholm.
- Textiles, Wool, Biocides.  
1055. McCarthy, B.J. (1983). Biodeterioration in wool textile processing. Biodeterioration 5. T.A. Oxley and S. Barry, eds. John Wiley and Sons. New York. 519-27.
- ATP-ATPase assessment, Methods.  
1056. McCarthy, B.J. (1983). Bioluminescent assay of microbial contamination on textile materials. *Internat. Biodeter. Bull.* 19(2):53-7.
- ATP, Textile.  
1057. McCarthy, B.J. (1986). Application of bioluminescence techniques to textile biodeterioration. Biodeterioration 6. Proceedings of the Sixth International Biodeterioration Symposium. S. Barry, D.R. Houghton, G.C. Llewellyn and C.E. O'Rear, eds. CAB International Mycological Institute and The Biodeterioration Society. Slough, UK. 405-13.
- Insects, Biocontrol, Insecticides, Bacteria, *Bacillus*.  
1058. McGaughey, W.H. (1985). Insect resistance to the biological insecticide *Bacillus thuringiensis*. *Science.* 229:193-5.
- Easel paintings.  
1059. Mckay, G. and R. Lodge, R. (1986). Removing severe distortions in a pastel on canvas. A collaborative treatment. *New Directions in Paper Conservation.* 10th Anniversary Conference of the Institute of Paper Conservation. Institute of Paper Conservation. Leigh, UK. 4-6.

- Stone. Fungi. Basalt. Environmental influences.
1060. Mehta, A.P., A.E. Torma and L.E. Murr. (1979). Effect of environmental parameters on the efficiency of biodegradation of basalt rock by fungi. *Biotechnology and Bioengineering*. 21(5):875-85.
- Stone. Bacteria. Nitrogen.
1061. Meincke, M., B. Ahlers, T. Krause-Kupsch, C. Krieg, M. F. Sameluck, W. Sand and B. Wolters. (1988). Isolation and characterization of endolithic nitrifiers. VIth International Congress on Deterioration and Conservation of Stone. J. Ciabach, ed. Nicholas Copernicus University, Press Department. Torun. 15-23.
- ATP. Microplankton.
1062. Mel'nikov, N.A. (1976). Comparison of the magnitude of the microplankton biomass determined from ATP and by direct microscopy. *Oceanology*. 16(2):181-3.
- High Temperature. Insects.
1063. Mellanby, K. (1954). Acclimatization and the thermal death point in insects. *Nature*. 173(4404):582-3.
- Glass. Lichens.
1064. Mellor, E. (1923). Lichens and their action on the glass and leadings of church windows. *Nature*. 112:299-300.
- Stone. Lichens.
1065. Mellor, E. (1921). Les lichens vitricoles et leur action mecanique sur les vitraux d'eglise. *Comptes Rendus des Seances de l'Academie des Sciences*. 173:1106-8.
- Glass. Lichens.
1066. Mellor, E. (1924). The decay of window glass from the point of view of lichenous growths. *Journal of the Society of Glass Technology*. 8:182-6.
- Paper. Inks. Iron-gall ink. Chemical, Fungi.
1067. Messner, K. L. Alberighi, G. Banik, E. Srebotnik, W. Sobotka and A. Mairinger. (1988). Comparison of possible chemical and microbial factors influencing paper decay by iron-gall inks. *Biodeterioration* 7. D.R. Houghton, R.N. Smith and H.O.W. Egins, eds. Elsevier. New York. 449-54.
- Fungi. TEM. Brown rot. *Fomitopsis*.
1068. Messner, K. and H. Stachlberger. (1984). Transmission electron microscope observations of brown rot caused by *Fomitopsis pinicola* with respect to osmiophilic particles. *Trans. Brit. Mycol. Soc.* 83(1):113-30.
- Algae. Ecology. Systematics.
1069. Metting, B. (1981). The systematic and ecology of soil algae. *The Botanical Review*. 47:195-312.
- Marine environment. Fungi.
1070. Meyers, S.P. (1968). Degradative activities of filamentous marine fungi. *Biodeterioration of Materials*. A.H. Walters and J.J. Elphick, eds. Elsevier. Amsterdam. 594-609.
- Cellulose. Marine organisms.
1071. Meyers, S.P., S.L. Chung and D.G. Ahearn. (1971). Biodegradation of cellulosic substrates by marine fungi. *Biodeterioration of Materials*. Vol. 2. A.H. Walters and E.H. Hueck-van der Plas, eds. John Wiley and Sons. New York. 121-8.
- Foxing. Paper. Fungi.
1072. Meynell, G.G. (1979). Notes on foxing, chlorine dioxide bleaching and pigments. *The Paper Conservator* 4:30-2
- Paper. Fungi. Foxing.
1073. Meynell, G.G. and R.J. Newsam. (1978). Foxing, a fungal infection of paper. *Nature*. 274:466-8.
- Foxing. Paper. Fungi.
1074. Meynell, G.G. and R.J. Newsam. (1979). Foxed paper and its problems. *New Scientist*. 567.
- Wood. Waterlogged, Bulgaria. Conservation.
1075. Mihailov, A. (1975). Conservation of wood which has stayed in water in the P.R. of Bulgaria. Committee for Conservation. 4th Triennial Meeting. Preprints. ICOM. Paris.
- Wood. Conservation. Bulgaria.
1076. Mihailov, A. (1970). Conservation of the wooden elements in the renaissance houses of the people's Republic of Bulgaria. *Studies in Conservation*. 15(3):221-3.
- Wood. Disinfection.
1077. Mikhailov, A., *et al.* (1972). Radiosterilization of wooden objects of art and museum articles. ICOM. Madrid 24/2.
- Paper. Book. Library. Archives. Fungi.
1078. Milagros Vaillant, C., R. Lourdes Chi and M. Adela I. Sanchez. (1989). Sobre la

- contaminacion microbiologica existente en depositos del Archivo Nacional. Documentos. Centro Nacional de Conservacion, Restauracion y Museologia. Ministerio de Cultura. Havana, Cuba. 2:44-65.
- Wood, X-ray fluoroscopy. Detection of rot.  
1079. Miller, D.G. (1964). Detection of rot in wood by electronic X-ray fluoroscopy. British Columbia Lumberman.
- Wood, Performance of coatings.  
1080. Miller, E.R. (1983). Prediction of performance of exterior wood coatings. Journal of the Oil and Colour Chemists' Association. 66(10):308-16.
- Biocides, Fungicides, Tributyltin oxide.  
1081. Miller, G. (1971). Tributyltin oxide: Some factors influencing its development and application as a preservative. Biodeterioration of Materials. Vol. 2. A.H. Walters and E.H. Hueck-van der Plas, eds. John Wiley and Sons. New York. 279-85.
- Fungi, Cellulose, Canadian houses.  
1082. Miller, J.D. and H. Holland. (1981). Biodeteriogenic fungi in two Canadian historic houses subjected to different environmental controls. Internat. Biodeter. Bull. 17(2):39-45.
- Freezing temperatures, Insects.  
1083. Miller, L.K. (1978). Freezing tolerance in relation to cooling rate in an adult insect. Cryobiology. 15:345-9.
- Stone, Algae, Bacteria, Strasbourg.  
1084. Millot, G., J. Cogne, D. Jeannette, Y. Besnus, B. Monnet and F. Guri. (1967). La maladie des gres de la cathedrale de Strasbourg. Bulletin du Service de la Carte Geologique de Alsace Lorraine. 20(3): 131-7, 7.
- Cellulose, Methods, Techniques, Testing, Perfusion.  
1085. Mills, J., D. Allsopp and H.O.W. Eggins. (1971). Some new developments in cellulosic material testing using perfusion techniques. Biodeterioration of Materials. Vol. 2. A.H. Walters and E.H. Hueck-van der Plas, eds. John Wiley and Sons. New York. 227-32.
- Paper, Conservation, Watercolors.  
1086. Mills, J.F. (1975). The restoration of prints and watercolors. Repairers' New Sheet. 27:
- Stone, Lichens, Thermal analyses.  
1087. Mitchell, B.D., A.C. Birnie and J.K. Syers. (1966). The thermal analysis of lichens growing on limestone. Analyst. 91:783-9.
- Wood, Insects, Borers.  
1088. Mitchell, R. (1984). The microbial ecology of crustacean wood borers. Marine Biodeterioration: An Interdisciplinary Study. J.D. Costlow and R.C. Tipper, eds. Naval Institute Press. Annapolis, MD. 17-23.
- Taxonomy.  
1089. Mitchell, T.G. and J.M. Shewan. (1968). Aspects of taxonomy with respect to biodeterioration. Biodeterioration of Materials. A.H. Walters and J.J. Elphick, eds. Elsevier. Amsterdam. 13-21.
- Lichens, Substrate selectivity.  
1090. Mitteilung, K. (1974). Selectivity in lichen-substrate relationships. Flora, BD. 163:530-34.
- High temperatures, Sterilization, Bacteria, Spores.  
1091. Molin, M.C. (1982). Heat sterilisation. Destruction of bacterial spores by thermal methods. Principles and Practices of Disinfection, Preservation and Sterilisation. A.D. Russell, W.B. Hugo and G.A.J. Ayliffe, eds. Blackwell Scientific. St. Louis. 454-68.
- Insects, Fumigation, Control, Biocides.  
1092. Monro, H.A.U. (1975). Manual of Fumigation for Insect Control. 2nd Revision. FAO, ed. Agricultural Studies N. 79. Food and Agriculture Organization of the United Nations. Rome.
- Insects, Fumigation, Insecticides.  
1093. Monro, H.A.U. (1970). La fumigation en tant que traitement insecticide. Etudes Agricoles de la FAO. N. 79. Rome.
- Paper, Library, Archives, Books.  
1094. Montanari, M. (1980). Agenti biologici che danneggiano i materiali librari e archivistici. Bollettino dell'Istituto Centrale per la Patologia del Libro Alfonso Gallo. Istituto Centrale per la Patologia del Libro. Rome. 36:163-94.
- Stone, Bacteria, *Thiobacillus*, Metabolic state.  
1095. Monte Sila, M. and G. Tarantino. (1981). The metabolic state of microorganisms of the genus *Thiobacillus* on stone

- monuments. The Conservation of Stone. II. Preprints. Part A. Deterioration. R. Rossi-Manaresi, ed. Centro per la Conservazione delle Sculture all'Aperto. Bologna. 117-38.
- Wall paintings. Plaster. Italy.
1096. Monte Sila. M. and M.S. Scavizzi. (1982). Presence of sulphur bacteria inside the plasters of the mural paintings in the Scrovegni Chapel. Deterioration and Preservation of Stones. Proceedings of the 3rd International Symposium. Università degli Studi. Istituto di Chimica Industriale. Padova. 705-8.
- Insects. Cereal. Antiquity.
1097. Monte, G.D. (1983). Spread of stored cereal insects in antiquity (It.). Atti XII Congresso Nazionale Italiano di Entomologia, Roma 5-9 Novembre 1980. Vol. II. 491-4.
- Stone. Lichens. Statistical analysis.
1098. Monte, M. (1991). Multivariate analysis applied to the conservation of monuments: Lichens on the Roman Aqueduct Anio Vetus in S. Gregorio. International Biodeterioration. Special Issue: Biodeterioration of Cultural Property. R.J. Koestler, ed. Elsevier. London. 28: 133-50.
- Mosaics. Stone. Mortar. Biocides. Treatment.
1099. Monte, M. and I.R. Fiorentini. (1988). Traitements par biocides des mosaïques de pavement en plein air: Ancien porche sud — Basilique Santa Croce de Ravenne. VIth International Congress on Deterioration and Conservation of Stone. Supplement. Nicholas Copernicus University. Press Department. Torun. 120-7.
- Textiles. Literature review.
1100. Montegut, D., Indicator, N. and R.J. Koestler. (1991). Fungal deterioration of cellulosic textiles. A literature review. International Biodeterioration. Special Issue: Biodeterioration of Cultural Property. R.J. Koestler, ed. Elsevier. London. 28: 209-25.
- Stones. Wood. Conservation. Dutch West Indies.
1101. Moojen, F.A.J. (1933). La conservation des monuments aux Indes Néerlandaises. La Conservation des Monuments d'Art et d'Histoire. Institut de Cooperation Intellectuelle. Paris. 297-300.
- Insects. Wood. Borer.
1102. Moore, H.B. (1978). The old house borer. An update. Part one. Pest Control. 14-17. 52.
- Stone. Problems. Persepolis. Iran.
1103. Mora, P. (1968). Persepolis. Le probleme de la desagregation des pierres. Travaux de Restauration de Monuments Historiques en Iran. G. Zander, ed. ISMEO. Rome. 23-30.
- Wall painting. Plaster. Conservation techniques.
1104. Mora, P., L. Mora and P. Philippot. (1984). Conservation and Museology Series. Conservation of Wall Paintings. Butterworths. London.
- Wood. Insects. Control. Japan.
1105. Mori, H. (1978). Insect pests of wooden cultural properties and their control in Japan. Conservation of Wood in Painting and the Decorative Arts. Preprints. International Institute for Conservation. London. 15-17.
- Insects. Termites. Insecticides. Biocides. Boron.
1106. Mori, H. (1984). Termite control treatment using boron compounds (Report I). Science for Conservation. 23:41-54.
- Insects. Termites. Distribution. Hokkaido.
1107. Mori, H. (1978). On the termite distribution in Hokkaido and the damages caused to cultural properties. Scientific Papers on Japanese Antiques and Art Crafts. 23:40-51.
- Insects. Control methods. Biocides. Japan.
1108. Mori, H. (1975). List of insects damaging to cultural properties and conservation science against insect pests in Japan. Scientific Papers on Japanese Antiques and Art Crafts. 19:24-60.
- Fumigation. Wood. Time.
1109. Mori, H. and H. Arai. (1982). Means of shortening fumigation time for wooden statues and other cultural properties. Science for Conservation. 21:33-40.
- Marine organisms. Japan. Borers.
1110. Mori, H. and H. Arai. (1981). Protecting underwater cultural properties from marine borers. preliminary report. Sci. Pap. Jap. Antiq. Art Craft. 26:89-95.
- Wood. Control. Cultural objects.
1111. Mori, H. and H. Arai. (1978). Biodeterioration of wooden cultural properties and its control. International

- Symposium on the Conservation and Restoration of Cultural Property: Conservation of Wood. Proceedings. Tokyo National Research Institute of Cultural Properties. Tokyo. 1-16.
- Organic matter, Soils, Sorption, Degradation.**  
1112. Morrill, L.G., B.C. Mahilum and S.H. Mohiuddin. (1982). Organic Compounds in Soils: Sorption, Degradation and Persistence. Ann Arbor Science. Ann Arbor, MI.
- Mineral alteration, Biotite, Plants, Soil.**  
1113. Mortland, M.M., K. Lawton and G. Uehara. (1956). Alteration of biotite to vermiculite by plant growth. J. Soil Sci. 82:477-81.
- Marine environment, Barnacles, Control, Molting.**  
1114. Mortlock, A.M. (1968). Studies on possible mechanisms for the control of moulting and metamorphosis in barnacle larvae. Biodeterioration of Materials. A.H. Walters and J.J. Elphick, eds. Elsevier. Amsterdam. 639-57.
- Biocides, Algacides.**  
1115. Morton, L.G.H., M.L. Lovell and A.F. Mitchell. (1984). The effect of maceration on filamentous algae used for the testing of algacidal compounds. Internat. Biodeter. 20(2):33-6.
- Biocides, Methods, Techniques, Testing.**  
1116. Morton, L.H.G. (1986). A review of techniques for testing algacides for use in terrestrial and freshwater environments. Internat. Biodeter. Bull. 22(1):5-9.
- Algacides, Testing methods, Techniques.**  
1117. Morton, L.H.G. (1979). Laboratory test methods for assessing the algacidal properties. Internat. Biodeter. Bull. 15(3):84-6.
- Wood, Fungi, Temperature.**  
1118. Morton, L.H.G. and H.O.W. Eggins. (1977). The effect of constant, alternating and fluctuating temperatures on the growth on some wood inhabiting fungi. Internat. Biodeter. Bull. 13(4):116-22.
- Stone, Borobudur, Indonesia.**  
1119. Morton, W.B. (1978). La sauvegarde de Borobudur, en Indonesie. Parcs. 2(4):1-4.
- Metals, Prevention of corrosion.**  
1120. Motoc, D., S. Constantinescu and A. Ionescu. (1968). La corrosion microbiologique des metaux et les moyens de la prevenir. National Conference of General and Applied Microbiology. Abstracts. Academy of the Socialist Republic of Romania. Bucharest. 194-5.
- Fungi, Mummy, Egyptian.**  
1121. Mouchacca, J. (1977). Les champignons de la momie de Ramses II. Bulletin d'Information du Musee National d'Histoire Naturelle. 9:7.
- Stone, Fortifications, Restoration, Conservation.**  
1122. Mouton, B., E. Poncelet and D. Ronsseray. (1983). Conservation et restauration des enseintes fortifiees. Monuments Historiques. Caisse Nationale des Monuments Historiques et des Sites. Paris. 126:28-38.
- Fungi, Flora, *Epicoccum*.**  
1123. Mulder, J.L. and G.J.F. Pugh. (1971). Fungal biological flora. II *Epicoccum nigrum* link. Internat. Biodeter. Bull. 7(2):69-71.
- Freezing temperatures, Insects.**  
1124. Mullen, M.A. and R.T. Arbogast. (1979). Time-temperature mortality relationships for various stored product insect eggs and chilling times for selected commodities. J. Economic Entomology. 72(4):476-8.
- Freezing temperatures, Insects.**  
1125. Mullen, M.A. and R.T. Arbogast. (1981). Low temperatures to control stored-product insects. USDA, ARS Stored Product Insects R&D Lab. Washington, DC.
- Wood, Epoxy resins, Consolidation.**  
1126. Munnikendam, R.A. (1978). Consolidation of fragile wood with low viscosity aliphatic epoxy resins. Conservation of wood in Painting and the Decorative Arts. Preprints. International Institute for Conservation. London. 71-3.
- Wood, Concrete, Australia.**  
1127. Murphy, R.J. (1984). Wood in concrete. Summary of discussion at IRG 14. Australia. International Research Group on Wood Preservation. Stockholm.
- Wood, Insects, Protection, Restored.**  
1128. Murray, W.S. (1964). Protection of restored buildings against insects and decay. The Journal of the Building Research Institute. 31-4.

## Paintings, Miniatures, Fungi.

1129. Murrell, J. (1976). The restoration of portrait miniatures. Conservation and Restoration of Pictorial Art. N. Brommelle and P. Smith, eds. Butterworths. London. 129-33.

## Wall paintings, Murals, Conservation, Thailand.

1130. Na Songkhla, W. (1985). Traditional Thai mural painting and its conservation. International Symposium on the Conservation and Restoration of Cultural Property — Conservation and restoration of mural paintings (II). T. Suzuki and K. Masuda, eds. Tokyo National Research Institute of Cultural Properties. Tokyo. 125-36.

## Glass, Control.

1131. Nagamuttu, S. (1964). Moulds on optical glass and control measures. Internat. Biodeter. Bull. 3(1):25-7

## Textiles, Conservation, Hungary.

1132. Nagy, K.E. (1984). An account of the preparations for the conservation of the Hungarian coronation mantle. Conservation — Restoration of Church Textiles and Painted Flags. Fourth International Symposium. A.T. Balazsy, ed. National Centre of Museums. Budapest. 2:29-70.

## General, Tropics.

1133. Nair, S.M. (1972). Biodeterioration of museum materials in tropical countries. Conservation in the Tropics. Proceedings Asia-Pacific Seminar on Conservation of Cultural Property. O.P. Agrawal, ed. New Delhi. 150-8.

## General, India.

1134. Nair, S.M. (1971). Certain observations on the biodeterioration of museum materials in India. Biodeterioration of Materials. Vol. 2. A.H. Walters and E.H. Hueck-van der Plas, eds. John Wiley and Sons. New York. 401-15.

## Insects, India, Moths.

1135. Nair, S.M. (1970). The case-bearing clothes moth — a museum pest in India. Stud. Museol. 6-8:81-9.

## Wood, Marine organisms, India.

1136. Nair, S.M. (1984). The problem of marine timber destroying organisms along the Indian coasts. Proc. Indian Acad. Sci., Animal Sci. 93(3):203-23.

## Paper, India.

1137. Nair, S.M. (1977). Biodeterioration of paper. Conservation of Cultural Property in India. 10:22-8.

## Anoxants, Insects, Oxygen absorber.

1138. Nakamura, H. and J. Hoshino. (1983). Technique for the preservation of food by employment of an oxygen absorber. Mitsubishi Gas Chemical Company.

## Consolidants, Wooden objects, Resins.

1139. Nakhla, S.M. (1986). A comparative study of resins for the consolidation of wooden objects. Studies in Conservation. 31:38-44.

## SEM, Insects, Methods, Techniques, Soft tissue examination.

1140. Nation, J.L. (1983). A new method using hexamethyl disilane for preparation of soft insect tissue for scanning electron microscopy. Stain. Tech. 58(6):347-51.

Rock art, Insects, *Hymenoptera*, *Isoptera*, Australia.

1141. Naumann, I.D. (1983). 5. The biology of mud nesting *Hymenoptera* (and their associates) and *Isoptera* in rock shelters of the Kakadu region, Northern Territory. The rock art sites of Kakadu National Park — some preliminary research findings for their conservation and management. Australian National Parks and Wildlife Service Special Publication 10. D.A. Gillespie, ed. Australian National Parks and Wildlife Service. Canberra City. 127-90.

## Manganese, Iron, Redox.

1142. Neilson, K.H. (1982). Microbial oxidation and reduction of manganese and iron. Biomineralization and Biological Metal Accumulation. Renesse. The Netherlands. 459-78.

## Insecticides, Sulfuryl fluoride.

1143. Nedalyaev, O.A., et al. (1975). Silicon (Sulfuryl?) fluoride insecticide for conserving wooden museum exhibits. U.S.S.R. (Ru.). Soviet Invent. Ill. 13(2):

## Biocides, Fungicides, Bioassay.

1144. Neely, D. (1978). A cellophane-transfer bioassay to detect fungicides. Methods for Evaluating Plant Fungicides, Nematicides and Bactericides. Am. Phytopathological Soc. 15-18.

Insecticides. Amino acids, Sterilants, Insects, *Corcyra*.

1145. Neerja and K.D. Upadhyay. (1982). Screening of certain amino acids as possible sterilants against rice moth, *Corcyra cephalonica* Staint. Bull. Grain Technol. 20(1):37-42.

Biocides, Statistics in testing.

1146. Nelson, L. (1978). Use of statistics in planning, data analysis and interpretation of fungicide and nematicide tests. Methods for Evaluating Plant Fungicides, Nematicides and Bactericides. Am. Phytopathological Soc. 2-14.

Microwave, Radiation, Insects.

1147. Nelson, S.O. (1973). Insect control studies with microwave and other radio-frequency energy. Bull. Ento. Soc. Amer. 19:157-63.

Freezing temperatures, Insects.

1148. Nesheim, K. (1984). The Yale non-toxic method of eradicating book-eating insects by deep-freezing. Restaurator. 6:147-64.

Wood, Preservatives, Development, Techniques.

1149. Nicholas, D.D. (1981). Multidisciplinary approach to the development of new wood preservatives. Forest Products Journal. 31(9):28-33.

Wood, Treatments, Deterioration.

1150. Nicod, J. (1982). Alterations des bois et traitements curatifs. Cahiers des Comites de Prevention du Batiment et des Travaux Publics. 33(6):280-84.

Wood, Fungicides, Biocides, Bifluorides.

1151. Nijman, H.F.M. (1983). The use of bifluorides-diffusion in remedial treatments. International Research Group on Wood Preservation. Stockholm.

Wood, Preservation, Iran.

1152. Niloufari, P. and R. Cockcroft. (1984). Wood Preservation in Iran. STU Information N. 412. Styrelsen foer Teknisk Utveckling. Stockholm.

Wood, Archaeological, Dry.

1153. Nilsson, T. and G. Daniel. (1990). Structure and the Aging Process of Dry Archaeological Wood. Advances in Chemistry Series. Archaeological Wood. R.M. Rowell and R.J. Barbour, eds. American Chemical Society. Washington, DC. 67-86

Wood, Biocides, Butylene oxide, *Poderosa* pine.

1154. Nilsson, T. and R.M. Rowell. (1982). Decay patterns observed in butylene oxide modified ponderosa pine after exposure in unsterile soil. The International Journal of Wood Preservation. 2(3):119-21.

Rock art, Conservation, Japan.

1155. Nishiura, T. (1986). Conservation of rock-cliff sculptures in Japan. Case studies in the Conservation of Stone and Wall Paintings. Preprints of the Bologna Conference. R. Rossi-Manaresi, ed. Centro per la Conservazione delle Sculture all'Aperto. Bologna.

Paper, Fungi.

1156. Niuksa, I.P. (1956). Microflora of books and paper. Bot. Zh. 41(6):797-809.

Insects, Control.

1157. Nixon, J. (1984). Novel approaches often whip occasional invaders. Pest Control. 52(4):44-6.

Paper, Foxing, Postage stamps.

1158. Nol, L., Y. Henis and R.G. Kenneth. (1983). Biological factors of foxing in postage stamp paper. Internat. Biodeter. Bull. 19(1):19-25.

Textiles, Soil burial, Techniques, Methods.

1159. Northrop, D.M. and W.F. Rowe. (1987). Effect of the soil environment on the biodeterioration of man-made textiles. Biodeterioration Research I. G.C. Llewellyn and C.E. O'Rear, eds. Plenum Press. New York. 7-16.

1160. Novotny, J., R. Wasserbauer and Z. Zadak. (1971). Influence du facteur biologique sur la destruction des couvertures en aminate-ciment des etables. First International Symposium on the Destruction of Building Stone. V. Romanowski, ed. Les Imprimeries Reunies de Chambéry. Chambéry. 155-6.

Polymers, Resins, Paraloid B72, Primal AC33.

1161. Nugari, M.P. and G.F. Priori. (1985). Resistance of acrylic polymers (Paraloid B72, Primal AC33) to microorganisms. First part. Vth International Congress on Deterioration and Conservation of Stone. Proceedings. Vol. 2. G. Felix, ed. Presses Polytechniques Romandes. Lausanne. 685-93.

## Textiles. Fungicides. Art objects.

1162. Nugari, M.P., G.F. Priori, D. Mate and F. Scala. (1987). Fungicides for use on textiles employed during the restoration of works of art. *Internat. Biodeter.* 23(5): 295-306.

## Frescoes. Wall Paintings. Control. Preservation.

1163. Nugari, M.P., M.P. Giuliani and C. Cacace. (1989). Domus Aurea: Preservation proposal for control of microflora growth on frescoes in Hypogean environments. International Conference on Biodeterioration of Cultural Property. Preprints. Vol. I. Nat'l. Res. Lab. Conser. Cult. Prop. Lucknow. 181-91.

## Books. Restoration. Techniques.

1164. Nyuksha, J. (1981). Biological methods in book restoration. Committee for Conservation. 6th Triennial Meeting. Preprints. ICOM. Paris.

## Paper. Library.

1165. Nyuksha, J.P. (1980). Biodeterioration and biostability of library materials. *Restaurator.* 4:71-7.

## Paper. Books.

1166. Nyuksha, J.P. (1979). Biological principles of book keeping conditions. *Restaurator.* 2:101-8.

Paper. Fungi. *Gymnoascus*.

1167. Nyuksha, J.P. (1960). Changes in the chemical and mechanical properties of paper as affected by the fungus *Gymnoascus setosus*. *Mikrobiologiya* 29:678-81.

## Paper. Foxing.

1168. Nyuksha, J.P. (1983). Some special cases of biodeterioration of books. *Restaurator.* 5(3-4):177-82.

## Library. Books. Archives. Paper.

1169. Nyuksha, J.P. (1978). Biodestruction and biostability in library materials. Committee for Conservation. 5th Triennial Meeting. Preprints. ICOM. Paris. 13.1.

## Paper. Fungi. Book. Resistance.

1170. Nyuksha, J.R. (1984). Microbial resistance of book paper. 7th Triennial Meeting. Copenhagen. Preprints. ICOM. Paris. 84/14.

Paper. Fungi. Foxing. *Gymnoascus*.

1171. Nyuksha, Y.P. (1964). A microscopic study of paper discolored by the fungus *Gymnoascus*. *Microscopy of Pulp and*

*Paper.* Bibliographic Series No.177. 2nd edition. 29(1):133-6.

## Paper. Fungi. Survey.

1172. Nyuksha, Y.P. (1961). A taxonomic survey of fungi dwelling on paper, books and pulp. *Botanicheski Zurnal.* 46:70-9.

## Bone. Antler. Ivory. Structure. Chemistry. Decay.

1173. O'Connor, T.P. (1987). On the structure, chemistry and decay of bone, antler and ivory. *Archaeological Bone, Antler and Ivory.* Occasional Paper N. 5. K. Starling and D. Watkinson, ed. The United Kingdom Institute for Conservation. London. 6-8.

## Paint. Succession.

1174. O'Neill, T.B. (1988). Succession and interrelationships of microorganisms on painted surfaces. *Internat. Biodeter.* 24(4):373-9.

## Glass

1175. Oberlies, F. and G. Pohlmann. (1958). *Einwirkung von mikroorganismen auf glas.* *Naturwissenschaften.* Vol. 45.

## Wood. Biocides. Testing. Termites. Fungi. Permethrin. Dieldrin. Lindane.

1176. Oclod, J.K. (1983). A comparative study of the protection offered to wood samples by permethrin, dieldrin and lindane against damage by subterranean termites and fungi. *The International Journal of Wood Preservation.* 3:31-8.

## Wood. Termites. Insects. Ghana.

1177. Oclod, J.K. and M.B. Usher. (1980). The resistance of 85 Ghanaian hardwood timbers to damage by subterranean termites. *Durability of Building Materials and Components.* Proceedings of the First International Conference. ASTM Special Technical Publication N. 691. American Society for Testing and Materials. Philadelphia. 972-80.

## Stone. Preservation.

1178. Oellerier, J.F. (1933). *La desagregation des pierres naturelles et les moyens de preservation. La Conservation des Monuments d'Art et d'Histoire.* Institut de Cooperation Intellectuelle. Paris. 210-14.

## Stone. Organic compounds. Methods. Extraction techniques.

1179. Oelting, M., W. Butte and W.E. Krumbein. (1988). *Extraction and*

- identification of organic compounds from the surface of weathered stones. VIth International Congress on Deterioration and Conservation of Stone. Supplement. Nicholas Copernicus University. Press Department. Torun. 13-20.
- Wood, Durability, West African.
1180. Ofori, J. (1985). The durability and preservation of West African timbers. Preservation of Timber in the Tropics. W.P.K. Findlay, ed. Martinus Nijhoff/Dr. W. Junk Publishers. Dordrecht. 193-203.
- Fungi, Thermophilic, Thermotolerant, Nigeria.
1181. Ogbonna, C.I.C. and G. Pugh (1983). Thermophilic and thermotolerant fungi from Nigeria. *Internat. Biodeter. Bull.* 19(2):69-75.
- Insecticides, Anoxant, Oxygen absorber.
1182. Ohguchi, Y., *et al.* (1983). Lethal effect of oxygen absorber (Ageless\*) on several stored grain and clothes pest insects (Jap.). *Jap. J. Appl. Ento. and Zool.* 27(4):270-5.
- Textiles, Conservation, Nigeria museums.
1183. Ojeh, F.K. (1984). Textile conservation in Nigerian museums. Traditional Textile Conservation, Storage and Museum Problems. International Seminar/ Workshops in Mamako, Mali. S.L.
- Glass, Neutron activation.
1184. Olin, J.S. and E.V. Sayre. (1974). Neutron activation analytical survey of some intact medieval glass panels and related specimens. *Archaeological Chemistry*. C.W. Beck, ed. ACS, Washington, DC. 100-23.
- Metals, Control, Iron, *Thiobacillus*.
1185. Onysko, S.J., R.L.P. Kleinman and P.M. Erickson. (1984). Ferrous iron oxidation by *Thiobacillus ferrooxidans*: Inhibition with benzoic acid, sorbic acid and sodium lauryl sulfate. *Appl. Env. Microbiol.* 48(1):229-31.
- Environment, Museums.
1186. Organ, R.M. (1968). Humidification of galleries for a temporary exhibition. Contributions to the London Conference on Museum Climatology. G. Thomson, ed. IIC. London. 1-14.
- Biocides, Museums.
1187. Organ, R.M. (1983). The needs of museums for biocides. *Biodeterioration* 5. T.A. Oxley and S. Barry, eds. John Wiley and Sons. New York. 408-15.
- Stone, Lichens, Treatments, Biocides, Lichenicides.
1188. Oriol, G. and A. Brunet. (1989). Les lichens: Impact sur les materiaux pierreux et recherche d'une therapie. Patrimoine Culturel et Alterations Biologiques. Poitiers. Section Francaise de l'Institut Internat. de Conser. S.L. 119-33.
- Leather, Books, Fungi.
1189. Orlita, A. (1977). Occurrence of fungi on book leather bindings from the Baroque period. *Internat. Biodeter. Bull.* 13(2):45-7.
- Leather.
1190. Orlita, A. (1968). Biodeterioration in the leather industry. *Biodeterioration of Materials*. A.H. Walters and J.J. Elphick, eds. Elsevier. Amsterdam. 297-301.
- Stone, Calcium oxalates, Marble, Venice.
1191. Ornella, S. and Z. Andreina. (1981). Monohydrate and dihydrate calcium oxalate in living lichen incrustations biodeteriorating marble columns of the Basilica of Santa Maria Assunta on the Isl. of Torcello. *The Conservation of Stone. II*. R. Rossi-Manaresi, ed. Bologna. 379-90.
- Stone, Seville, Spain.
1192. Ortega, J., A. Martin, A. Aparicio and J. Garcia. (1988). Bioalteration of the Cathedral of Seville. VIth International Congress on Deterioration and Conservation of Stone. J. Ciabach, ed. Nicholas Copernicus University. Press Department. Torun. 1-7.
- Stone, Seville, Spain.
1193. Ortega, J. and A. Martin. (1988). Bioalteration of the Town-Hall and the University of Seville. VIth International Congress on Deterioration and Conservation of Stone. J. Ciabach, ed. Nicholas Copernicus University. Press Department. Torun. 9-14.
- Stone, Cyanobacteria, Algae, Building materials, Spain.
1194. Ortega, J.J., M. Hernandez-Marine and C. Saiz-Jimenez. (1991). Biodeterioration of building materials by cyanobacteria and algae. *International Biodeterioration. Special Issue: Biodeterioration of Cultural Property*. R.J. Koestler, ed. Elsevier. London. 28: 165-85.

Stone, Algae, Bacteria, Spain, Building materials.

1195. Ortega-Calvo, J.J., M. Hernandez-Marine and C. Saiz-Jimenez. (1991). Biodeterioration of building materials by cyanobacteria and algae. *International Biodeterioration. Special Issue: Biodeterioration of Cultural Property*. R.J. Koestler, Elsevier, London, ed. 28:165-85.

Metals, Steel, Biofilms.

1196. Ortiz, C., P.S. Guimet and H.A. Videla. (1990). Relationship between biofilms and corrosion of steel by microbial contaminants of cutting-oil emulsions. *Internat. Biodeter.* 26(5):315-26.

Plastics, Rate-limiting factors.

1197. Osman, J.L., R.E. Klausmeister and E.I. Jamison. (1971). Rate-limiting factors in the biodeterioration of plastics. *Biodeterioration of Materials*. Vol. 2. A.H. Walters and E.H. Hueck-van der Plas, eds. John Wiley and Sons, New York. 66-75.

Textiles, Cellulose.

1198. Ostertag, H. (1954). Microbiology of raw materials of cellulose-containing textiles. *Melliand Textilberichte International*. 35:224-6.

Buildings, Moisture, Techniques, Treatments, Instruments.

1199. Oxley, T.A. and E.G. Gobert. (1984). *Dampness in Buildings: Diagnosis, Treatments, Instruments*. Butterworths, London.

Paper, Tropics.

1200. Pacheco, C.V. and J.R. Berges Pena. (1978). Investigaciones sobre la patologia del papel en las zonas tropicales. *Centromidca*. 1(2):3-7.

Paper, Books, Library.

1201. Pacheco, C.V. and M.M. De Campusano. (1979). Previsiones para evitar el deterioro della documentacion grafica. *Centromidca*. 1(3):3-10.

Stone, Assessment.

1202. Paleni, A. and S.B. Curri. (1976). La contaminazione biologica sulla superficie delle opere d'arte. *The Conservation of Stone*. I. Preprints of the International Symposium, Bologna. R. Rossi-Manaresi, ed. Centro per la Conservazione delle Sculture all'Aperto, Bologna. 281-93.

Stone, Control, Cleaning, Lipids.

1203. Paleni, A. and S.B. Curri. (1976). Attapulgis clay on cleaning, biological aggression control, desalination of stone. *Proceedings 2nd International Symposium on the Deterioration of Building Stone*. Universite Technique National, Athens. 153-62.

General, Venice.

1204. Paleni, A. and S.B. Curri. (1972). Biological aggression of works of art in Venice. *Biodeterioration of Materials*. Vol. 2. A.H. Walters and E.H. Hueck-van der Plas, eds. John Wiley and Sons, New York. 388-91.

Stone, Algae, Lichens.

1205. Paleni, A. and S.B. Curri. (1973). L'agression des algues et des lichens aux pierres et moyens pour la combattre. *Proceedings of the 1st International Symposium on Deterioration of Building Stone*. V. Romanowski, ed. Les Imprimeries Reunies de Chambéry, Chambéry. 157-66.

Metals, San Marco horses, Italy.

1206. Paleni, A., E.E. Staffeldt and S.B. Curri. (1978). I cavalli di San Marco la bioaggressione ai metalli. *The San Marco horses and biodeterioration of metals. Arte e Ambiente*. A. Section of Petrolio e Ambiente, Roma. Eur. Congress. Poligrafico Artioli, ed. Modena. 71-9.

Stone, Lipids, Techniques.

1207. Paleni, A., R. Benassi and S.B. Curri. (1978). TLC, GC, MS analyses of extract by chloroform-methyl alcohol (3:1) from flora pushing on marble column Santa Fosca Arcade, Torcello (Venezia). *Lipids and Works of Art*. Milan.

Stone, Lipids.

1208. Paleni, A., S.B. Curri and R. Benassi. (1978). Lipids in stone. *Proceedings 14th ISF World Congress, Section Lipids in Art*. Brighton. 17-22 September 51-6.

Stone, Lichens, Florence.

1209. Pallecchi, P. and D. Pinna. (1988). Alteration of stone caused by lichen growth in the Roman theatre of Fiesole (Firenze). *Vith International Congress on Deterioration and Conservation of Stone*. Supplement. Nicholas Copernicus University, Press Department, Torun. 39-47.

- ATP assessment. Biomass. *Juncus. Spartina*.  
1210. Pamatmat M.M. and H.R. Skjoldal.  
(1979). Metabolic activity, adenosine  
phosphates and energy charge of below  
ground biomass of *Juncus roemerianus*  
Scheele and *Spartina alterniflora* Loisel.  
Estuarine and Coastal Marine Science.  
9:79-90.
- Paper. Documents. Restoration.  
1211. Pancu, V., N. Draghici, M. Platon and  
V. Lazar. (1968). Physical, mechanical and  
chemical modifications of paper under the  
influence of microorganisms and certain  
aspects of the restoration of documents.  
National Conference of General and  
Applied Microbiology. Abstracts of  
Communications. Bucharest. Academy of  
the Socialist Republic of Romania.  
Bucharest.
- Archaeology. Snails.  
1212. Panier, E. (1986). Cannibalism in  
Muricid snails as a possible explanation of  
archaeological findings. *Journal of*  
*Archaeological Science*. 13(5):463-8.
- Plastics. Polymers. Carbon source.  
1213. Pankhurst, E.S., M.J. Davis and H.M.  
Blake. (1971). The ability of polymers to  
provide a source of carbon for selected  
microorganisms. *Biodeterioration of*  
*Materials*. Vol. 2. A.H. Walters and E.H.  
Hueck-van der Plas, eds. John Wiley and  
Sons. New York. 76-90.
- Library. Paper. Books. Bacteria.  
1214. Pantke, M. and W. Kerner-Gang.  
(1987). Hygiene am arbeitsplatz — bakterien  
und schimmelpilze. *Internationale*  
*Arbeitsgemeinschaft der Archiv-,*  
*Bibliotheks- und Graphikrestauratoren.*  
IADA. Marburg. 17.
- Gold. Bacteria.  
1215. Pares, Y. (1965). Intervention des  
bacteries aerobies dans le cycle de l'or.  
*Comptes Rendus de l'Academie des*  
*Sciences de Paris*. 260:2351-2.
- Fungicides. Adaptation by fungi. Copper.  
Mercury.  
1216. Parry K.E. and R.K.S. Wood. (1958).  
The adaptation of fungi to fungicides:  
Adaptation to copper and mercury salts.  
*Ann. Appl. Biol.* 46(3):446-56.
- Plastics. Polyurethane. Polyester. Fungi.  
*Gliocladium*.  
1217. Pathirana, R.A. and K.J. Seal. (1983).  
*Gliocladium roseum* (Bainier), a potential  
biodegrader of polyester polyurethane  
elastomers. *Biodeterioration* 5. T.A. Oxley  
and S. Barry, eds. John Wiley and Sons.  
New York. 679-89.
- Plastics. Polyurethane. Methods. Techniques.  
1218. Pathirana, R.A. and K.J. Seal. (1984).  
Studies on polyurethane deteriorating  
fungi. Part 1. Isolation and characterization  
of the test fungi employed. *Internat.*  
*Biodeter. Bull.* 20(3):163-8.
- Plastics. Polyurethane. Fungi.  
1219. Pathirana, R.A. and K.J. Seal. (1984).  
Studies on polyurethane deteriorating  
fungi. Part 2. An examination of their  
enzyme activities. *Internat. Biodeter. Bull.*  
20(4):229-36.
- Plastics. Polyurethane. Fungi.  
1220. Pathirana, R.A. and K.J. Seal. (1985).  
Studies on polyurethane deteriorating  
fungi. Part 3. Physico-mechanical and  
weight changes during fungal deteriora-  
tion. *Internat. Biodeter. Bull.* 21(1):41-9.
- Plastics. Polyurethane. Fungi. Chemical  
changes.  
1221. Pathirana, R.A. and K.J. Seal. (1985).  
Studies on polyurethane deteriorating  
fungi. Part 4. A note on the spectro-  
chemical changes during fungal  
deterioration. *Internat. Biodeter. Bull.*  
21(2):123-5.
- Insects. Low Humidity. Rocky Mountains  
Museum.  
1222. Patterson, C. (1984). Insects plague  
Rocky Mountain / High Plains Museums  
despite low humidity. *Conservation News*.  
2(1):7.
- Fungicides. Paint.  
1223. Pauli, O. (1972). Paint fungicides — a  
review. *Biodeterioration of Materials*. Vol.  
2. A.H. Walters and E.H. Hueck-van der  
Plas, eds. John Wiley and Sons. New York.  
355-9.
- Biocides. Formaldehyde.  
1224. Paulus, W. (1978). Formaldehyde  
releasing compounds and their utility as  
microbiocides. *Biodeterioration. Proceed-*  
*ings of the Fourth International*  
*Symposium*. Berlin. T.A. Oxley, D.  
Allsopp and G. Becker, eds. Pitman and  
The Biodeterioration Society. London  
307-14.

- Biocides, Phenolic compounds.**  
 1225. Paulus, W. and H. Genth. (1983). Microbicidal phenolic compounds — A critical examination. *Biodeterioration* 5. T.A. Oxley and S. Barry, eds. John Wiley and Sons. New York. 701-12.
- Gamma radiation, Fungicides, Paper.**  
 1226. Pavon-Flores, S.C. (1975). Gamma radiation as a fungicide and its effect on paper. *Bull. AIC*. 16(1):15-44.
- Leather, Archaeological, Conservation.**  
 1227. Peacock, E.E. (1984). Mass re-conservation of archaeological leather: A case study. 7th Triennial Meeting. Copenhagen. Preprints. ICOM. Paris. 84/18.
- Wall paintings, Egypt.**  
 1228. Pearce, G. (1969). The conservation of wall paintings in Tomb 35 at Dra Abu el-Naga. *Expedition*. 11:38-43.
- Conservation, Surface coatings.**  
 1229. Pearson, C. (1974). The use of surface coatings in the conservation of cultural material. *Australia OCCA Proc. and News*. 11(6):10-12.
- Biocides, Marine environment, Testing, Techniques, Paints.**  
 1230. Pearson, C.R. (1968). Some factors affecting the underwater testing of weed-resisting anti-fouling paints. *Biodeterioration of Materials*. A.H. Walters and J.J. Elphick, eds. Elsevier. Amsterdam. 610-16.
- Wood, Conservation, Preservation.**  
 1231. Peralta, P. (1982). Wood preservation. *SPAFA Digest*. 3(1):18-23.
- Stained glass.**  
 1232. Perez Y Jorba, M. (1981). Deterioration of stained glass by atmospheric corrosion and by micro-organisms. *Conservation and Preservation of Stained Glass*, International Congress. ICOMOS. Central Research Laboratory for Objects of Art. Amsterdam. 96-8.
- Glass, SEM.**  
 1233. Perez Y Jorba, M. J.P. Dallas, R. Collongues, B.C. Bahezre and J.C. Martin. (1978). Study on the alteration of ancient stained glass windows using scanning electron microscopy and microprobe (Fr.). *Silicates Industriels*. 43(4-5):89-99.
- Stained glass.**  
 1234. Perez Y Jorba, M., J.P. Dallas, B.C. Bahezre and J.C. Martin. (1980). Deterioration of stained glass by atmospheric corrosion and micro-organisms. *J. Material Sci.* 15(7): 1640-47.
- Concrete, Plaster.**  
 1235. Perrichet, A. (1984). Development de microorganismes a la surface des betons et enduits. *Materiaux et Constructions*. 17(98):173-7.
- Stone, Fungi, Metals, Biotransfer.**  
 1236. Petersen, K., G. Grote and W.E. Krumbein. (1988). Biotransfer of metals by fungi isolated from rock. VIth International Congress on Deterioration and Conservation of Stone. Supplement. Nicholas Copernicus University. Press Department. Torun. 111-19.
- Stone, Sandstone, Fungi, SEM, Manganese, Acid production, Distribution.**  
 1237. Petersen, K., J. Kuroczkin, A.B. Strelczyk and W.E. Krumbein. (1988). Distribution and effects of fungi on and in sandstone. *Biodeterioration* 7. D.R. Houghton, R.N. Smith and H.O.W. Egging, eds. Elsevier. New York. 123-8.
- Archaeology, Marine environments.**  
 1238. Peterson, M.L. (1972). Materials from post-fifteenth century sites. *Underwater Archaeology. A Nascent Discipline. Museums and Monuments*, N. 13. UNESCO. Paris. 243-9.
- Fluorescence, Biomass assessment, Methods, Paper, Fungi.**  
 1239. Petrova-Zavgorodnyaya, A.P. and D.P. Erastov. (1959). Determination of mould contamination of paper by luminescence. *Bull. Acad. Sci. USSR. Ser. Biol.* 3:403-11.
- Wall paintings, Pigments, Lead.**  
 1240. Petushkova, J.P. and N.N. Lyalikova. (1986). Microbiological degradation of lead-containing pigments in mural paintings. *Studies in Conservation*. 31:65-9.
- Wall paintings, Conservation.**  
 1241. Philippot, P. and P. Mora. (1968). The conservation of wall paintings. *Museums and Monuments. The Conservation of Wall Paintings*. UNESCO. Paris. 11:169-89.
- Stone, Borobudur, Indonesia.**  
 1242. Picot, P. and J.P. Ragot. (1973). Etude de

- la deterioration en surface des materiaux du temple de Borobudur (Indonesie). International Symposium on the Deterioration of Building Stones. V. Romanowski, ed. Les Imprimeries Reunies de Chambéry. Chambéry. 77-88.
- Wall paintings. Algae. Algacides. Biocides. Treatment. Field trials.
1243. Pietrini, A.M. and S. Ricci. (1989). Laboratory evaluation and field trials of algacids for treatment of mural painting. International Conference on Biodeterioration of Cultural Property. Preprints. Vol. II. Nat'l. Res. Lab. Conser. Cult. Prop. Lucknow. 332-40.
- Algae. Stone.
1244. Pietrini, A.M., S. Ricci, M. Bartolini and M.R. Guilani. (1985). A reddish color alteration caused by algae on stoneworks. Vth International Congress on Deterioration and Conservation of Stone. Vol 2. G. Felix, ed. Presses Polytechniques Romandes. Lausanne. 653-63.
- Textiles. Fungicides. Biocides.
1245. Pitis, I., V. Lacatusu and F. Budulan. (1968). L'influence de certains fungicides sur les microorganismes qui se developpent sur differents materiaux textiles. National Conference of General and Applied Microbiology. Abstracts of Communications. Bucharest. Academy of the Socialist Republic of Romania. Bucharest. 192-3.
- Rubber. Protection.
1246. Pitis, O. (1971). Mycological protection of rubber for industrial products. Biodeterioration of Materials. Vol. 2. A.H. Walters and E.H. Hueck-van der Plas, eds. John Wiley and Sons. New York. 294-300.
- Paper.
1247. Plantele, H. (1978). Starke schimmelschaeden an papier. Maltechnik Restauro. 4:258-60.
- Paper, Books, Documents, Pacific.
1248. Plenderleith, H.J. (1972). Preservation of Documentary Material in the Pacific Area. A Practical Guide. Australian Government Publishing. Canberra.
- Paper, Engravings, Manuscripts, Drawings. Restoration.
1249. Plenderleith, H.J. (1936). La conservation des estampes, dessins et manuscrits. III. Deterioration et remise en etat. Mouseion. 33-4:199-226.
- Archives. Paper. Library. Protection. Biocides.
1250. Plenderleith, H.J. and D.L. Evans. (1945). The protection of archival materials. British Records Association (Technical Section) Bulletin. N. 18.
- Paper.
1251. Plochocki, K. (1970). Laminacja papierow czerpanych. Ochrona Zabytkow. 23(2):115-18.
- Paper, Books, Library, Archives, Tropics.
1252. Plumbe, W. (1958). La conservation et la protection des livres des periodiques et des journaux dans les regions tropicales. Bulletin UNESCO des Bibliotheques. 12(7):156-65.
- Stone. Deterioration factors.
1253. Pochon, J. (1968). Facteurs biologiques de l'alteration des pierres. Monumentum. Conseil International des Monuments et des Sites. Bruxelles. 2:40-51.
- Stone.
1254. Pochon, J. and C. Jaton. (1967). The role of microbiological agencies in the deterioration of stone. Chemistry and Industry. 38:1587-89.
- Stone. Deterioration factors.
1255. Pochon, J. and C. Jaton. (1968). Facteurs biologiques de l'alteration des pierres. Biodeterioration of Materials. A.H. Walters and J.J. Elphick, eds. Elsevier. Amsterdam. 258-68.
- Stone. Bacteria.
1256. Pochon, J., O. Coppier and Y.T. Tchan. (1951). Role des bactries dans certaines alterations des pierres des monuments. Chimie and Industrie. 65(4):496-500.
- Lichens, Algae, Carbonate rocks.
1257. Pomar, L., M. Esteban, X. Llimona and R. Fontarnau. (1975). Action de liquenes, algas y hangos en la telodiagenesis de las rocas carbonatadas de la zona litoral prelitoral catalan. Instituto de Investigaciones Geologicas. University de Barcelona. Barcelona. 30:83-117.
- Fungicides, Furemetamid, *Basidiomycetes*.
1258. Pommer, E. and W. Reuther. (1978). Furmetamid, a new active ingredient for the control of wood-destroying *Basidio-*

- mycetes*. Biodeterioration. Proceedings of the Fourth International Symposium. Berlin. T.A. Oxley, D. Allsopp and G. Becker, eds. Pitman and The Biodeterioration Society. London. 67-70.
- Polymers, Polyester, Polyether, Polyurethanes.  
1259 Pommer, E.H. and G. Lorenz. (1985). The behaviour of polyester and polyether polyurethanes towards micro-organisms. Biodeterioration and Biodegradation of Plastics and Polymers. Proceedings of the Biodeterioration Society. Occasional Publication N. 1. K.J. Seal, ed. The Biodeterioration Society. Kew, UK. 77-86.
- Paper, Fungi.  
1260 Poole, F.G. (1972). Fungus deterioration. Library and Archives Conservation. The Boston Athenaeum. G.M. Cunha and N.P. Tucker, eds. Boston. 61-2.
- ATP-ATPase assessment, Yeast.  
1261 Poole, R.K. and I. Salmon. (1978). The pool sizes of adenosine nucleotides in exponentially growing, stationary cultures. J. Gen. Micro. 106:153-64.
- Metals, Sulfur, Silver.  
1262 Pooley, F.D. (1982). Bacteria accumulate silver during leaching of sulphide ore minerals. Nature. 296:642-3.
- ATP assessment, Biomass, Methods, Bacteria, Identification.  
1263 Porter, K.G. and Y.S. Feig. (1980). The use of DAPI for identifying and counting aquatic microflora. Limnol. Oceanogr. 25(5):943-8.
- Nitrogen fixation, Textbook.  
1264 Postgate, J. (1987). New Studies in Biology. Nitrogen Fixation. 2nd edition. Edward Arnold. New York.
- Bacteria, Rocks, Desert.  
1265 Potts, M. and E.I. Friedman. (1981). Effects of water stress on cryptoendolithic cyanobacteria from hot desert rocks. Arch. Microbiol. 130:267-71.
- Paper, Foxing.  
1266 Press, R.E. (1976). Observations on the foxing of paper. Internat. Biodeter. Bull. 12(1):27-30.
- Wood, Fungicides, Alkylammonium.  
1267 Preston, A.F. and D.D. Nicholas. (1982). Efficacy of a series of alkylammonium compounds against wood decay fungi and termites. Wood and Fiber. 14(3):7-42.
- Insecticides, Malathion, Insects, *Tribolium*.  
1268 Price, N.R. (1984). Carboxyesterase degradation of malathion in vitro by susceptible and resistant strains of *Tribolium castaneu*. (Herbst) (Coleoptera, Tenebrionidae). Comp. Biochem. Physiol. 77(1):95-8.
- Stained glass.  
1269 Prodhomme, M. (1966). Action des microorganismes sur les surfaces vitreuses. Proceedings 7th Internat. Cong. Glass. Brussels 1965. Gordon and Breach. New York. 17:1-15.
- Insects, Infestation, Termites, Sardinia.  
1270 Prota, R. (1962). L'infestazione termiteca in Sardegna. Bollettino dell'Istituto di Patologia del Libro. 1-36.
- Wood, Methods, Spore germination, Moisture content, *Poria*.  
1271 Przybylowicz, P.R. and M.E. Cordon. (1986). In situ observations on the influence of wood moisture content and temperature on spore germination and wood colonization by *Poria carbonica*. Phytopathology. 76(2):212-14.
- Fungi, In biodeterioration.  
1272 Pugh, G.J.F. (1971). Fungi of importance in biodeterioration. Internat. Biodeter. Bull. 7(1).
- Fungi, Testing methods.  
1273 Pugh, G.J.F. (1981). Methods of testing for fungi. Laboratory Practice. 31(6):569-72.
- Wall paintings, Plaster, Treatment.  
1274 Pye, E.M. (1984). The treatment of excavated fragmentary wall plaster. International Symposium on the Conservation and Restoration of Cultural Property. Preprints. Y. Emoto and S. Miura, eds. Tokyo National Research Institute of Cultural Properties. Tokyo. 179-95.
- Vellum, Manuscript, Conservation.  
1275 Quandt, A.B. (1986). The conservation of a 12th century illuminated manuscript on vellum. Preprints. Fourteenth Annual Meeting of the American Institute for Conservation. Washington, DC. 97-113.
- Textiles, Fungistats, Cadmium salts.  
1276 Quesnel, L.B. (1968). The anti-microbial

- and rot-proofing properties of cotton textiles comprising the cadmium salts of modified cellulose. *Biodeterioration of Materials*. A.H. Walters and J.J. Elphick. Elsevier. Amsterdam. 333-55.
- Wood, Soil.**  
1277 Radtke, D. (1984). Quelques aspects des premiers stades de la colonisation par les microorganismes des bois de Groupe de travail no.2. Les transformations physico-mecaniques. Sous-groupe 2.5 — Preservation. Colloque Sciences et Industries du Bois. Grenoble du Sept., 1982. Paris, France.
- Wall paintings**  
1278 Radulescu, M. (1980). Intervention de moldovita 1974-1975-1976. Aspects interdisciplinaires de la methodologie utilisee. Colloque sur la conservation et la restauration des peintures murales. Suceava, Roumanie, juillet 1977. Edition finale Conseil de la Culture et de l'Education Socialiste. Bucuresti. 26-34.
- Radiation, Art objects.**  
1279 Ramiere, R. (1981). Protection de l'environnement culturel par les techniques nucleaires. Centre d'Etudes Nucleaires. Grenoble
- Wood, Gamma radiation.**  
1280 Ramiere, R. (1989). Les principes generaux de la desinfection par irradiation gamma. Application a la desinfection des objets en bois. Patrimoine culturel et alterations biologiques. Poitiers, 17 et 18 novembre 1988. Section Francaise de l'Institut Internat. de Conser. S.L. 71-89.
- Wood, Marine borer.**  
1281 Rananand, A., W. Yoosukh and U. Sittiphuprasert. (1984). Report on marine borer attack on some timbers treated with CCA wood preservative and exposed for three months in sea-water. International Research Group on Wood Preservation. Stockholm.
- Microbes, Plants, Stone, Wood.**  
1282 Rands, D.G., J.S. Davis and L.R. Arana. (1984). Chemical and biological processes in coquina of Castillo de San Marcos National Monument. *Schweizersche Zeitschrift fuer Hydrologie*. 46:109-16.
- Textiles, Preservation.**  
1283 Raschle, P. (1983). A contribution to the examination of the rot resistance of textiles. *Internat. Biodeter. Bull.* 19(1):13-17.
- Wall paintings, Biocides, Switzerland.**  
1284 Raschle, P. (1983). Experience of combating moulds during restoration of ceiling paintings in a Swiss baroque monastery church. *Biodeterioration* 5. T.A. Oxley and S. Barry, eds. John Wiley and Sons. New York. 427-33.
- Textiles, Testing.**  
1285 Raschle, P. (1989). Microbial influence on cellulosic textiles and microbiological testing. *International Biodeterioration. Special Issue: Biodeterioration 7. Part Two*. D.R. Houghton, R.N. Smith and H.O.W. Eggins, eds. Elsevier. London. 25(1-3): 237-44.
- Colonization, Inert surfaces.**  
1286 Rasmussen, R.A., R.S. Hutton and R.J. Garner. (1968). Factors in establishing microbial populations on biologically inert surfaces. *Biodeterioration of Materials*. A.H. Walters and J.J. Elphick, eds. Elsevier. Amsterdam. 79-98.
- Wood, Stone, Plants**  
1287 Rastrick, A. and G.L. Gilbert. (1963). Malham Tarn House: Its building materials, their weathering and colonization by plants. *Field Studies*. 1:89-115.
- Insects, Heat, Moth, *Tinoela*.**  
1288 Rawle, S.G. (1961). The effects of high temperatures on the common clothes moth, *Tineola bisselliella* (Humm). *Bull. Entomol. Res.* 42:29-40.
- Leather, Biocides.**  
1289 Razdan, M. and H.S. Chhatpar. (1989). Biochemical aspects of biodeterioration on leather and its control. *International Conference on Biodeterioration of Cultural Property. Preprints. Vol. I. Natl. Res. Lab. Conser. Cult. Prop. Lucknow.* 67-80.
- Insects, *Eurphryum*.**  
1290 Read, R.W.J. (1984). *Eurphryum confine* (Broun) (Col. Curculionidae) in Cumbria. *Entomol. Monthly Mag. N.* 120.
- Textiles, Insects, Biocides.**  
1291 Reagan, B. (1982). Eradication of insects from wool textiles *JAIC*. 21(2):1-34.

Stone, Pavia, Italy.

- 1292 Realini, M., C. Sorlini and M. Bassi. (1985). The Certosa of Pavia: A case of biodeterioration. Vth International Congress on Deterioration and Conservation of Stone. Proceedings. Vol. 2. G. Felix, ed. Presses Polytechniques Romandes. Lausanne. 627-32.

Wall paintings

- 1293 Rebrikova, N.L. (1989). Some ecological aspects of protection of old Russian wall paintings from microbiological deterioration. International Conference on Biodeterioration of Cultural Property. Nat'l. Res. Lab. Conser. Cult. Prop. Lucknow. 25-37.

Textiles, Biocides, Museums.

- 1294 Rebrikova, N.L. (1978). A study of microflora of museum textiles and methods of their disinfection and prophylaxis. Committee for Conservation. 5th Triennial Meeting. ICOM. Paris.

Wall paintings, Fungi, Frescoes.

Museum objects.

- 1295 Rebrikova, N.L. (1984). Isolation and investigation techniques of microscopic biodestroyer fungi developing on fresco painting and other museum objects. 7th Triennial Meeting. Preprints. ICOM. Paris. 15:20-1.

Parchment, SEM.

- 1296 Rebrikova, N.L. and P.Y. Muldiysrov. (1983). Electron microscopy of parchment. Restaurator. 5(3-4):183-90.

Textiles, Fungi.

- 1297 Rebrivoka, N.L. and T.P. Sizova. (1975). Fungi growing on textiles in museum depositories. Mycol. Phytopath. 9(3): 207-14.

Wood, Insects, India, *Stromatium*.

- 1298 Reddy, M.V. (1983). Note on *Stromatium barbatum* Fabricus (Col. Cerambycidae) a serious pest of woodworks in north-eastern India. Material und Organismen. 18(3):215-18.

Fungi, Wood, Textile, *Melanotus*.

- 1299 Redhead, S.A. and P. Kroeger. (1984). *Melanotus textilis*, a new fabric-inhabiting and wood-inhabiting North American agaric. Mycologia. 76(5):868-72.

Wood, Insect control, Pakistan.

- 1300 Rehmat Ullah, C. (1983). Preservation of

wooden cultural properties in Pakistan with special reference to pest control. The Conservation of Wooden Cultural Property. National Research Institute of Cultural Properties. Tokyo. 189-98.

Wood, Concrete, Plastics, Polymers, Biocides, Alternate control methods.

- 1301 Relini, G. (1988). The state of the art in the protection of marine structures from biodeterioration. Biodeterioration 7. D.R. Houghton, R.N. Smith and H.O.W. Eggins, eds. Elsevier. New York. 292-304.

Wood, Decay resistance, Conifers.

- 1302 Rennerfelt, E. (1956). The natural resistance to decay of certain conifers. Saertrykaf FRIESIA. 3-5:361-5.

Fumigation.

- 1303 Renshaw-Beauchamp, R.B. (1978). Fumigation. ICOM. Paris.

Insects, *Calotermes*.

- 1304 Rescia, G. (1959). L'azione dell'isomero delta dell'esaclorocicloesano su *Calotermes flavicollis* Fabricius. Bollettino dell'Istituto di Patologia del Libro. 3-4: 166-73.

Insects, Termites, *Rivista*.

- 1305 Rescia, G. (1960). *Rivista sintetica*. Discussion e sul metabolismo delle termiti. Bollettino dell'Istituto di Patologia del Libro. 1-2:8-25.

Insects, *Reticulotermes*.

- 1306 Rescia, G. (1961). Il *Reticulotermes lucifugus* r. A la maddalena. Bollettino dell'Istituto di Patologia del Libro. 27-35.

Paper, Ethylene oxide.

- 1307 Residori, L. and P. Ronci. (1986). A preliminary study in the use of ethylene oxide in the sterilisation and disinfestation of books and documents. New directions in paper conservation. 10th anniversary conference of the institute of paper conservation. 14-18 April 1986. Oxford. Institute of Paper Conservation. Leigh, UK. 14-15.

Sterilization, Biocides, Effectiveness.

- 1308 Reybrouck, G. (1982). The evaluation of the antimicrobial activity of disinfectants. In: Principles and Practices of Disinfection, Preservation and Sterilisation. A.D. Russell, W.B. Hugo and G.A.J. Ayliffe, eds. Blackwell Scientific. St. Louis. 134-57.

## Wood, Insects.

- 1309 Reygaerts, J. (1978). Attaque du bois de charpente par des insectes. *Revue du Centre Scientifique et Technique de la Construction*. 45-8.

## Plaster, Algae.

- 1310 Ricci, S., A.M. Pietrini and M.R. Giuliani. (1985). Il ruolo delle microalghe nel degrado biologico degli intonaci. *Plasterwork: History, Culture and Technology*. G. Biscontin, ed. Libreria Progetto Editore, Padova. 6-7, 53-61.

## Glass, Fungi.

- 1311 Richards, O. (1949). Some fungus contaminants of optical instruments. *J. Bacteriology*. 58:453-5.

## Insects, Textbook.

- 1312 Richards, O.W. and R.G. Davies. (1977). *IMMS' General Textbook of Entomology*. Vol. 2. Classification and Biology. Chapman and Hall, London.

## SEM, Biofilms, Techniques.

- 1313 Richards, S.R. and R.J. Turner. (1984). A comparative study of techniques for the examination of biofilms by scanning electron microscopy. *Water Res.* 18(6): 767-73.

## Masonry, Building materials, Concrete.

- 1314 Richardson, B. (1985). Conservation of masonry. *Building Appraisal, Maintenance and Preservation*. Proceedings of a 3-Day Symposium held at the University of Bath. Department of Architecture and Building Engineering, Bath. 141-5.

## Wood, Stone.

- 1315 Richardson, B.A. (1970). Biological deterioration of ancient buildings. *Conservation of Wooden Objects*, 2nd edition. Vol. 2. IIC. London. 63-7.

## Biocides, Stone.

- 1316 Richardson, B.A. (1976). Control of moss, lichen and algae on stone. *The Conservation of Stone I*. Proceedings of the International Symposium, Bologna, 19-21 June, 1975. R. Rossi-Manaresi, ed. Centro per la Conservazione delle Sculture all'Aperto Bologna. 225-31.

## Biocides, Stone.

- 1317 Richardson, B.A. (1973). Control of biological growths. *Stone Industries*. 8(2):1-6.

## Biocides, Organometals.

- 1318 Richardson, B.A. (1968). Action mechanisms of some organometallic preservatives. *Biodeterioration of Materials*. A.H. Walters and J.J. Elphick, eds. Elsevier, Amsterdam. 498-505.

## Stone, Concrete, Biocides, Control, Borates, Quaternary ammonium, Tri-n-butyltin

- 1319 Richardson, B.A. (1988). Control of microbial growth on stone and concrete. *Biodeterioration 7*. D.R. Houghton, R.N. Smith and H.O.W. Egging, eds. Elsevier, New York. 101-6.

## Wood, Preservation, Biocides.

- 1320 Richardson, B.A. (1982). Preservation in specialised areas. *Wood, Principles and Practices of Disinfection, Preservation and Sterilisation*. A.D. Russell, W.B. Hugo and G.A.J. Ayliffe, eds. Blackwell Scientific, St. Louis. 403-29.

## Moss, Biology.

- 1321 Richardson, D.H.S. (1981). *The Biology of Mosses*. Blackwells, London.

## Paints, Sealers, Biocides.

- 1322 Richardson, J.H. (1957). Use of antimicrobial paints and sealers in the dairy industry. *Journal of Dairy Science*. 40(12):1628-9.

## Stone.

- 1323 Richardson, S.A. (1973). The practical aspect of stone deterioration in buildings. *International Symposium on the Deterioration of Building Stones, V*. Romanowski, ed. Les Imprimeries Reunies de Chambéry, Chambéry. 201-4.

## Stone, Weathering, Tropics.

- 1324 Riederer, J. (1986). Protection from weathering of building stone in tropical countries. Preprints. *Case Studies in the Conservation of Stone and Wall Paintings*. N.S. Brommelle and P. Small, eds. IIC. London. 151-4.

## Stone.

- 1325 Riederer, J. (1973). No destruction of stone by air pollution. *International Symposium on the Deterioration of Building Stones*. Les Imprimeries Reunies de Chambéry, Chambéry. 119-24.

## Stone, Tropics, Restoration.

- 1326 Riederer, J. (1984). The restoration of archaeological monuments in the tropical

- climate. Proceedings. 7th Triennial Meeting. ICOM Committee for Conservation. Paris. 84/10/21-84/1.
- Stone, Preservation, Sri Lanka.  
1327 Riederer, J. (1981). The preservation of historical monuments in Sri Lanka. The Conservation of Stone. II. R. Rossi-Manaresi, ed. Bologna. 737-57.
- Bacteria, Strain histories, Culture properties.  
1328 Rippka, R., J. Deruelles, J.B. Waterbury, M. Herdman and R.G. Stanier. (1979). Generic assignments, strain histories and properties of pure cultures of cyanobacteria. Gen. Microbiol. 111:1-61.
- Bacteria, Adhesion, Plants  
1329 Robins, R.J., D.O. Hall, D.J. Shi, R.J. Turner and M.J.C. Rhodes. (1986). Mucilage acts to adhere cyanobacteria and cultured plant cells to biological and inert surfaces. Microbiol. Letters. 34:155-60.
- Wood, Control, *Coleoptera*.  
1330 Robinson, W.. (1988). Biology and control of wood-infesting *Coleoptera*. A Guide to Museum Pest Control. L.A. Zycherman and J.R. Schrock, eds. Foundn. American Inst. Conser. Hist. Prop. Washington, DC. 99-107.
- Stone, Belgium, Limestone, Maastricht.  
1331 Roekens, E., L. Leysen, E. Stulens, J. Philippaerts, R. Van Grieken and G. De Geyter. (1988). Weathering of Maastricht lime stone used in the construction of historical buildings in Limburg, Belgium. Vth International Congress on Deterioration and Conservation of Stone. J. Ciabach, ed. Nicholas Copernicus University. Press Department. Torun. 45-56.
- Fumigant, Biocide.  
1332 Rohrllich, M. and F. Meuser. (1967). Experiments on cereals gas-treated with hydrogen phosphide. (Eng. Trans.) 1st Report: On the activity of glutamic acid decarboxylase after gas treatment. Getreide und Mehl. 17:1-12.
- Fumigant, Biocide.  
1333 Rohrllich, M. and F. Meuser. (1969). Experiments on cereals gas-treated with hydrogen phosphide. 2nd Report. Technological aspects of the gas treatment with Phosphine toxin pellets. Getreide und Mehl. 19:1-15.
- Fumigant, Biocide.  
1334 Rohrllich, M. and F. Meuser. (1970). Untersuchungen an mit Phosphorwasserstoff begastem Getreide. III. Mitteilung: Biochemische aspekte der Phosphinbegasung. Getreide und Mehl. 1(1-2):1-32.
- Fumigant, Biocide.  
1335 Rohrllich, M. and F. Meuser. (1969). Untersuchungen an mit Phosphorwasserstoff begastem. Sonderdruck aus Getreide und Mehl. 19(2):9-14.
- Insects, Biocides, Insecticides, Techniques, Methods, Treatment.  
1336 Rojas Hernandez, N.M., P. Martinez Outerino and C.M. Cano Rodriquez. (2/89). Determinacion de concentracion minima fungicida del propoleo sobre hongos contaminantes en obras de arte. Documentos. Centro Nacio nal de Conservacion, Restauracion y Museologia. Ministerio de Cultura. Havana, Cuba. 28-43.
- Fungi, Art objects, Treatment, Problems.  
1337 Rojas, N.M., P. Martinez and C. Cano. (1987). El propoleo como inhibidor de l'crecimiento de los hongos causantes del biodeterioro de obras de arte. Documentos. Grupo de In formacion Esfera de las Artes Visuales. La Microbiologia en el Arte. Centro Nacional de Conservacion, Restauracion y Museologia. Ministerio de Cultura. Havana, Cuba. 9/87:1-17.
- Wood, Control.  
1338 Romeis, M. and D. Dirol. (1983). Mesures de la reprise d'humidite du bois. Applications. Estimation de la protection hydrofuge du bois de bout. Variations d'absorption d'humidite dans Courierier de l'Industriel du Bois et de l'Ameublement, France. (46):11.
- Fumigant, Anoxants, Carbon dioxide, Insects.  
1339 Ronai, K.S. and E. Jay. (1982). Experimental studies on using carbon dioxide to replace conventional fumigants in bulk flour shipments. Bull. Assoc. Operative Millers. 395:4-8.
- Metals, Steel.  
1340 Rosenquist, T. (1961). Subsoil corrosion of steel. Norwegian Geotechnical Institute. Oslo. N. 42.
- Paint, Paint films.  
1341 Ross, R.T., S.B. Sladen and L.A.

- Wienert. (1968). Biodeterioration of paint and paint films. Biodeterioration of Materials. A.H. Walters and J.J. Elphick, eds. Elsevier. Amsterdam. 317-25.
- Stone, Porous. Conservation, Deteriorations.  
1342 Rossi Manaresi, R. (1987). Pietre porose: Alterazione e conservazione. Materiali Lapidei: Problemi Relativi allo Studio del Degrado e della Conservazione (Vol. 2). Bollettino d'arte — Supplementi. Istituto Poligrafico dello Stato. Rome. 41:133-44.
- Biocides, Triazine, Cutting fluids.  
1343 Rossmoore, H.W., J.D. Mare and T.H.F. Smith. (1972). Anti-and pro-microbial activity of hexahydro 1, 3, 5 tris (2-hydroxyethyl). S-triazine in cutting fluid emulsion. Biodeterioration of Materials. Vol. 2. A.H. Walters and E.H. Hueck-Vander Plas, eds. Applied Science. London. 286-93.
- Insects, *Trametes*, West Bengal.  
1344 Roy, A. (1987). Cultural characters and mating system of *Trametes lactinea* (Polyporaceae) from West Bengal. Nova Hedwigia. 44(1):121-4.
- Fumigation.  
1345 Ruddick, J.N.R. (1983). Fumigation as a remedial treatment: A review of North American literature. International Research Group on Wood Preservation. Stockholm.
- Sterilization, Temperature, Humidity, Factors.  
1346 Russell, A.D. (1982). Factors influencing the efficacy of antimicrobial agents. Principles and Practices of Disinfection, Preservation and Sterilisation. A.D. Russell, W.B. Hugo and G.A.J. Ayliffe, eds. Blackwell Scientific. St. Louis. 107-33.
- Biocides, UV.  
1347 Russell, A.D. (1982). Radiation sterilisation. Ultraviolet light. In: Principles and Practices of Disinfection, Preservation and Sterilisation. A.D. Russell, W.B. Hugo and G.A.J. Ayliffe, eds. Blackwell Scientific. St. Louis. 534-47.
- Biocides, Building materials.  
1348 Russell, A.D., W.B. Hugo and G.A.J. Ayliffe. (1982). Preservation in the construction industry. Principles and Practices of Disinfection, Preservation and Sterilisation. A.D. Russell, W.B. Hugo and G.A.J. Ayliffe, eds. Blackwell Scientific. St. Louis. 379-402.
- Leather. Treatments.  
1349 Russell, A.E. (1977). Antiseptic preservation studies. Journal of the Society of Leather Technologists and Chemists. 61:78-84.
- Wood, Biocides, Pyrethroid loss.  
1350 Rutherford, D., R.C. Realy and M.G. Ford. (1983). Loss of pyrethroids from treated wood. Biodeterioration 5. T.A. Oxley and S. Barry, eds. John Wiley and Sons. New York. 144-53.
- Stone, Indonesia.  
1351 Sadirin, H. (1988). The deterioration and conservation of stone historical monuments in Indonesia. VIth International Congress on Deterioration and Conservation of Stone. J. Ciabach, ed. Nicholas Copernicus University. Press Department. Torun. 722-31.
- Paper, Adhesives resistance to biodeterioration.  
1352 Sadurska, I. and R. Kowalik. (1975). Some tests upon microbioresistance of adhesives used in archives and library materials conservation. ICOM Committee for Conservation. 4th Triennial Meeting. Preprints. Paris. 10.
- Paper, Fungi.  
1353 Sadurska, I. and R. Kowalik. (1968). Fungi preventive for archival papers. Bollettino dell'Istituto di Patologia del Libro. 27(1-2):37-47.
- Stone, Sulfur bacteria.  
1354 Sadurska, I. and R. Kowalik. (1966). Experiments on control of sulphur bacteria active in biological corrosion of stone. Acta Microbiologica Polonica. 15:199-202.
- Stone.  
1355 Sadurska, I. and R. Kowalik. (1972). Mikrobiologiczny rozklad materialow archiwalnych. Archeion. 57:27-52.
- Textiles, Biocides, Preservation, Control.  
1356 Sagar, B.F. (1988). Biodeterioration of textile materials and textile preservation. Biodeterioration 7. D.R. Houghton, R.N. Smith and H.O.W. Eggins, eds. Elsevier. New York. 683-702.

## Biocides, Herbicides, Search for new.

1357 Sagers, D.T. (1976). The search for new herbicides. *Herbicides*. Vol 2. L.J. Audus, ed. Academic Press. New York. 447-73.

## Insects, Control, Museums.

1358 Sahai, Y. (1967). Insect control in the museum. *Conservation of Cultural Property in India*. Proceedings. O.P. Agrawal, ed. Indian Association for the Study of Conservation. New Delhi. 82-9.

## Stone, Limestone.

1359 Saiz-Jimenez, C. (1985). Weathering and colonization of limestone in an urban environment. *Soil Biology and Conservation of the Biosphere*. Vol 2. J. Szegi, ed. Akademiai Kiado. Budapest. 757-67.

## Stone, Lichens.

1360 Saiz-Jimenez, C. (1981). Weathering of building materials of the Giralda (Seville, Spain) by lichens. ICOM Committee for Conservation. 6th Triennial Meeting. Preprints. Paris. 1-9.

## Wall paintings, Frescoes, Huelva, Spain.

1361 Saiz-Jimenez, C. and R.A. Samson. (1981). Microorganisms and environmental pollution as deteriorating agents of the frescoes of the monastery of Santa Maria de la Rabida, Huelva, Spain. ICOM Committee for Conservation. 6th Triennial Meeting. Preprints. Paris. 84/15/20-1.

## Mosaics, Roman, Spain, Stone.

1362 Saiz-Jimenez, C., J. Garcia-Rowe and J.M. Rodriguez-Hildago. (1991). Biodeterioration of polychrome Roman mosaics. *International Biodeterioration*. Special Issue: Biodeterioration of Cultural Property. R.J. Koestler, Elsevier. London. ed. 28: 65-79.

## Insects, Freezing.

1363 Salt, R.W. (1970). Analysis of insect freezing temperature distributions. *Can. J. Zool.* 48(2):205-8.

## Stone, Lichens, Oxalates, Venice.

1364 Salvadori, O. and A. Zitelli. (1981). Monohydrate and dihydrate calcium oxalate in living lichen incrustations biodeteriorating marble columns of the basilica of Santa Maria Assunta on the island of Torcello (Venice). *The Conservation of Stone*. II. Preprints. R. Rossi-Manaresi, ed. Centro per la Conservazione delle Sculture all'Aperto. Bologna. 379-90.

## Polymers, Consolidants, Paraloid B72, Silanes, Epoxy, Fromblin, Siloxane.

1365 Salvadori, O. and M.P. Nugari. (1988). The effect of microbial growth on synthetic polymers used on works of art. *Biodeterioration* 7. D.R. Houghton, R.N. Smith and H.O.W. Egging, eds. Elsevier. New York. 424-7.

## Paper, Treatment, Microbiology.

1366 Samborn, J.R. (1933). Development and control of microorganisms in pulp and paper systems. *J. Bact.* 25:

## Stones, Biocides, Borobudur.

1367 Samidi, S. (1981). How to control the organic growth on Borobudur stones after the restoration. *The Conservation of Stone*. II. Preprints. R. Rossi-Manaresi, ed. Centro per la Conservazione delle Sculture all'Aperto Bologna. 759-68.

## Stone, Conservation, Indonesia.

1368 Samidi, S. (1983). Conservation of historical and archaeological monuments in Indonesia. Consultative Workshop on Restoration of Ancient Monuments (I-W8). SEAMEO Project in Archaeology and Fine Arts. Bangkok. 129-48.

## Frescoes, Fungi, Florence.

1369 Sampo, S. and M. Luppi Mosca. (1989). A study on the fungi occurring on 15th century frescoes in Florence, Italy. *Internat. Biodeter.* 25(5):343-53.

Fungi, *Aspergillus*.

1370 Sampson, R.A. (1979). A compilation of the *Aspergilli* described since 1965. *Studies in Mycology*. 18:

Concrete, Sewages systems, Sulfuric acid production, Bacteria, *Thiobacillus*.

1371 Sand, W. and E. Bock. (1988). Biogenic sulphuric acid attack in sewage systems. *Biodeterioration* 7. D.R. Houghton, R.N. Smith and H.O.W. Egging, eds. Elsevier. New York. 113-17.

## Stone, Factors in deterioration.

1372 Sanpaolesi, P. (1972). Factors contributing to the deterioration of monuments. *Preserving and Restoring Monuments and Historic Buildings, Museums and Monuments*. N. 14. UNESCO. Paris. 109-47.

## Wood, Marine borers.

1373 Santhankumaran, L.N. (1978). Response of wood-boring and fouling organisms to

- preservative treated timber exposed in the Trondheimsfjord (western Norway). Biodeterioration. Proceedings of the Fourth International Symposium, Berlin. T.A. Oxley, D. Allsopp and G. Becker, eds. Pitman and The Biodeterioration Society. London. 205-11.
- Wood, Marine borers, *Xylophaga*.  
1374 Santhankumaran, L.N. (1978). Some observations on the wood-boring pholads, *Xylophaga dorsalis* and *X. praestans* from the Trondheimsfjord. Biodeterioration. Proceedings of the Fourth International Symposium, Berlin. T.A. Oxley, D. Allsopp and G. Becker, eds. Pitman and The Biodeterioration Society. London. 213-19.
- Polymers, Resins, Consolidants.  
Testing methods.  
1375 Santoro, E.D. and R.J. Koestler. (1991). A methodology for biodeterioration testing of polymers and resins. International Biodeterioration. Special Issue: Biodeterioration of Cultural Property. R.J. Koestler, ed. Elsevier. London. 28: 81-90.
- Wood, Indonesia.  
1376 Santoso, D. (1983). Problems on the conservation of wooden structures in Indonesia. Conservation and Restoration of Cultural Property: The conservation of Wooden Cultural Property. National Research Institute of Cultural Properties. Tokyo. 121-32.
- Conservation, Methods.  
1377 Santucci, L. (1961). The application of chemical and physical methods to conservation of archival materials. Recent Advances in Conservation. Contributions to the IIC Rome Conference. G. Thomson, ed. Butterworths. London. 39-47.
- Wood, Nepal.  
1378 Sapkota, U.N. (1983). Wooden objects of Nepal. Conservation and Restoration of Cultural Property: The Conservation of Wooden Cultural Property. National Research Institute of Cultural Properties. Tokyo. 277-85.
- Wood, Insects, Control, Biocides.  
1379 Sarkar, N.N. (1989). Deterioration of library materials by insects and rodents and their control. International Conference on Biodeterioration of Cultural Property. Vol. II. Preprints. Nat'l. Res. Lab. Conser. Cult. Prop. Lucknow. 292-308.
- Wood, Fungi.  
1380 Savory, J.G. (1968). Microbial attack of timber and allied constructional materials. Biodeterioration of Materials. A.H. Walters and J.J. Elphick, eds. Elsevier. Amsterdam. 403-7.
- Wood, Preventative measures.  
1381 Savory, J.G. (1972). Prevention of staining in packaged Baltic redwood during shipment and storage. Biodeterioration of Materials. Vol. 2. Proceedings. A.H. Walters and E. H. Hueck-Van der Plas, eds. Applied Science. London. 326-9.
- Wall paintings, Frescoes, Fungi.  
1382 Savulescu, A. and I. Ionita. (1971). Contributions to the study of the biodeterioration of the works of art and historic monuments. I. Species of fungi isolated from frescoes. Revue Roumaine Biologie. 16(3):201-6.
- Paper, Fungi.  
1383 Savulescu, A. and V. Lazar. (1968). The study of saprophytic fungi isolated from archives materials. National Conference of General and Applied Microbiology. Abstracts of communications. Academy of the Socialist Republic of Romania. Bucharest. 189.
- Biocides, Fungicides.  
1384 Savulescu, A., V. Lazar, N. Draghici and M. Platon. (1968). Influence of some fungicides on microorganisms causing deterioration. National Conference of General and Applied Microbiology. Abstracts of communications. Academy of the Socialist Republic of Romania. Bucharest. 191.
- Wood, Softwood, Consolidation.  
1385 Schaffer, E. (1971). Consolidation of softwood artifacts. Studies in Conservation. 16(3):110-13.
- Stone, Weathering.  
1386 Schaffer, R.J. (1972). The weathering of natural building stones. Building Research. Special Report of the Dept. of Scientific and Industrial Research. Building Report N.18. His Majesty's Stationery Office. London. 73-83.
- Wood, Insects.  
1387 Schedl, C. (1978). Pests in building timbers, their biology as well as results of infestation studies on buildings. Degesch Technical Meeting on Wood Control.

- Deutsche Gesellschaft fuer Schaedlings-  
bekaempfung. S.L. 18-25.
- Wood, Preventative treatments.  
1388 Scheffer, T.C. and A.F. Verrall. (1973).  
Principles for protecting wood building  
from decay. US Department of Agriculture,  
Forest Service Research Paper FPL 190.  
Forest Products Laboratory, Madison,  
WI.
- Algae, Ireland.  
1389 Schlichting, H.E. (1975). Some subaerial  
algae from Ireland. *British Phycolo. J.*  
10:257-61.
- Wood, Cellulose, Lignin, Bacteria.  
1390 Schmidt, O. (1978). Laboratory  
experiments on the bacterial activity  
towards the woody cell wall. *Biodeterioration*.  
Proceedings of the Fourth  
International Symposium, Berlin. T.A.  
Oxley, D. Allsopp and G. Becker, eds.  
Pitman and The Biodeterioration Society,  
London. 63-6.
- Stone, Conservation, FRG.  
1391 Schmidt-Thomsen, K. (1974). Conserva-  
tion in Stone. The Conservation of  
Historical Monuments in the Federal  
Republic of Germany. History, Organisa-  
tion, Tasks, Case-histories. Heinz Moos.  
Munchen. 98-9.
- Stone, Treatment, General.  
1392 Schnabel, L. (1991). The treatment of  
biological growths on stone: A  
conservator's viewpoint. *International  
Biodeterioration. Special Issue: Biodeterioration  
of Cultural Property*. R.J. Koestler,  
ed. Elsevier. London. 28:125-31.
- Wood, Archaeological.  
1393 Schniewind, A.P. (1990). Physical and  
mechanical properties of archaeological  
wood. *Advances in Chemistry Series*.  
*Archaeological Wood*. R.M. Rowell and  
R.J. Barbour, eds. American Chemical  
Society. Washington, DC. 87-109.
- Counting techniques, Photoacoustic spectro-  
scopy.  
1394 Schubert, W., *et al.* (1980). Photoacoustic  
in-vivo spectroscopy of photosynthetic  
microorganisms in pure cultures and  
microbial mats. *Die Naturwissenschaften*.  
67:129-32.
- Lichens, Culture.  
1395 Schuster, G., S. Ott and H.M. Jahns.  
(1985). Artificial cultures of lichens in the  
natural environment. *Lichenologist*.  
17(3):247-53.
- Wall paintings, Conservation.  
1396 Schwartzbaum, P.M. (1983). Technical  
assistance. Conservation of mural  
paintings. Department of Fine Arts,  
Thailand. ICCROM. Rome.
- Textiles, Franklin Expedition, Burial.  
1397 Schweger, B.S. and N. Kerr. (1987).  
Textiles collected during the temporary  
exhumation of a crew member from the  
third Franklin Expedition: Finding and  
analysis. *Journal of the IIC-CG*. Ottawa.  
12:9-12.
- Wood, Air-drying.  
1398 Schweizer, F., C. Houriet and M. Mas.  
(1985). Controlled air drying of large  
Roman timber from Geneva. *Les Bois  
Gorges d'Eau: Etude et conservation*.  
Proceedings. Centre d'Etude et de  
Traitement des Bois Gorges d'Eau.  
Grenoble. 327-38.
- Foxing, Paper, Iron-staining, Siderophores.  
1399 Schwyn, B. and J.B. Neilands. (1987).  
Universal chemical assay for the detection  
and determination of siderophores. *Anal.  
Biochem.* 160:47-56.
- Paper.  
1400 Scianna, N. (1983). Indagini micro-  
biologiche e ambientali nella sala dei  
codici e nell'aula magna della biblioteca  
classense di Ravenna. *Classense:  
Bollettino della Biblioteca Comunale di  
Ravenna*. 22-31.
- General techniques of investigation.  
1401 Seal, K.J. and D. Allsopp. (1983).  
Investigative biodeterioration. *Biodeterioration  
5*. T.A. Oxley and S. Barry, eds. John  
Wiley and Sons. New York. 528-34.
- Plastics, Polyurethane.  
1402 Seal, K.J. and R.A. Pathirana. (1982).  
The microbiological susceptibility of  
polyurethanes: A review. *Internat.  
Biodeter. Bull.* 18(3):81-5.
- Lichens, Sulphur dioxide.  
1403 Seaward, M.R.D. (1979). Lichens as  
monitors of environments with decreasing  
sulphur dioxide levels. *Sulphur Emissions  
and the Environment. Proceedings. The  
Society of Chemical Industry*. London.  
255-8.

## Stone. Lichens.

- 1404 Seaward, M.R.D., C. Giacobini, M.R. Giuliani and A. Roccardi. (1989). The role of lichens in the biodeterioration of ancient monuments with particular reference to central Italy. International Biodeterioration. Special Issue: Biodeterioration 7. Part Two. D.R. Houghton, R.N. Smith and H.O.W. Egging, eds. Elsevier. London. 25(1-3):49-55.

## Wood. Bacterial nitrogen fixation.

- 1405 Seidler, R.J., P.E. Aho, P.N. Raju and H.J. Evans. (1972). Nitrogen fixation by bacterial isolates from decay in living white fir trees. J. Gen. Microbiol. 73: 413-16.

## Wood. Preservation. Japan.

- 1406 Sekino, M. (1972). The preservation and restoration of wooden monuments in Japan. Preserving and restoring monuments and historic buildings. Museums and Monuments XIV. UNESCO. Paris. 207-30.

## Paper. Wood. Cellulose degradation.

- 1407 Selby, K. (1968). Mechanisms of biodegradation of cellulose. Biodeterioration of Materials. A.H. Walters and J.J. Elphick, eds. Elsevier. Amsterdam. 62-78.

## Wall paintings. India

- 1408 Sengupta, R. (1985). Conservation and restoration of mural paintings in India. International Symposium on the Conservation and Restoration of Cultural Property. T. Suzuki and K. Masuda, eds. Tokyo National Research Institute of Cultural Properties. Tokyo. 37-54.

## Seed grains.

- 1409 Serajuddin, A.S.M. and S.O. Asaduzzaman. (1987). Biochemical evaluation of seed deterioration. Jute and Jute Fabrics (Bangladesh). 13(11):10-13.

## Wood. Treatment. Biocides.

- 1410 Serck-Dewaide, M. (1978). Disinfection and consolidation of polychrome wood at the Institut Royal du Patrimoine Artistique, Brussels. IIC Preprints of Conservation of Wood in Painting and the Decorative Arts. 81-3.

## Wood. Stone.

- 1411 Sereda, P.J. (1975). Performance of building materials. Canadian Building Digest N. 115. National Research Council of Canada. Ottawa.

## Insecticides, Biocides. Insects.

- 1412 Serment, M.M. (1977). Efficacite comparee des matieres actives insecticides entrant dans la composition des produits utilises curativement contre le capricorne des maisons et la petite vrillette. Courrier de l'Industriel du Bois et de l'Ameublement. Centre Technique du Bois. Paris. 2:1-4.

## Wood. Insects. Wood borers. Lyctus.

- 1413 Serment, M.M. (1984). Les lyctus. Dossier insectes xylopha ges. Centre Technique du Bois. Paris. 1-4.

## Wood. Termites. Insects.

- 1414 Serment, M.M. and J.J. Perlade. (1982). Repartition geographique des termites en france dans les constructions. Bulletin d'informations techniques du centre technique du bois. Centre Technique du Bois. Paris. 99:3-6.

## Wood. Insects. Wood borers.

- 1415 Serment, M.M. and O. Tourteaux. (1985). Le capricorne des maisons et l'hesperophanes cinereus villers. Dossier insectes xylopha ges. Centre Technique du Bois. Paris. 1-5.

## Wood. Insects. Wood borers.

- 1416 Serment, M.M. and O. Tourteaux. (1983). La grosse vrillette. Dossier insectes xylopha ges. Centre Technique du Bois. Paris. 1-4.

## Wood. Insects. Termites.

- 1417 Serment, M.M. and O. Tourteaux. (1984). Les termites. Dossier insectes xylopha ges. Centre Technique du Bois. Paris. 1-6.

Spores. NAD, for ATP-ATPase testing, *Bacillus*.

- 1418 Setlow B. and P. Setlow. (1977). Levels of oxidized and reduced pyridine nucleotides in dormant spores and during growth, sporulation and spore germination of *Bacillus megaterium*. J.Bacteriol. 129(2): 857-65.

## Stone. Plants.

- 1419 Shah, R.P. (1989). Growth of plants on monuments. Biodeterioration of Cultural Property. Preprints, Vol. I. Nat'l. Res. Lab. Conser. Cult. Prop. Lucknow. 150-60.

## Paper.

- 1420 Shah, S., M. Raval and H.S. Chhatpar. (1989). Studies on biodeterioration of

- papers. Biodeterioration of Cultural Property. Preprints, Vol. I. Nat'l. Res. Lab. Conser. Cult. Prop. Lucknow. 81-92.
- Paint, Insects, Biocide, *Anthrenus*.  
1421 Shaheen, G. and S. Dhawan. (1989). Natural paint product: A safe preventive measure against *Anthrenus vorax* (Coleoptera: Dermestidae). Biodeterioration of Cultural Property. Preprints, Vol. II. Nat'l. Res. Lab. Conser. Cult. Prop. Lucknow. 341-9.
- Stone, India.  
1422 Sharma, B.R.N. (1978). Stone decay in tropical conditions: Treatment of monuments at Khajuraho M.P. India. Internat. Symp. on the Deterioration and Protection of Stone Monuments. UNESCO. Paris 1-11.
- Stone, Biocides, Fungicides, India.  
1423 Sharma, B.R.N., K. Chaturvedi, N.K. Samadhia and P.N. Tailor. (1985). Biological growth removal and comparative effectiveness of fungicides from central India temples for a decade *in situ*. Vth International Congress on Deterioration and Conservation of Stone. G. Felix, ed. Presses Polytechniques Romandes. Lausanne. 675-83.
- Leather, Chrome-tanning, Biocides.  
1424 Sharma, K.D. (1989). Testing of chrome-tanned leather against biodeterioration by fungi under relative humidities. Biodeterioration of Cultural Property. Preprints, Vol. I. Nat'l. Res. Lab. Conser. Cult. Prop. Lucknow. 127-36.
- Wood, Cellulose, Hemi-cellulose, Lignin.  
1425 Sharma, M. and S. Kumar. (1982). Effect of micro-organisms on cell wall constituents of wood. The International Journal of Wood Preservation. 2:63-8.
- Leathers, Fungicides, India.  
1426 Sharma, O.P. and K.D. Sharma. (1980). Application of fungicides in control of fungal deterioration of finished leathers in India. Internat. Biodeter. Bull. 16(4):107-12.
- Wood, Techniques, Methods, Strength measurement.  
1427 Sharp, R.F. and H.O.W. Eggin (1968). A rapid strength method for determining the biodeterioration of wood. Internat. Biodeter. Bull. 4(10):63-6.
- Fungi, Wood, Soft-rot.  
1428 Sharp, R.F. and H.O.W. Eggin (1970). The ecology of soft-rot fungi. 1. Influence of pH. Internat. Biodeter. Bull. 6(2):53-64.
- Fungi, Wood, Soft-rot.  
1429 Sharp, R.F. and H.O.W. Eggin (1970). The ecology of soft-rot fungi. 2. Interaction. Internat. Biodeter. Bull. 6(2):65-74.
- Fungi, Wood, Soft-rot.  
1430 Sharp, R.F. and H.O.W. Eggin (1970). The ecology of soft-rot fungi. 3. Colonization and penetration. Internat. Biodeter. Bull. 6(2):75-80.
- Plastics, Silicone, Consolidants, Resins.  
1431 Sharp, R.F. and H.O.W. Eggin (1970). A biodeterioration appraisal of silicones. Internat. Biodeter. Bull. 6(1):19-26.
- Testing methods, *Pseudomonas*.  
1432 Sharpe, A.N. and M.N. Woodrow. (1971). A rapid test for biodegradability by *Pseudomonas* organisms. Biodeterioration of Materials. Vol. 2. A.H. Walters and E.H. Hueck-van der Plas, eds. John Wiley and Sons. New York. 233-7.
- Paper, Papermaking problems.  
1433 Sharpley, J. and M.E. King. (1971). Laboratory analysis of problems in papermakers. Biodeterioration of Materials. Vol. 2. A.H. Walters and E.H. Hueck-van der Plas, eds. John Wiley and Sons. New York. 161-7.
- Algae, Drying.  
1434 Shephard, K.L. (1987). Evaporation of water from the mucilage of a gelatinous algal community. British Phycology. J. 22:181-5.
- Plastics, Polyurethane.  
1435 Shuttleworth, W.A. and K.J. Seal. (1985). The fungal degradation of polycaprolactone polyurethane elastomers. Biodeterioration and Biodegradation of Plastics and Polymers. Proceedings of the Biodeterioration Society. Occasional Publication N. 1. K.J. Seal, ed. The Biodeterioration Society. Kew, UK. 70-6.
- Stone, *Thiobacillus*, Bacteria.  
1436 Sila, M.M. and G. Tarantino. (1981). The metabolic state of microorganisms of the genus *Thiobacillus* on stone monuments. The Conservation of Stone. II. R. Rossi-Manaresi, ed. Bologna. 117-27.

- Stone, Fungi, Mineral leaching.  
1437 Silverman, M.P. and E.F. Munoz. (1971). Fungal leaching of titanium from rock. *Appl. Microbiol.* 22(5):923-4.
- Stone, Fungi, Mineral leaching, IR.  
1438 Silverman, M.P. and E.F. Munoz. (1970). Fungal attack on rock: Solubilization and altered infrared spectra. *Science.* 169(3949):985-7.
- Lichens, Cultural property.  
1439 Singh, A. (1987). Effect of lichens on material of cultural property — need for further study. Conservation of Metals in Humid Climate. Proceedings. O.P. Agrawal, ed. ICCROM, Nat'l. Res. Lab. Conser. Cult. Prop. Lucknow. 83-7.
- Lichens, Stone, Lucknow, India.  
1440 Singh, A. and D.K. Upreti. (1989). Lichen flora of Lucknow with special reference to its historical monuments. Biodeterioration of Cultural Property. Preprints, Vol. I. Nat'l. Res. Lab. Conser. Cult. Prop. Lucknow. 161-74.
- Biocides, Insecticides, Fungicides.  
1441 Singh, I.D., S.L. Perti and R.N. Tandon. (1971). Anti-cockroach and anti-fungal surface coatings. Biodeterioration of Materials. Vol. 2. A.H. Walters and E.H. Hueck-van der Plas, eds. John Wiley and Sons. New York. 301-10
- Fungi, Collection techniques.  
1442 Singh, R.D. and O.P. Tandon. (1989). A mycological analysis of the air in the Bharat Kala Bhavan. Biodeterioration of Cultural Property. Preprints, Vol. I. Nat'l. Res. Lab. Conser. Cult. Prop. Lucknow. 55-66.
- Stone, Borobudur, Control, Biocides.  
1443 Siswiyanto, S. (1981). How to control the organic growth on Borobudur stones after the restoration. Conservation of Stone. II. R. Rossi-Manaresi, ed. Bologna. 759-68.
- Bacteria, Systematics.  
1444 Skerman, V.B.D. (1967). A Guide to the Identification of Genera of Bacteria. Williams and Wilkins Co. Baltimore, MD.
- Paint, Biocides, Methods.  
1445 Skinner, C.E. (1971). Laboratory test methods for biocidal paints. Biodeterioration of Materials. Vol. 2. A.H. Walters and E.H. Hueck-van der Plas, eds. John Wiley and Sons. New York. 346-54.
- ATP-ATPase assessment, Yeast, *Neurospora*.  
1446 Slayman C.L. (1973). Adenosine nucleotide levels in *Neurospora crassa* as influenced by conditions of growth and by metabolic inhibitors. *J. Bacteriol.* 114(2):752-66.
- ATP-ATPase assessment, Growth, *Anacystis*.  
1447 Smith R.J. (1979). Increasing guanosine 3'-diphosphate 5'-diphosphate concentration with decreasing growth rate in *Anacystis nidulans*. *J. Gen. Microbiol.* 113:403-5.
- Fungi, Preservation, Culture maintenance.  
1448 Smith, D. and H.S. Onions. (1983). Commonwealth Mycological Institute. The Preservation and Maintenance of Living Fungi. Page Brothers. Norfolk, UK.
- Lichens, Symbiosis.  
1449 Smith, D.C. (1973). The Lichen Symbiosis. Oxford University Press. London.
- Textiles, Enzymes cleaning.  
1450 Smith, L.M. (1987). Use of enzymes in textile cleaning. Preprints. The American Institute for Conservation of Historic and Artistic Works. The American Inst. Conser. Hist. Art. Works. Washington, DC. 124-31.
- Paper, Insects, Freezing temperatures.  
1451 Smith, R.D. (1984). The use of redesigned and mechanically modified commercial freezers to dry water-wetted books and exterminate insects. *Restaurator.* 6(3-4):165-90.
- Freezing temperatures, Blast freezers, Insects.  
1452 Smith, R.D. (1984). Background, use and benefits of blast freezers in the prevention and extermination of insects. Biodeterioration 6
- Libraries, Paper, Books, Guidelines, Preservation.  
1453 Smith, R.D. (1968). Guidelines for preservation. *Special Libraries.* 59(5): 346-52.
- Freezing temperatures, Insects, Paper.  
1454 Smith, R.D. (1983). The use of electrically modified commercial freezers to exterminate insects and dry water-

- wetted books. Internationaler graphischer restauratorentag. Iada. Kopenhagen. 23.
- Wood. Fungicides.**  
1455 Smith, R.N. and A.J. Ingleby. (1983). Assessment of surface-applied prophylactic fungicides in wood. *Biodeterioration* 5. T.A. Oxley and S. Barry, eds. John Wiley and Sons. New York. 135-43.
- Biocides. Evaluation.**  
1456 Smith, R.N. and K.H. Goulding. (1971). Primary and secondary evaluation of microbiocides. *Biodeterioration of Materials*. Vol. 2. A.H. Walters and E.H. Hueck-van der Plas, eds. John Wiley and Sons. New York. 238-46.
- Fungi. Growth. Inert surfaces.**  
1457 Smith, R.N. and L.M. Nadim. (1983). Fungal growth on inert surfaces. *Biodeterioration* 5. T.A. Oxley and S. Barry, eds. John Wiley and Sons. New York. 538-47.
- Fungicides. Cellulose. Benelate. Phenyl mercury acetate.**  
1458 Smith, R.N. and P.A. Long. (1980). The effect of two fungicides, benlate and phenyl mercury acetate, on a population of cellulolytic fungi and in pure culture. *Internat. Biodeter. Bull.* 16(4):119-25.
- Wood. Fungicides.**  
1459 Smith, R.S. and A.J. Cserjesi. (1983). Protection from biodeterioration of unseasoned Canadian softwood lumber during storage and shipment. *Biodeterioration* 5. T.A. Oxley and S. Barry, eds. John Wiley and Sons. New York. 97-105.
- Stone. Conservation. Tropical countries.**  
1460 Sneyers, R.V. and P.D. Henau. (1968). The conservation of stone. The conservation of cultural property with special reference to tropical conditions. *Museums and Monuments*, N. 11. UNESCO. Paris. 209-35.
- Insects. *Corrodentia*. *Coleoptera*. *Astigmata*. Treatment.**  
1461 Socarras, A.A. and J. de la Cruz. (1990). Insectos y acaros plagas de colecciones entomologicas. Documentos. Centro Nacional de Conservacion. Restauracion y Museologia. Ministerio de Cultura. Havana, Cuba. 1:54-63.
- Stone. Borobudur, Indonesia.**  
1462 Soediman. (1973). Borobudur, Indonesian cultural heritage. *Studies in Conservation*. 18:102-12.
- Stone. Metals.**  
1463 Soleilhavoup, F. (1983). Les gravures de l'age du bronze dans le parc national du Mercantour: Micro-morphologie et alterations des roches support. *Laboratoire de Prehistoire de Museum Nat. Hist. Naturelle*. Paris.
- Stone. Caves, Altamira, La Pasiega.**  
1464 Somavilla, J.F., N. Khayyat and V. Arroyo. (1978). A comparative study of the microorganisms present in the Altamira and La Pasiega caves. *Internat. Biodeter. Bull.* 14(4):103-9.
- Caves, Altamira, La Pasiega, Spain. Identification of microbes.**  
1465 Somavilla, J.F., N. Khayyat and V. Arroyo. (1978). A comparative study of the microorganisms present in the Altamira and La Pasiega Caves. *Internat. Biodeter. Bull.* 14(4):103-9.
- Cellulose. Extractives effect on. *Schizophyllum*.**  
1466 Sopko, R. (1968). Influence of extractives on cellulose and xylanase activities of *Schizophyllum commune*. *Biodeterioration of Materials*. A.H. Walters and J.J. Elphick, eds. Elsevier. Amsterdam. 571-4.
- Techniques. Mercury determination.**  
1467 Sorby, D.L. and E.M. Plein. (1960). A simplified colorimetric method for determination of mercury in biologic materials. *J. Amer. Pharmaceutical Assoc.* 49(3):160-2.
- Stone. Acid rain.**  
1468 Sorlini, C. (1984). Il deterioramento dei materiali in presenza di inquinanti acidi. Inquinamento atmosferico. Valutazione delle emissioni e loro problematiche e il problema delle deposizioni acide e loro impatto sull'ambiente. *Atti delle giornate*. E. a. fiere. Padova. 283-91.
- Frescoes. Stone.**  
1469 Sorlini, C., A.M. Ferrari and L. Allievi. (1981). Il degrado ad opera dei microorganismi di materiali da costruzione e di affreschi: Il caso del Palazzo della ragione di Milano. *La conservazione del costruito: I materiali e le tecniche*. Cooperativa Libreria Universitaria del Politecnico. Milano. 71-80.

- Stone, Microorganisms present, Milan.  
1470 Sorlini, C., L. Allievi, M. Sacchi and A. Ferrari. (1982). Microorganisms present in deteriorated materials of the Palazzo Della Ragione in Milan. *Internat. Biodeter. Bull.* 18(4):106-10.
- Wall paintings, Milan, Palazzo della Ragione.  
1471 Sorlini, C., M. Sacchi, A. Ferrari and L. Allievi. (1982). Microorganisms present in deteriorated materials of the Palazzo della Ragione, in Milan. *Internat. Biodeter.* 18(4):106-10.
- Wall paintings, Frescoes, Brescia.  
1472 Sorlini, C., M. Sacchi and A. Ferrari. (1987). Microbiological deterioration of Gambara's frescoes exposed to open air in Brescia, Italy. *Internat. Biodeter.* 23(3): 167-79.
- ATP-ATPase assessment, Biomass.  
1473 Sorokin, Y.I. and S.V. Lyutsarev. (1978). A comparative evaluation of two methods for determining the biomass of planktonic microflora. *Oceanology.* 18(2):232-6.
- Textiles, Insecticides affect on, Biocides.  
1474 Spivak, S.M., J. Worth and F.E. Wood. (1981). Assessing the effects of pesticidal chemicals on historic textiles. *Preservation of Paper and Textiles of Historic and Artistic Value II. Advances in Chemistry Series 193.* J.C. Williams, ed. American Chemical Society Washington, DC. 333-44.
- Insects, Termites.  
1475 Springhetti, A. (1957). Su alcune infestazioni di termiti nei vigneti di manduria (Puglia). *Bollettino dell'Istituto di Patologia del Libro.* 121-38.
- Insects, Termites.  
1476 Springhetti, A. (1959). Mortalita in colonie di termiti. (*C. flavicollis* e *R. lucifugus*) trattate con acqua salmastra. *Bollettino dell'Istituto di Patologia del Libro.* 1-2:81-4.
- Insects, Termites.  
1477 Springhetti, A. (1962). Il IV congresso dell'unione internazionale per lo studio degli insetti sociali e le ricerche sulle termiti. *Bollettino dell'Istituto di Patologia del Libro.* 1-2:79-84.
- Insects, Termites, Insecticides, Biocides.  
1478 Springhetti, A. (1963). Contributi allo studio delle termiti in Italia per l'impostazione razionale della lotta antitermitica. *Bollettino dell'Istituto di Patologia del Libro.* 105-22.
- Insects, Termites, *Kaloterмес*.  
1479 Springhetti, A. (1964). Appunti sulla formologia del *Kaloterмес flavicollis* Fabr. (Isoptera, Kalotermitidae). *Bollettino dell'Istituto di Patologia del Libro.* 19-38.
- Insects, Termites.  
1480 Springhetti, A. (1968). Sulla diffusione delle termiti in Campania. *Bollettino dell'Istituto di Patologia del Libro.* 1-2: 49-59.
- Insects, Termites.  
1481 Springhetti, A. (1968). L'introduzione accidentale di termiti nei paesi europei. *Bollettino dell'Istituto di Patologia del Libro.* 3-4:201-5.
- Insects, Termites, *Kaloterмес*.  
1482 Springhetti, A. (1971). Presenza del '*Kaloterмес flavicollis*' Fabr. (Isoptera) a Ferrara. *Bollettino dell'Istituto di Patologia del Libro.* 1-2:97-9.
- Insects, Termites, Lombardia.  
1483 Springhetti, A. and L. Visona. (1959). Primo reperto di termiti in Lombardia (Lodi). *Bollettino dell'Istituto di Patologia del Libro.* 85-7.
- Methods, Sulfur ratios, Bacteria, Acid rain.  
1484 Springle, W.R. and M.A. Briggs. (1982). Preservation in specialised areas. Paint and paint films. In: *Principles and Practices of Disinfection, Preservation and Sterilisation.* A.D. Russell, W.B. Hugo and G.A.J. Aylliffe, eds. Blackwell Scientific. St. Louis. 372-8.
- Stone, Sulfur, Source determination.  
1485 Sramek, J. (1980). Determination of the source of surface deterioration on tombstones at the old Jewish cemetery in Prague. *Studies in Conservation.* 25:47-52.
- Stone, Borobudur.  
1486 Sri Hartadi, J. (1975). Penelitian tentang perawatan batuan candi Borobudur. Pelita Borobudur Seri BN. 6 Departemen Pendidikan dan Kebudayaan. Yogyakarta.
- Insects, Insecticides effect on life stages.  
1487 Srivastava, U.S. and R.C. Srivastava. (1982). The effect of age of treatment and dose of juvenoid on the nature of juvenoid-induced larval-pupal intermediates of

- certain stored grain insects. *J. Entomol. Res.* 6(1):25-36.
- Wood, Biocides, Preservatives.
- 1488 Staehli, A.M. (1983). The preservation of logs and heavy timbers in historic buildings by using volatile chemicals. A preliminary report. *Bulletin of The Association for Preservation Technology*. Ottawa. 15(1):22-6.
- Fungi, *Aspergillus*, Pathogens.
- 1489 Staib, F. (1978). Deteriorating materials as a possible source of fungi pathogenic to man: *Aspergillus fumigatus* as an example. *Biodeterioration*. Proceedings of the Fourth International Symposium, Berlin. T.A. Oxley, D. Allsopp and G. Becker, eds. Pitman and The Biodeterioration Society. London. 341-3.
- Stone, Lichens, Algae, Review.
- 1490 Stambolov, T. and J.R.J. van Asperen de Boer. (1976). Deterioration by biological agents. The Deterioration and Conservation of Porous Building Materials in Monuments. A Review of the Literature. ICCROM. Rome. 27-8.
- Stone, Lichens, Algae, Review.
- 1491 Stambolov, T. and J.R.J. van Asperen de Boer. (1975). Supplement 1975. The Deterioration and Conservation of Porous Building Materials in Monuments. A Review of the Literature. ICCROM. Rome. 76-7.
- Wood, Preventative treatments.
- 1492 Stamm, A.J. (1971). Wood deterioration and its prevention. *Conservation of Stone and Wooden Objects*. Preprints. Vol. 2. 2nd edition. IIC. London. 1-12.
- ATP-ATPase assessment, Biocides.
- 1493 Stanley, P.E. (1987). Rapid microbiology: The use of luminescence and ATP for enumerating microbes and checking effectiveness of biocides: Present status and future prospects. *Biodeterioration* 7. D.R. Houghton, R.N. Smith and H.O.W. Egging, eds. Elsevier New York.
- ATP-ATPase assessment, Extraction.
- 1494 Stanley, P.E. (1986). Extraction of ATP from microbial and somatic cells. *Methods in Enzymology*. Vol.133: Bioluminescence and Chemiluminescence. M.A. DeLuca and W.D. McElroy, eds.
- Metals, Steel, Surface attachment, *Pseudomonas*.
- 1495 Stanley, P.M. (1983). Factors affecting the irreversible attachment of *Pseudomonas aeruginosa* to stainless steel. *Canadian J. Microbiol.* 29(11):1493-9.
- Algae, Colonization, Succession.
- 1496 Starks, T.L. and L.E. Shubert. (1982). Colonization and succession of algae and soil-algal interactions associated with disturbed areas. *J. Phycology*. 18:99-107.
- Algae, Soil, Ecology.
- 1497 Starks, T.L., L.E. Shubert and F.R. Trainor. (1981). Ecology of soil algae: A review. *Phycologia*. 20:65-80.
- Wood, Marine borers.
- 1498 Steiger, F. and G. Horeczko. (1982). The protection of timber piling from marine borer attack by the application of plastic barriers. *Internat. J. Wood Preser.* 2(3): 127-9.
- Insects, Termites, Insecticides, Biocides.
- 1499 Steller, S.D. and P. Labosky. (1984). Antitermic properties of cellulose pads treated with bark extractive. *Wood and Fiber Sci.* 16(1):106-14.
- Measurement of CO<sub>2</sub>-respiration, Textiles.
- 1500 Stewart, C.S. and J.H. Walsh. (1971). A simple technique for estimating microbial activity by total carbon dioxide evolution and its application to the attack of plasticiser-treated cotton yarn. *Internat. Biodeter. Bull.* 7(4):163-7.
- Insects, Beetles.
- 1501 Stoate, C. (1987). Beetles in store. *Museums Journal*. 86(4):196-7.
- Wood, Gamma radiation, Conservation.
- 1502 Stoia, N., J. Paun and M. Vultureau. (1976). The use of radiations for the conservation of the works of art. *Proc. 6th Symp. Biodeter. Clim.* 49-55.
- Easel paintings, Fungi.
- 1503 Stoner, J.H., N. Indictor and N.S. Baer. (1973). The effect of metal acetylacetonates on fungal attack on canvas-paint systems. *J. Amer. Inst. Conser.* 13(2):114-21.
- Easel paintings, Fungi, Biocides, Fungicides.
- 1504 Stoner, J.H., N. Indictor and N.S. Baer. (1975). Linseed oil-metal acetyl-acetonate systems: II. Fungicidal studies on canvas supports. *J. Paint Tech.* 47(611):39-49.

## Anoxants, Insects, Biocides.

- 1505 Storey, C.L. (1975). Mortality of three stored product moths in atmospheres produced by an exothermic inert atmosphere generator. *J. Econ. Entomol.* 68(6):736-38.

## Insects, Control, Insecticides.

- 1506 Storey, K.O. (1985). Approaches to Pest Management. *Conser. Analytical Lab.* Smithsonian Institution. Washington, DC.

## Plastics, Polyurethane.

- 1507 Stranger-Johannessen, M. (1985). Microbial degradation of polyurethane products in service. *Biodeterioration and Biodegradation of Plastics and Polymers*. K.J. Seal, ed. The Biodeterioration Society, Kew, UK. 93-102.

## Paint, Joint sealing materials, Bacteria.

- 1508 Stranger-Johannessen, M. (1978). Aerobic spore-forming rod-shaped bacteria as deteriorating agents of synthetic-based anti-corrosive paint films and joint sealing materials. *Biodeterioration. Proceedings of the Fourth International Symposium*, Berlin. T.A. Oxley, D. Allsopp and G. Becker, eds. Pitman and The Biodeterioration Society, London. 143-7, 368.

## Paper, Paper mills, Pitch deposits.

- 1509 Stranger-Johannessen, M. and G. Eidsa. (1978). Microorganisms as the cause for pitch deposits in pulp and paper mills. *Biodeterioration. Proceedings of the Fourth International Symposium*, Berlin. T.A. Oxley, D. Allsopp and G. Becker, eds. Pitman and The Biodeterioration Society, London. 3-8.

Textiles, Biocides, Organo-copper, *Aspergillus*.

- 1510 Stranger-Johannessen, M., G. Eidsa and J.P. Loken. (1983). Loss of the rot-proofing effect of organic copper compounds by the action of *Aspergillus niger* and other fungi. *Biodeterioration* 5. T.A. Oxley and S. Barry, eds. John Wiley and Sons, New York. 731-9.

## Assessment techniques, Cellulytic activity.

- 1511 Stranks, D.W. and J. Bieniada. (1971). A rapid test for cellulytic activity. *Internat. Biodeter. Bull.* 7(3):109-11.

## Paper, Fungicides.

- 1512 Strzelczyk, A. (1975). Studies on the effect of fungicides incorporated into the

culture medium on fungi damaging ancient paper. *Acta Mycologia Sinica.* 11(1):3-16.

## W.

- 1513 Strzelczyk, A. (1979). Badania nad zwalczaniem drobnoustrojow na malowidlach sciennych. *Acta Universitatis Nicolai Copernici.* 8:99-113.

## Fungicide, Fungi, Paper.

- 1514 Strzelczyk, A. and R. Halina. (1975). Jalowienie akwarel i pastelii parami fungicydow. *Ochrona zabytkow* 28(1):61-6.

## Paper, Foxing, Fungi, Bacteria.

- 1515 Strzelczyk, A. and S. Leznicka. (1981). The role of fungi and bacteria in the consolidation of books. *Internat. Biodeter. Bull.* 17(2):57-67.

## Stone, Microbes.

- 1516 Strzelczyk, A.B. (1981). Stone. *Microbial Biodeterioration. Economic Microbiology*, Vol. 6. A.H. Rose, ed. Academic Press, London. 61-79.

## Paintings, Sculpture, Wall, Easel.

- 1517 Strzelczyk, A.B. (1981). Paintings and Sculptures. *Microbial Biodeterioration. Economic Microbiology*, Vol. 6. A.H. Rose, ed. Academic Press, New York. 203-34.

## Leather, Bookbindings, Library, Archives, Fungi.

- 1518 Strzelczyk, A.B. and J. Kuroczkin. (1989). Studies on microbial deterioration of ancient leather bookbindings. Part 2. *International Biodeterioration. Special Issue: Biodeterioration 7. Part Two*. D.R. Houghton, R.N. Smith and H.O.W. Eggins, eds. Elsevier, London. 25(13):39-47.

## Leather, Books.

- 1519 Strzelczyk, A.B., J. Kuroczkin and W.E. Krumbein. (1987). Studies on the microbial degradation of ancient leather bookbindings: Part I. *Internat. Biodeter.* 23(1): 3-27.

## Stone, Monuments, Temples, India, Conservation.

- 1520 Subbaraman, S. (1985). Conservation of shore temple, Mahabalipuram and Kailasanatha Temple, Kancheepuram. *Vth International Congress on Deterioration and Conservation of Stone*, Vol. 2. G. Felix, ed. Presses Polytechniques Romandes, Lausanne. 1025-33.

## Wood, Biocides, Organotin.

- 1522 Subramanian, R.V., J.A. Mendoza and B.K. Garg. (1981). Wood preservation by organotin polymers. II: Improvements in strength and decay resistance. *Holzforschung*, 35(6):263-72.

## Stone.

- 1522 Sujanova, O. and D. Mankova. (1963). Mikrobiologicke a klimaticke podmienky v pamiatkove chranych objektoch na slovensku. *Pamatkova pece*, 23(8): 278-86.

## Biocides, Ethylene oxide.

- 1523 Sun, M. (1985). Agency scraps plan to limit ethylene oxide. *Science*, 227:392-3.

## Glass, Fungi.

- 1524 Sundt, C.L. (1982). Fungus in glass-mounted slides: Recent findings. *Internat. Bull. Photographic Document. Visual Arts*, 9(4):7-10.

## Wood, Insects, Termites.

- 1525 Supriana, N. (1988). Studies on the natural durability of tropical timbers to termite. *Internat. Biodeter.* 24(4):337-41.

AEC, Bacteria, Growth, *Eschirichia*.

- 1526 Swedes, J.S., R.J.Sedo and D.E. Atkinson. (1975). Relation of growth and protein synthesis to the adenylate energy charge in an adenine-requiring mutant of *Eschirichia coli*. *J. Biol. Chem.* 250(17): 6930-8.

## Stone, Lichens.

- 1527 Syers, J.K. and I.K. Iskandar. (1973). Pedogenetic significance of lichens. *The Lichens*. V. Ahmadjian and M.E. Hale, eds. Academic Press. New York. 225-48.

## Wood, Treatment, Biocides.

- 1528 Szabo, T. and J.K. Shields. (1979). Simple remedial treatment of deteriorated wood in heritage homes. *Bull. Assoc. Preser. Tech.* 11(2):17-22.

## Paper, Art objects.

- 1529 Szczepanowska, H. (1986). Biodeterioration of art objects on paper. *The Paper Conservator*. 10:31-9.

## Fumigation, Biocides, Fungi activity.

- 1530 Szczepanowska, H. (1989). Assessing the activity of fungal growth on art objects with a view to possible fumigation. *Conservation Administration News*. 37:12.

## Insects, Biocides, Control.

- 1531 Szent-Ivany, J.J.H. (1968). Identification and control of insect pests. The conservation of cultural property with special reference to tropical conditions. *Museums and Monuments*, N. 11. UNESCO. Paris. 53-70.

## Stone, Urbino, Italy, Causes of deterioration.

- 1532 Tabasso L.M and L. Barcellona Vero. (1969). Prime indagini su campioni di pietra provenienti dal Palazzo Ducale di Urbino. *Proceedings. 2nd International Conference*, R. Rossi-Manaresi, ed. Ente Bolognese Manifestazioni Artistiche. Bologna. 111-16.

## Paper, Fumigation, Biocides, India.

- 1533 Talwar, V.V. (1975). Fumigation techniques for sterilisation of paper. *Conservation of cultural property in India*. 8:46-9.

Wood, *Basidiomycetes*, Culturing.

- 1534 Tamblin, N. and E.W.B. Da Costa. (1958). A simple technique for producing fruit bodies of wood-destroying *Basidiomycetes*. *Nature*. 181:578-9.

Biocides, Fungi, *Trentepohlia*.

- 1535 Tan, K.H., Y.C. Wee and K.K. Ho. (1985). Laboratory evaluation of biocides for the control of *Trentepohlia odorata*. *Internat. Biodeter.* 21(1):5-10.

## Stone, Biocides, India.

- 1536 Tandon, B.N. (1989). Biological deterioration of Khajuraho group of temples. A scientific study and the remedial measures by archaeological survey of India, Dehra Dun. *International Conference on Biodeterioration of Cultural Property*. Preprints, Vol. II. Nat'l. Res. Lab. Conser. Cult. Prop. Lucknow. 350-65.

## Foxing, Paper, Iron, Copper, Books.

- 1537 Tang, L.C. (1978). Determination of iron and copper in 18th and 19th Century books by flameless atomic spectroscopy. *JAIC*. 17(2):19-32.

## Atomic absorption spectroscopy.

- 1538 Tang, L.C. and M.A. Troyer. (1981). Flameless atomic absorption spectroscopy. *Technol. and Conser.* 2:40-5.

## Stone, Algae, Bacteria.

- 1539 Taralon, J. (1975). L'organisation de la recherche sur les maladies des pierres. *Les*

- Monuments Historiques de la France. 21(7):2-12.
- Wood, Preservation, Biocides.  
1540 Tarkow, H. (1976). The characterization and preservation of wood. Preservation and Conservation: Principles and Practices. Proceedings. The Preservation Press. Washington, DC. 101-14.
- Gamma radiation, Mummy, Egyptian.  
1541 Tassigny, D.E. and M. Brouqui. (1978). Adaptation a la desinfection de la momie de Ramses II du procede de radio-sterilisation gamma. 5th Triennial Meeting. Preprints. ICOM. Paris. 16.
- Rock paintings, Canada.  
1542 Taylor, J.M., R.M. Myers and I.N.M. Wainwright. (1975). An investigation of the natural deterioration of rock paintings in Canada. IIC-CG. 1st Annual Conference International Institute for Conservation. London. 87-92.
- Rock paintings, Canada.  
1543 Taylor, J.M., W. Bokman and I.N.M. Wainwright. (1974). International Conference of the Canadian Rock Art Research Associates, Proceedings. Rock and art conservation: Some realities and practical considerations. British Columbia Provincial Museum. Victoria, BC. 293-324.
- Stone, Bacteria, Heterotrophic, Seasonality, United Kingdom.  
1544 Taylor, S. and E. May. (1991). The seasonality of heterotrophic bacteria on sandstone from ancient monuments. International Biodeterioration. Special Issue: Biodeterioration of Cultural Property. R.J. Koestler, ed. Elsevier. London. 28:49-64.
- Glass, Fungi, Stained Glass.  
1545 Tennent, N.H. (1980). Fungal growth on medieval stained glass. J. Brit. Soc. Master Glass Painters. 17(1):64-8.
- Radiation.  
1546 Teply, J. (1987). Problemy radiacni bezpecnosti pri provozu mobilniho ozarovace pri asanaci umeleckych pamatek *in situ*. Radioisotopy. 28(5-6) 329-40.
- Gamma radiation, Mobile unit.  
1547 Teply, J., C. Franek, R. Kraus and V. Cervenka. (1986). Mobile irradiator and its application in the preservation of the objects of art. Radiat. Phys. Chem. 28(5-6): 585-8.
- Metals, Insects.  
1548 Testi, G. (1948). Corrosione di metalli da part e di insetti. Bollettino dell'istituto di patologia del libro. 40-5.
- Textiles.  
1549 Thakor, R. (1973). The deterioration and conservation of textiles. Studies in Museology. 17-42.
- Paper, Books, Foxing.  
1550 Thakre, R.P. and M.N. Bhajbhuj. (1989). Biodeterioration of books and journals. International Conference on Biodeterioration of Cultural Property. Preprints, Vol. I. Nat'l. Res. Lab. Conser. Cult. Prop. Lucknow. 13-24.
- Glass, Fungi.  
1551 Theden, G. and W. Kerner-Gang. (1965). Damage to optical lenses by fungi. Internat. Biodeter. Bull. 1:81-3.
- AEC, Growth, Yeast, Microbe activity level, *Candida*.  
1552 Thomas, K.C. and P.S.S. Dawson. (1977). Variations in the adenylate energy charge during phased growth (cell cycle) of *Candida utilis* under energy excess and energy limiting conditions. J. Bacteriol. 132(1):36-43.
- Biocides, Development of new.  
1553 Thomas, G.A. (1968). Biocide development — the manufacturer's problems. Biodeterioration of Materials. A.H. Walters and J.J. Elphick, eds. Elsevier. Amsterdam. 506-16.
- Marine environment, Algae, Succession, *Enteromorpha*.  
1554 Thomas, R.W.S.P. and D. Allsopp. (1983). The effects of certain periphytic marine bacteria upon the settlement and growth of *Enteromorpha*, a fouling algae. Biodeterioration 5. T.A. Oxley and S. Barry, eds. John Wiley and Sons. New York. 348-57.
- Fungi, Temperature, Humidity.  
1555 Thomassin, F. (1982). Effets de la temperature et de l'umidite sur le comportement *in situ* de trois champignons lignivores. Material und Organismen. 17(4):269-83.

Wood, RH.

1556 Thomson, G. (1964). Relative humidity-variations with temperature in a case containing wood. *Studies in Conser.* 9:153-69.

Wood, Dry rot. Technique. *Serpula lacrymans*.

1557 Thornton, J.D. (1979). Evaluation of a new laboratory decay technique using *Serpula lacrymans*. *Internat. Biodeter. Bull.* 15(2):45-8.

Wood, Dry rot. *Serpula lacrymans*.

1558 Thornton, J.D. (1983). Progress on investigations of the true dry rot fungus *Serpula lacrymans* in relation to the renovation and preservation of buildings. *British Wood Preserving Assoc.* 171:1-3.

Wood, Dry rot. *Serpula lacrymans*.

1559 Thornton, J.D. and G.C. Johnson. (1986). Linear extension rates of *Serpula lacrymans* within a simulated wall cavity. *Internat. Biodeter.* 22(4):289-93.

Wood, Dry, rot. Techniques. *Serpula lacrymans*

1560 Thornton, J.D. and O. Collett. (1979). A laboratory test to determine potential uses of fungicides against *Serpula lacrymans* (gray). *Internat. J. Wood Preser.* 1(1):21-5.

Wood, Moisture.

1561 Thorogood, R.P. (1978). Timber-framed external walls: Is there a risk of decay from moisture? *Building Research Establishment Information.* 7:4.

Stone, Algacides, Biocides, Algae.

1562 Tiano, P. (1982). Antialgal effect of some chemicals on exposed stoneworks. *Deterioration and Preservation of Stones: Proceedings of the 3rd International Congress.* Universit Degli Studi, Istituto di Chimica Industriale. Padova. 253-60.

Stone, Biocides.

1563 Tiano, P. (1978). Les traitements. 3rd International Symposium on the Deterioration and Protection of Stone Monuments. *Proceedings.* UNESCO . Paris. 1-3-P.

Stone.

1564 Tiano, P. (1987). Biological deterioration of exposed works of art made of stone. *Biodeterioration of Constructional Materials.* The Biodeterioration Society. Publication Service, Lancashire Polytechnic. Kew, UK. 37-44.

Stone, Biocides, Techniques.

1565 Tiano, P. and G. Caneva. (1987). Procedures for the elimination of vegetal biodeteriogens from stone monuments. *ICOM Committee for Conservation. Preprints.* K. Grimstad, ed. The Getty Conservation Institute. Marina del Rey, CA. 3:1201-5.

Wall paintings, Frescoes, Biocides.

1566 Tiano, P. and G. Gargani. (1981). Controlli microbiologici su alcuni affreschi Fiorentini. *Atti del Convegno sul Restauro delle Opere d'Arte. Proceedings.* Edizio ni Plistampa. Florence. 341-58.

Stone, Acid rain, Sulfur, Bacteria. Florence.

1567 Tiano, P. and R. Bianchi. (1976). Studio dei solfo-batteri come concausa della alterazione delle 'pietre' di alcuni edifici storici di Firenze. *Conservazione dei Monumenti.* Atti della Sezione ii dell'Associazione Termotecnica Italiana. *Proceedings.* Antoni o Barbieri. Milano. 133-5.

Stone, Resins, Consolidants.

1568 Tiano, P., C. Manganelli Del Fa, F. Fratini, E. Pecchioni, V. Lucido and F. Piacenti. (1988). Aggregation and protection by fluorinated elastomers of stones exposed to the atmospheric agents. *Vith International Congress on Deterioration and Conservation of Stone.* J. Ciabach, ed. Nicholas Copernicus University. Press Department. Torun. 492-500.

Wood, Insects, Insecticides, Biocides, Control.

1569 Tiglie, I. (1989). Biodeterioration caused by insects on some furniture and the wood structure of Italian cultural property: Prevention, control, struggle. *International Conference on Biodeterioration of Cultural Property. Preprints, Vol. II.* Nat'l. Res. Lab. Conser. Cult. Prop. Lucknow. 267-83.

Wall paintings, Caves, Ajanta.

1570 Tilak, S.T. (1989). Biodeterioration of paintings in Ajanta. *International Conference on Biodeterioration of Cultural Property. Preprints, Vol. II.* Nat'l. Res. Lab. Conser. Cult. Prop. Lucknow. 204-12.

Wall paintings, Caves, Ajanta, Ellora.

1571 Tilak, S.T., B.R.N. Sharma, S.R. Sengupta and R.L. Kulkarni. (1970) .

- Studies on the microbiological deterioration of paintings at Ajanta and Ellora. *Stud. Museol.* 6-8:20-5.
- Radiation, Insects.  
1572 Tilton, E.W., J.H. Brower and R.R. Cogburn. (1978). Irradiation disinfection of cornmeal. *J. Econ. Entomol.* 71(4):701-3.
- General, USSR.  
1573 Titiva, E. (1983). Activity of the scientific council on biodeterioration of the USSR Academy of Sciences. *Biodeterioration* 5. T.A. Oxley and S. Barry, eds. John Wiley and Sons. New York. 573-7.
- Wall paintings, Frescoes, Stone, Algae, Bacteria.  
1574 Tomaselli, L., M.C. Margheri and G. Florenzano. (1982). Indagine sperimentale sul ruolo dei cianobatteri e delle microalghe nel deterioramento di monumenti ed affreschi. *Proc. 3rd Internat. Congr. Deter. Preserv. Stones*. Univ. degli Studi-Instituto di Chimica Industriale. Padova. 313-25.
- Wall paintings, Frescoes.  
1575 Tonolo, A. and C. Giacobini. (1961). Microbiological changes in frescoes. *Recent Advances in Conservation. Contributions to the IIC Rome Conference*. G. Thomson, ed. Butterworths. London. 62-4.
- Stone, General.  
1576 Torraca, G. (1978). Stone deterioration and related conservation problems. *Parks* 3(2):15-19.
- Wall paintings, Caves.  
1577 Torraca, G. (1984). Environmental protection of mural paintings in caves. *International Symposium on the Conservation and Restoration of Cultural Property*. Preprints. Y. Emoto and S. Miura, eds. Tokyo National Research Institute of Cultural Properties. Tokyo. 1-18.
- Paper, Library, Foxing, Insects.  
1578 Torterolo, A. (1988). Biodeterioramento dei beni librari e documentari. *Rassegna dei Beni Culturali* 4(2):40-2, 58.
- Wood, Insects, Control.  
1579 Toskina, I.N. (1978). Wood pests in articles and structures and pest control in museums. *Committee for Conservation*. 5th Triennial Meeting. Preprints. ICOM. Paris. 10.
- Algae, Text.  
1580 Trainor, F.R. (1978). *Introductory Phycology*. John Wiley and Sons. New York.
- Algae, Soil.  
1581 Trainor, F.R. (1985). Survival of algae in a desiccated soil: A 25-year study. *Phycologia* 24:79-82.
- Biocides, General.  
1582 Traxler, R. and C. Yeager (1967). Research facilities for biodeterioration in the U.S.A. *Internat. Biodeter. Bull.* 3(2): 43-6.
- Hydrocarbon degradation, Bacteria.  
1583 Traxler, R.W. and W.L. Flanner. (1968). Mechanisms of hydrocarbon degradation. *Biodeterioration of Materials*. A.H. Walters and J.J. Elphick, eds. Elsevier. Amsterdam. 44-54.
- Wood, Lignin.  
1584 Trojanowski, J. (1969). Biological degradation of lignin. *Internat. Biodeter. Bull.* 5(3):119-24.
- Wood, Biocides, Preservation.  
1585 Trong, L. and M. Fougereuse. (1982). Methode de controle direct de l'efficacite de traitements de preservation. *Bois et Forets des Tropiques*. 195:51-60.
- Bacteria, Algae.  
1586 Trotet, G., P. Dupuy and F. Grossin. (1973). Sur une nuisance biologique provoquee par les cyanophycees. *International Symposium on the Deterioration of Building Stones*. V. Romanowski, ed. Les Imprimeries Reunies de Chambéry. Chambéry. 167-70.
- Metals, Marine Organisms.  
1587 Tsokur, N.I. (1984). The effect of aerobic bacteria on corrosion of passivating and non-passivating steel and alloy in sea water. (Russian). *Mikrobiologicheskii Zhurnal*. 46(1):18-20.
- Wood, Biocides, Treatments.  
1588 Tsunoda, J. and K. Nishimoto. (1986). Evaluation of wood preservatives for surface treatment. *Internat. Biodeter. Bull.* 22(1):27-30.

## Consolidants, Acid rain.

- 1589 Tucci, A., R.J. Koestler, A.E. Charola and R. Rossi-Manaresi. (1985). The influence of acid rain and U.V. radiation on the aging of acrylic and silicone resins. Vth International Congress on Deterioration and Conservation of Stone. Vol. 2. G. Felix, ed. Presses Polytechniques Romandes. Lausanne. 891-7

## Stone, Marble, Restoration, Case study, Biocides, Resins, Consolidants.

- 1590 Tudor, P.B., F.G. Matero and R.J. Koestler. (1990). A case study of the compatibility of biocidal cleaning and consolidation in the restoration of a marble statue. Biodeterioration Research 3. G.C. Llewellyn and C.E. O'Rear, eds. Plenum Press. New York. 525-33.

## Wood, Marine borers.

- 1591 Turner, R.D. (1984). An overview of research on marine wood borers: Past progress and future directions. Marine Biodeterioration: An Interdisciplinary Study. J.D. Costlow and R.C. Tipper, eds. Naval Institute Press. Annapolis, MD. 3-16.

## Textiles, Biocides, Soil burial, Testing.

- 1592 Turner, R.L. (1971). Important factors in the soil burial test applied to rotproofed textiles. Biodeterioration of Materials. Vol. 2. A.H. Walters and E. H. Hueck-van der Plas, eds. John Wiley and Sons. New York. 218-26.

## Metals, Soil burial, Copper, Tin.

- 1593 Tylecote, R.F. (1979). The effect of soil conditions on the long-term corrosion of buried tin bronzes and copper. J. Archaeol. Sci. 6(4):345-68.

## Fumigant, Biocide, Ethylene oxide.

- 1594 Unger, A., C. Schirarend and W. Unger. (1988). Ethylenoxidbegasung einer afrikanischen Holzplastik. Holztechnologie. 29(5):234-6.

## Plastics.

- 1595 Upsher, F. (1976). Microbial attack on materials. Aust. Chem. Instit. Proc. 43-4:173-6.

## Fungi, Tropics.

- 1596 Upsher, F.J. (1984). A comparison of fungi on materials at jungle and cleared sites of a hot-wet tropical exposure unit. Internat. Biodeter. 20(3):157-62.

## Tropics, Fungi.

- 1597 Upsher, F.J. (1984). Fungal colonization of some materials in a hot-wet tropical environment. Internat. Biodeter. 20(2):73-8.

## Epoxy, Glue, Adhesives.

- 1598 Upsher, F.J. (1980). Fungal resistance of modified epoxy structural film adhesives. Internat. Biodeter. Bull. 16(2):43-4.

Textiles, Bacteria, Algae, *Scytonema*.

- 1599 Upsher, F.J. (1971). The blue-green alga *Scytonema stuposum* (Kutz) born on fabrics. Internat. Biodeter. Bull. 7(3): 113-14.

## Fumigant, Fungicide, Biocide.

- 1600 Upsher, F.J. (1985). Development of a controlled release volatile fungicide preparation. Internat. Biodeter. 21(3): 211-14.

## Fungi, Australia.

- 1601 Upsher, F.J. (1972). Microfungi at the Joint Tropical Research Unit, Innisfail, Queensland. Biodeterioration of Materials. Vol. 2. A.H. Walters and E. H. Hueck-Van Der Plas, eds. Applied Science. London. 27-34.

## Fungicides, Plastics.

- 1602 Upsher, F.J. and R.J. Roseblade (1984). Assessment by tropical exposure of some fungicides in plasticized PVC. Internat. Biodeter. 20(4):243-52.

## Gamma radiation, Biocide, Insecticide.

- 1603 Urban, J., I. Santar, J. Sedlackova and J. Pipota. (1978). Use of gamma radiation for conservation purposes in Czechoslovakia. Committee for Conservation. 5th Triennial Meeting. Preprints. ICOM. Paris. 10.

## Gamma radiation, Museum.

- 1604 Urban, J. and J. Justa. (1986). La radioconservation au Musee de la Boheme centrale, a Roztoky. Museum. 151:165-7.

## Pigeons, Stone, Wood.

- 1605 Utagawa, T. (1975). Domestic pigeon as a source of damage to cultural properties. Sci. Pap. Jap. Antiq. Art Craft. 19:15-23.

## Fumigants, Insecticides, Biocides.

- 1606 Vaclav, D. (1988). Analytické metody stanovení pyrethroidních insekticidů. Chemicke Listy. 82(11):1163-78.

## Paper, Biocides, Insecticides, Library.

- 1607 Valentin, N. (1986). Biodeterioration of

- library materials. Disinfection methods and new alternatives. *New Directions in Paper Conservation*. 10th Anniversary Conference of the Institute of Paper Conservation. Institute of Paper Conservation. Leigh, UK. 11-12.
- Bacteria, Methods, Techniques, Filtration, Assessment, Fluorescence.**  
1608 Valentin, N. (1990). Evaluation of bacterial contamination on objects d'art by membrane filtration and epifluorescence microscopy. *Internat. Biodeter.* 26(6): 369-80.
- Anoxants, Insects, Control methods, Museums.**  
1609 Valentin, N. (1990). Insect eradication in museums and archives by oxygen replacement, a pilot project. Committee for Conservation. 9th Triennial Meeting Dresden, GDR. 26-31 August 1990. Preprints. Vol. II. ICOM. Paris. 821-3.
- Anoxants, Insecticides, Biocides, Paper, Inert gases.**  
1610 Valentin, N. and F. Preusser. (1990). Insect control by inert gases in museums, archives and libraries. *Restaurator*. 11: 22-33.
- Anoxants, Biocides, Insecticides, Inert gases, Nitrogen.**  
1611 Valentin, N. and F. Preusser. (1990). Nitrogen for Biodeterioration Control on Museum Collections. *Biodeterioration Research 3*. G.C. Llwellyn and C.E. O'Rear, eds. Plenum Press. New York. 511-23.
- Wall paintings, Humidity, Fungi.**  
1612 Van Asperen de Boer, J.R.J. (1968). Humidity in walls in relation to preservation of works of art. Conference on Museum Climatology. G. Thompson, ed. IIC. London. 109-17.
- Wood, Archaeology, Preservation.**  
1613 Van der Heide, G.D. (1971). Problems of ship-archaeology and the preservation of ancient ship remnants. *Biodeterioration of Materials*. Vol. 2. A.H. Walters and E.H. Hueck-van der Plas, eds. John Wiley and Sons. New York. 376-80.
- Walters and E.H. Hueck-van der Plas, eds. John Wiley and Sons. New York. 1-11.**
- UV radiation, Biocides, Algae, Bacteria.**  
1615 Van der Molen, J.M., J. Garty, B.W. Aardema and W.E. Krumbein. (1980). Growth control of algae and cyanobacteria on historical monuments by a mobile UV unit (MUVU). *Studies in Conservation*. 25(2):71-7.
- Sulfur, Plants, Acid rain.**  
1616 Van Egeraat, A.W.S.M. and J.L.M. Huntjens. (1975). The sulfur cycle. *Plant and Soil*. 43(1):211-17.
- Leather, Skin, Preservation.**  
1617 Vandyke-Lee, D.J. (1979). Skin and leather, reasons for deterioration and conservation. *Museum Ethnographers' Group Newsletter*. 8:25-32.
- ATP-ATPase assessment, Methods.**  
1618 Vanstaen, H. (1980). Applicability of bioluminescence for rapid detection of viable microorganisms. *Laboratory Practice*. 29(12):1281-3.
- Fungi, Biocides, Fungicides, *Schizophyllum*, *Chaetomium*.**  
1619 Varadi, J. (1971). The effect of aromatic compounds on cellulose and xylanase production of fungi *Schizophyllum commune* and *Chaetomium globosum*. *Biodeterioration of Materials*. Vol. 2. A.H. Walters and E.H. Hueck-van der Plas, eds. John Wiley and Sons. New York. 129-35.
- Paper, Library, Insects.**  
1620 Veca, E. (1989). L'entomofauna negli archivi. Le scienze applicatenel la salvaguardia e nella riproduzione degli archivi. Quaderni della rassegna degli Archivi di Stato. N. 56. Ministero per i Beni Culturali e Ambientali. Rome. 121-6.
- Stone, Bacteria, Sulfur.**  
1621 Vero, L.B. and M.M. Sila. (1976). Isolation of various sulphur-oxidizing bacteria from stone monuments. *The Conservation of Stone I. Proceedings of the International Symposium*. R. Rossi-Manaresi, ed. Centro per la Conservazione delle Sculture all'Aperto. Bologna. 233-44.
- Stone, Bacteria, Sulfur.**  
1622 Vero, L.B., R. Bianchi, M.M. Sila and P. Tiano. (1976). Proposal for a method of investigation for the study of the presence of bacteria in exposed works of art in stone.

- The Conservation of Stone I. Proceedings of the International Symposium. R. Rossi-Manaresi, ed. Centro per la Conservazione delle Sculture all'Aperto. Bologna. 257-66.
- Paper, Foxing, Fungi, *Stachybotris*.  
1623 Verona, O. (1939). Sopra alcuni ceppi di *Stachybotris rinvenuti* in materiale cartaceo. Bollettino dell'Istituto di Patologia del Libro. 18(4):202-10.
- Paper, Library, Cellulose.  
1624 Verona, O. (1948). Recenti acquisizioni sopra il processo di decomposizione microbica della cellulosa. Bollettino dell'Istituto di Patologia del Libro. 27-39.
- Paper, Library, Bacteria, *Pyocyanum*.  
1625 Verona, O. and L. Paganini. (1939). Presenza di bact. *Pyocyanum* fl. in materiale librario proveniente dal Yemen. Bollettino dell'Istituto di Patologia del Libro. 18(4):223-7.
- Biocides, Fumigation, Hydrogen cyanide, Methyl bromide, Ethylene oxide.  
1626 Vetter, A. and W.P. Bauer. (1978). Pest control in ethnographic museums by means of fumigation. ICOM, Rome. 3/6.
- Wood, Biocides, *Hylotrupes*.  
1627 Vidovic, N. (1979). Evaluation of preservatives against *Hylotrupes bajulus* l. Internat. J. Wood Preser. 1(1):35-40.
- Textiles, Biocides.  
1628 Vigo, T.L. (1982). Protection of textiles from deterioration. Conservation and Restoration of Textiles. Centro Ital. Studio Storia del Tessuto — Sezione Lombardia. Milano. 19-26.
- Textiles, Preservation.  
1629 Vigo, T.L. (1977). Preservation of natural textile fibers — historical perspectives. Preservation of Paper and Textiles of Historic and Artistic Value. Advances in Chemistry Series, N. 164. J.C. Williams, ed. American Chemical Society, Washington, DC. 189-207.
- Wood.  
1630 Viitanen, H. (1989). Biodeterioration in wooden material. N. 48. M. Ivars, ed. Finnish National Commission for UNESCO. Helsinki. 222-35.
- Stone, Algae, SEM, Weathering.  
1631 Viles, H.A. (1987). Blue-green algae and terrestrial limestone weathering on Aldabra atoll: An S.E.M. and light microscope study. Earth Surface Processes and Landforms. 12:319-30.
- Leather, Vellum, Treatment.  
1632 Vitkus, J.R. and J.F. Asmus. (1977). Treatment of leather and vellum with transient heating. Fourth Annual Meeting of the American Institute for Conservation of Historic and Artistic Works. The American Inst. Conser. Hist. Art. Works. Washington, DC. 111-17.
- Bacteria, Culture, *Psrscri*.  
1633 Voegeli, H.E. and J.J. Cousminer. (1978). Protein production by a mixed bacterial culture using *Psrscri* 1880 and selected nitrogen sources. Internat. Biodeter. Bull. 14(4):119-22.
- Easel paintings, Wall paintings, Fungi, Fungicides, Biocides.  
1634 Voronina, L.I. (1975). Problem on combating the mould fungi destroying the painting work. ICOM Committee for Conservation. 4th Triennial Meeting. Preprints. Paris. 75/16/2/1-6.
- Parchment, Archives, Library, Biocides, Treatment.  
1635 Voronina, L.I., O.N. Nazarova and Y.P. Petushkova. (1980). Disinfection and straightening of parchment damaged by microorganisms. Restaurator. 4(2):91-7.
- Leather, Parchment, Fungi.  
1636 Voronina, L.I., O.N. Nazarova, U.P. Petushkova and N.L. Rebrikova. (1981). Damage of parchment and leather caused by microbes. Committee for Conservation, 6th Triennial Meeting. Preprints. ICOM. Paris. 11.
- Stone, Monuments, Borobudur, Indonesia.  
1637 Voute, C. (1973). The restoration and conservation project of Borobudur Temple, Indonesia. Studies in Conservation. 18:113-30.
- Egypt, Mummy.  
1638 Vozil, I. (1979). Egyptomi mumiakoporsok osszeh asonlito vizgalata es restauralasa. Muzeumi mutargyvedelem. 6:235-50.
- Methods, Techniques.  
1639 Waelchli, O. (1968). Biodeterioration test methodology. Biodeterioration of Materials.

- A.H. Walters and J.J. Elphick, eds. Elsevier. Amsterdam. 242-51.
- Rock art, Canada.  
1640 Wainwright, I.N.M. (1985). Rock art conservation research in Canada. *Bollettino del Centro Camuno di Studi Preistorici*. Centro Camuno di Studi Preistorici. Capo di Ponte. 22:15-46.
- Stone, Lichens, Biocides.  
1641 Wainwright, I.N.M. (1986). Lichen removal from an engraved memorial to Walt Whitman. *Assoc. Preservation Tech. Bull.* 18(4):46-51.
- Rock Art, Conservation.  
1642 Wainwright, I.N.M. (1987). Rock art conservation in Petroglyphs Provincial Park. *Canadian Conservation Institute Newsletter*. 8-9.
- Wood, Counting methods.  
1643 Waite, J. and B. King. (1980). Quantification of microbial invasion of wood. *Biodeterioration. Proceedings of the Fourth International Symposium*. Berlin. T.A. Oxley, D. Allsopp and G. Becker, eds. Pitman and The Biodeterioration Society. London. 45-52.
- Bacteria, Spores, Sterilization, Resistance.  
1644 Waites, W.M. (1982). Microbial resistance. Resistance of bacterial spores. Principles and Practices of Disinfection, Preservation and Sterilisation. A.D. Russell, W.B. Hugo and G.A.J. Ayliffe, eds. Blackwell Scientific. St. Louis. 207-20.
- Wood, Fungi, Altitude.  
1645 Walchli, O. (1970). Notes on the problem of the distribution of wood-destroying fungi at different altitudes. *Internat. Biodeter. Bull.* 6(2):43-52.
- Wood, Dry rot, Fungus, Switzerland.  
1646 Walchli, O. and P. Raschle. (1983). The dry rot fungus-experience on causes and effects of its occurrence in Switzerland. *Biodeterioration 5*. T.A. Oxley and S. Barry, eds. John Wiley and Sons. New York. 84-96.
- Resins, Polyurethane.  
1647 Wales, D.S. and B.F. Sagar. (1985). The mechanism of polyurethane biodeterioration. *Biodeterioration and Biodegradation of Plastics and Polymers. Proceedings of the Biodeterioration Society*. K.J. Seal, ed. The Biodeterioration Society. Kew, UK. 56-69.
- Fungi, Low oxygen, Growth, Deterioration by.  
1648 Walsh, J.H. (1971). Growth and deteriorative ability of fungi at low oxygen tensions. *Biodeterioration of Materials*. Vol. 2. A.H. Walters and E.H. Hueck-van der Plas, eds. John Wiley and Sons. New York. 152-60.
- Foxing, Paper.  
1649 Walsh, J.H. (1985). Selected conservation problems: Foxing in papers. *Drawing*. 7:5-8.
- Assessment methods, Cellulose, Fungi.  
1650 Walsh, J.H. and C.S. Stewart. (1969). A simple method for the assay of the cellulolytic activity of fungi. *Internat. Biodeter. Bull.* 5(1):15-20.
- Wood, Treatment, Totem poles, N. Pacific.  
1651 Ward, P. (1978). The decay and restoration of totem poles in situ at island sites on the north Pacific coast. *Conservation of Wood in Painting and the Decorative Arts*. International Institute for Conservation. London. 117-22.
- Insects, Control, Biocides, Insecticides.  
1652 Ward, P.P. (1976). Getting the bugs out. *Museum Methods Manual*, N. 4. British Columbia Provincial Museum. Victoria, BC.
- Pesticides, Biocides, Insecticides, Modes of action, Toxicity, Hazards.  
1653 Ware, G.E. (1989). *The Pesticide Book*. 3rd edition. Thomson Publications. Fresno, CA.
- Stone, Techniques, Methods, Sandstone.  
1654 Warscheid, T., K. Petersen and W.E. Krumbein. (1990). A rapid method to demonstrate and evaluate microbial activity on decaying sandstone. *Studies in Conservation*. 35:127-47.
- Stone, Rock, Cleaning, Microbe distribution.  
1655 Warscheid, T., K. Petersen and W.E. Krumbein. (1988). Effect of cleaning on the distribution of microorganisms on rock surfaces. *Biodeterioration 7*. D.R. Houghton, R.N. Smith and H.O.W. Eggins, eds. Elsevier. New York. 455-60.

## Stone, Sandstone, Bacteria.

1656 Warscheid, T., K. Petersen and W.E. Krumbein. (1988). Physiological characterization of chemoorganotrophic bacteria isolated from sandstones. Vth International Congress on Deterioration and Conservation of Stone. Supplement. Nicholas Copernicus University. Press Department. Torun. 26-32.

## Stone, Rocks, Organic pollutants, Capillary change, Wetting.

1657 Warscheid, T., M. Oelting and W.E. Krumbein. (1991). Physico-chemical aspects of biodeterioration processes on rocks with special regard to organic pollutants. International Biodeterioration. Special Issue: Biodeterioration of Cultural Property. R.J. Koestler, ed. Elsevier. London. 28:37-48.

## Paper, Conservation, History.

1658 Warzen-Czak, A. (1974). A contribution to studies in the history of conservation of paper. *Ochrona Zabytkow*. 27(3):229-35.

Silicone, Oils, Polymers, Silanes, Degradation, *Pseudomonas*.

1659 Wasserbauer, R. and Z. Zadak. (1990). Growth of *Pseudomonas putida* and *P. fluorescens* on silicone oils. *Folia Microbiol*. 35:384-93.

## Rock art, Insects, Termites, Wasps.

1660 Watson, J.A.L. and J.M. Flood. (1987). Termite and wasp damage to Australian rock art. *Rock Art Research*. Archaeological Publications. Melbourne. 4(1): 17-28.

## Biocides, Herbicides, Plant ecology.

1661 Way, J.M. and R.J. Chancellor. (1976). Herbicides and higher plant ecology. *Herbicides*. Vol. 2. L.J. Audus, ed. Academic Press. New York. 345-91.

## Concrete, Stone, Wood, Fungi.

1662 Wazny, J. (1978). The influence of wood-destroying fungi on concrete. *Biodeterioration*. Proceedings of the Fourth International Symposium. Berlin. T.A. Oxley and S. Barry, eds. Pitman and The Biodeterioration Society. London. 59-62.

Paint, *Streptomyces*, Ethylene oxide, Fumigants, Fungi, Bacteria.

1663 Wazny, J. and P. Rudniewski. (1972). The biodeterioration of binding materials used in artistic painting. *Material und Organismen*. 7(2):81-91.

## Wood, Canada, Deterioration.

1664 Weaver, M. (1984). The deterioration of wood in heritage structures in Canada. ICOMOS Comite Bois/Wood Committee. Proceedings of the Vth International Symposium. Alveim and Eide. *Ovre Ervik*. 92-101.

## Consolidants, Silicone, Silicic esters.

1665 Weber, H. (1976). Stone renovation and consolidation using silicones and silicic esters. *The Conservation of Stone*, I. R. Rossi-Manaresi, ed. Centro per la Conservazione delle Sculture all'Aperto. Bologna. 375-85.

## Stone, Weathering, Fungi.

1666 Webley, D.M., M.E.K. Henderson and I.F. Taylor. (1963). The microbiology of rocks and weathered stones. *J. Soil Sci*. 14(1):102-12.

## Stone, Weathering, Fungi, Methods, Silicate minerals.

1667 Webley, D.M., R.B. Duff and W.A. Mitchell. (1960). Soil science: A plate method for studying the breakdown of synthetic and natural silicates by soil bacteria. *Nature*. 188:766-7.

## Leather, Hide, Skin, Staining methods, Bacteria.

1668 Webster, R. (1983). Simple staining of bacteria and fungi in hide, skin and leather. *Stain Tech*. 58(6):315-18.

## Stone, Masonry, Paint, Algae.

1669 Wee, Y.C. (1988). Growth of algae on exterior painted masonry surfaces. *Internat. Biodeter*. 24(4-5):367-71.

Stone, Masonry, Algae, Singapore, *Trentophila*, Lichens,

## Fungicides.

1670 Wee, Y.C. and K.B. Lee. (1980). Proliferation of algae on surfaces of buildings in Singapore. *Internat. Biodeter*. Bull. 16(4):113-17.

## ATP-ATPase assessment, Metabolism.

1671 Weibel, K.F., J.R. Mor and A. Flechter. (1974). Rapid sampling of yeast cells and automated assays of adenylate, citrate, pyruvate and G-6-phosphatase pools. *Anal. Biochem*. 58:208-16.

## Paper, Pulp, Preservation, Biocides.

1672 Weir, B. (1982). Preservation in specialised areas. C. Preservation of paper and pulp. In: *Principles and Practices of*

- Disinfection, Preservation and Sterilisation. A.D. Russell, W.B. Hugo and G.A.J. Ayliffe, eds. Blackwell Scientific. St. Louis. 358-64.
- Wood, Degradation evaluation, Techniques, Methods.  
1673 Wermuth, J.A. (1987). New world evaluation of wood degraded by old cultures. Evaluation of residual strength characteristics in Micro-organically degraded wood. 8th General Assembly and International Symposium 'Old Cultures in New Worlds' Vol. 1. US/ICOMOS Washington, DC. 499-505.
- Insects, Insecticides, Control, Biocides, Australia.  
1674 Werner, A.E.A. (1979). Insect infestation and its control. Regional Seminar on the Conservation of Cultural Materials in Humid Climates, Canberra. Australian Government Publishing Office. Canberra. 54-8.
- Leather, Wood, Bone, Ivory, Paper, Conservation.  
1675 Werner, A.E.A. (1968). The conservation of leather, wood, bone and ivory and archival materials. The Conservation of Cultural Property with Special Reference to Tropical Conditions. Museums and Monuments, N. 9. UNESCO. Paris. 265-90.
- Paper, Deacidification, Deterioration.  
1676 Werner, A.E.A. (1975). Paper deterioration and deacidification. Conservation Administration. Conservation of Library and Archival Materials and the Establishment of Conservation Programs. R.C. Morrison, G.M. Cunha and N.P. Tucker, eds. New England Document Conservation Center. North Andover, MA. 49-75.
- Library materials, Paper, Deterioration.  
1677 Wessel, C. (1978). Deterioration of library materials. Library Conservation. Preservation in Perspective. Dowden, Hutchinson and Ross. Stroudsburg. 93-144.
- Fungicides, pH.  
1678 Wessels, J.M.C. and D.M.M. Adema. (1968). Some data on the relationship between fungicidal protection and pH. Biodeterioration of Materials. A.H. Walters and J.J. Elphick, eds. Elsevier. Amsterdam. 517-23.
- Wood, Insects, Borers.  
1679 White, M.G. (1970). The inspection and treatment of houses for damage by wood-boring insects. Timberlab Papers. 33:7.
- Paint, Walls, Building materials, Growth.  
1680 Whiteley, P. and A.F. Bravery. (1982). Masonry paints and cleaning methods for walls affected by organic growth. J. Oil Color Chemists Association. 65:25-7.
- Algae, Nitrogen fixation, Atoll, *Nostoc*.  
1681 Whitton, B.A., A. Donaldson and M. Potts. (1979). Nitrogen fixation by *Nostoc* colonies in terrestrial environments of Aldabra Atoll, Indian Ocean. Phycologica. 18:278-87.
- Wood, Preservation terminology.  
1682 Willeitner, H. (1984). What do 'natural', 'biological' and 'alternative' wood preservation signify? Holz-Zentralblatt. 110(46):698-9.
- Rubber, Assessment methods.  
1683 Williams, G.R. (1984). A technique for measuring the microbial deterioration of vulcanized rubber. Internat. Biodeter. 20(4):255-8.
- Rubber, Polymers.  
1684 Williams, G.R. (1985). The biodeterioration of rubbers. Biodeterioration and Biodegradation of Plastics and Polymers. Proceedings of the Biodeterioration Society. K.J. Seal, ed. The Biodeterioration Society. Kew, UK. 37-50.
- Rubber, Polymers.  
1685 Williams, G.R. (1982). The breakdown of rubber polymers by microorganisms. Internat. Biodeter. Bull. 18(2):31-6.
- Plastics, Resins, Diocetylphthalate.  
1686 Williams, G.R. and R. Dale. (1983). The biodeterioration of the plasticiser diocetylphthalate. Internat. Biodeter. Bull. 19(1):37-8.
- Fungi, *Gliomastrix*.  
1687 Williams, J.I. and G.J.F. Pugh. (1971). Fungal biological flora: I. *Gliomastrix murorum* and *G. murorum* var. *felina*. Internat. Biodeter. Bull. 7(1):37-41.
- Wood, Lyctid, Beetles, Biocide, Insecticide, Boron-treatment, Fungi, *Virola*.  
1688 Williams, L.H. and T.L. Amburgey. (1987). Integrated protection against lyctid

- beetle infestations. IV. Resistance of boron-treated wood (*Virola* spp.) to insect and fungal attack. *Forest Products J.* 2(37):10-17.
- Insects, Isoptera, Physiology, Ecology, Wood.**  
1689 Williams, M.C. (1977). The ecology and physiology of structural wood destroying Isoptera. *Material und Organismen.* 12(2):111-40.
- Wood, Actinomycetes.**  
1690 Williams, S.T. (1966). The role of actinomycetes in biodeterioration. *Internat. Biodeter. Bull.* 2(2):125-33.
- Wood, Streptomycetes.**  
1691 Williams, S.T. (1985). *Streptomycetes* in biodeterioration — their relevance, detection and identification. *Internat. Biodeter.* 21(3):201-9.
- Insects, Moths.**  
1692 Wilson, C. (1988). Operation moth. *Textile Conservation Newsletter.* 18-19.
- Stone, Masonry, Literature review.**  
1693 Winkler, E.M. (1977). The decay of building stones: A literature review. *Bull. Assoc. Preservation Tech.* 9(4):53-61.
- Stone, Decay.**  
1694 Winkler, E.M. (1970). Decay of stone. Conference on Conservation of Stone and Wooden Objects. Preprints. Vol. 1. *Internat. Inst. Conser. Hist. Art. Works.* London. 1-14.
- Biocides, Trichlorophenol, Cell membrane.**  
1695 Wolf, P.A. and M.M. Schaffer. (1968). The role of cell membrane permeability in determining the antimicrobial activity of 2,4,6-trichlorophenol at pH 6 and pH 8. *Biodeterioration of Materials.* A.H. Walters and J.J. Elphick, eds. Elsevier. Southampton. 524-38.
- Stones, Masonry, Nitrates.**  
1696 Wolters, B., W. Sand, B. Ahlers, F. Sameluck, M. Meincke, C. Meyer, T. Krause-Kupsch and E. Bock. (1988). Nitrification: The main source for nitrate deposition in building stones. VIth International Congress on Deterioration and Conservation of Stone. J. Ciabach, ed. Nicholas Copernicus University. Press Department. Torun. 24-31.
- Fungi, Methods, Fluorescence.**  
1697 Wu, C.H. and H.L. Warren. (1984). Induced autofluorescence in fungi and its correlation with viability. Potential application of fluorescence microscopy. *Phytopathology.* 74(11):1353-8.
- Insecticides, Biocides, Organophosphorus, Beetles.**  
1698 Yadov, T.D., S. Singh and S.C. Khanna. (1983). Toxicity of dusts of organophosphorus insecticides against stored product beetles. *Indian J. Ento.* 45(3):247-52.
- Stone, Weathering.**  
1699 Yao, X.-X., D-L Lai and L-F. Zhang. (1989). Microscopic mechanism of strength reduction of rocks. *Scientia Sinica Series B Chem., Life Sci. and Earth Sci.* 32(2):201-14.
- Resins, Silicon, Wood.**  
1700 Yashvili, N.N. (1975). Conservation of the archaeological wood with transparent silicon organic polymers. Committee for Conservation. 4th Triennial Meeting. ICOM. Paris. 8.
- Textiles, Dyes.**  
1701 Yatome, C., O. Toshihiko and E. Idaka. (1984). Microbial degradation of dyes — decolorationrate of dyes by several strains. *Sen-i Gakkaishi.* 40(9):344-9.
- Insecticides, Biocides, Regulations, USA.**  
1702 Yeager, C. (1978). Pesticide regulation in the United States. *Biodeterioration. Proceedings of the Fourth International Symposium, Berlin.* T.A. Oxley, D. Allsopp and G. Becker, eds. Pitman and The Biodeterioration Society. London. 323-9.
- Plastics, PVC.**  
1703 Yeager, C. (1968). Laboratory and service tests for PVC. *Biodeterioration of Materials.* A.H. Walters and J.J. Elphick, eds. Elsevier. Amsterdam. 151-61.
- Wood, Water-logged, Bacteria.**  
1704 Young, A. (1988). Microbial activity in waterlogged wood. *Conservation Today: Papers presented at the UKIC 30th Anniversary Conference.* United Kingdom Institute of Conservation. London. 123-7.
- Parchments, Library, Spotting, Foxing.**  
1705 Yusupova, M.V. (1978). Removal of general soils and pigment spots from

- parchments. Committee for Conservation. 5th Triennial Meeting. ICOM. Paris. 4.
- Freezing temperatures. Insects.  
1706 Zachariassen, K.E. (1985). Physiology of cold tolerance in insects. *Physiological Review*. 64:799-832.
- Surface colonization. Marine organisms.  
Adhesion.  
1707 Zachary, A., M.E. Taylor and F.E. Scott. (1978). Marine microbial colonization of material surfaces. *Biodeterioration. Proceedings of the Fourth International Symposium*. Berlin. T.A. Oxley, D. Allsopp and G. Becker, eds. Pitman and The Biodeterioration Society. London. 171-8.
- Paper. Fungi. Foxing.  
1708 Zaguliaeva, Z.A. (1965). The influence of acidity on fungi growth in paper. *Stareniye Bumagi*. 75-81.
- Leather. Kuwait.  
1709 Zainal, A.S., M.A. Ghannoum and A.K. Sallal. (1983). Microbial biodeterioration of leather and leather-containing exhibits in Kuwait National Museum. *Biodeterioration 5*. T.A. Oxley and S. Barry, eds. John Wiley and Sons. New York. 416-26.
- Insects. Leather. *Dermestidae*. Beetles. Protective measures.  
1710 Zaitseva, G.A. (1981). Protection of museum exhibits against leathering beetles (Coleoptera, *Dermestidae*) with the help of repellents. Committee for Conservation. 6th Triennial Meeting. ICOM. Ottawa. 3/7.
- Insects. *Dermestidae*. Beetles. Preventative measures.  
1711 Zaitseva, G.A. (1978). *Dermestidae* beetles injurious to museum objects and protection measures against them. Committee for Conservation. 5th Triennial Meeting. ICOM. Paris. 13/1-8.
- Insects. Museums. Control.  
1712 Zaitseva, G.A. (1989). Control insects in museums: The use of traps. *International Conference on Biodeterioration of Cultural Property. Preprints*, Vol. I. Nat'l. Res. Lab. Conser. Cult. Prop. Lucknow. 38-43.
- Insects. Control methods. Antifeedants. Museums.  
1713 Zaitseva, G.A., K. Zabotin, A. Kapranov, I. Pavlinov, P. Fraishtat and M. Shemjakin. (1990). New antifeedants for pest insects in collections and various aspects of their use in museums. Committee for Conservation. 9th Triennial Meeting. Dresden. Vol. II. ICOM. Paris. 824-7.
- Metals. Zinc. Autoradiography.  
1714 Zamani, B., B.D. Knezek, S.L. Fleger, E.S. Beneke and F.B. Dazzo. (1985). Autoradiographic method to screen for soil microorganisms which accumulate zinc. *Appl. Env. Microbiol.* 49(1):137-42.
- Immunofluorescence. Marine fouling. Adhesion. Bacteria.  
1715 Zambon, J.J., P.S. Huber and A.E. Meyer. (1984). *In situ* identification of bacterial species in marine microfouling films by using an immunofluorescence technique. *Appl. Env. Microbiol.* 48(6):1214-20.
- Wall paintings. Stone. Fungi. Bacteria. Assessment methods.  
1716 Zanotti Censoni, A.L. and P. Mandrioli. (1982). Aerobiological investigation in Scrovegni Chapel (Padua, Italy). *Deterioration and Preservation of Stones: MDBO/ Proceedings*. Universita degli Studi. Istituto di Chimica Industriale. Padova. 699-703.
- Stone. Biocides. Honduras. Copan.  
1717 Zelaya Rubi, V. (1983). Observaciones en Copan, Honduras el 7-8 de Junio de 1979 y recomendaciones para nuevos tratamientos para controlar crecimientos biologicos. *La Pietra: Interventi, Conservazione, Restauro*. Atti del Convegno Internazionale, Lecce 6-8 novembre 1981. Congedo Lecce. 159-70.
- Fungicides. Azoles.  
1718 Zirngibl, L. (1983). Fifteen years of structural modifications in the field of antifungal monocyclic 1-substituted IH-azoles. *Prog. Drug Res.* 27:252-383.
- Leather. Parchment. Fungi.  
1719 Zlochevskaya, I.V., E.V. Martirosova, N.L. Rebrikova, M.A. Al-Nuri and M.V. Gorlenko. (1984). Proteolytic activity of fungi found on parchment and leather. *Mikologiya i Fitopatologiya*. 18(4):300-3.

## Rubber, Plastics, Fungicides.

1720 Zyska, B.J., B.J. Rytych and L.P. Zankowicz. (1971). Microbiological deterioration of rubber cables in deep mines and evaluations of some fungicides. *Biodeterioration of Materials*. Vol. 2. A.H. Walters and E.H. Hueck-van der Plas, eds. John Wiley and Sons. New York. 256-68.

## Glass, Negatives, Cracow, Krieger Collection, Fungi.

1721 Zyska, B.J., Z.T. Cieolik, A.R. Wojcik and R. Kozłowska. (1988). Microbial deterioration of historic glass plate negatives. *Biodeterioration* 7. D.R. Houghton, R.N. Smith and H.O.W. Egging, eds. Elsevier. New York. 428-35.