

**SCIENTIFIC PUBLICATIONS AND PRESENTATIONS  
RELATING TO PLANETARY QUARANTINE**

**Volume V  
The 1974 Supplement**

(NASA-CR-142648) SCIENTIFIC PUBLICATIONS N75-21323  
AND PRESENTATIONS RELATING TO PLANETARY  
QUARANTINE. VOLUME 5: THE 1974 SUPPLEMENT  
(George Washington Univ.) 43 p HC \$3.75 Unclas  
CSCL 22D G3/14 18641

**May 1975**



**SCIENCE COMMUNICATION DIVISION  
THE GEORGE WASHINGTON UNIVERSITY MEDICAL CENTER  
2001 S STREET, N.W., WASHINGTON, DC 20009  
Telephone (202) 462-5828**



SCIENTIFIC PUBLICATIONS AND PRESENTATIONS  
RELATING TO PLANETARY QUARANTINE

Volume V  
The 1974 Supplement

Frank D. Bradley

Work Performed under NASA Contract NASw-2768

for

Planetary Quarantine Office, Planetary Programs  
NASA Office of Space Science

The George Washington University  
Department of Medical and Public Affairs  
Science Communication Division  
2001 S Street, N.W., Washington, DC 20009

GWU-SCD 75-07P  
May 1975

## PREFACE

This publication is the eighth annual supplement to the original bibliography which was issued in June, 1967.

The supplement consists of citations of documents relating to planetary quarantine; many, but not all, refer to work supported by the Planetary Quarantine Office, Planetary Programs, National Aeronautics and Space Administration, Washington, DC. The citations are assembled to update the survey of germane literature in this substantive area. As in previous supplements there is a listing of documents published prior to the current reporting year. These are cited because of their pertinence to the planetary quarantine program.

In certain references, numerals, preceded by letter(s), are given parenthetically as part of the citation. These numbers are to assist users in the procurement of a hard copy of the document from other than the corporate source. Those citations carrying "A" numbers are obtainable, for a fee, from the

American Institute of Aeronautics and Astronautics, Inc.  
Technical Information Service  
750 Third Avenue  
New York, NY 10017

Documents with "N", "NASA-CR", "NASA TN-D", "NASA TT-F" and "PB" numbers are available, at set rates, from the

National Technical Information Service  
U.S. Department of Commerce  
5285 Port Royal Road  
Springfield, VA 22161

"NASA-SP" coded documents are also obtainable from the

Superintendent of Documents  
U.S. Government Printing Office  
Washington, DC 20402

PRECEDING PAGE BLANK NOT FILMED

"X" numbered documents are limited in their distribution to NASA associated or contractor personnel.

"AD" coded documents are usually available from the

Defense Documentat-on Center  
Cameron Station  
Alexandria, VA 22314

The availability of a microfiche of the cited document is indicated by the use of the symbol # following the reference number. In each case the fiche is available from the same source as the hard copy document.

CONTENTS

Preface.....*iii*

Citations.....1

Author Index.....15

Permuted Title Index.....19

Books Containing  
Planetary Quarantine Related Material.....33

Journals Publishing  
Planetary Quarantine Related Articles.....35

Proceedings Publishing  
Planetary Quarantine Related Articles.....37

Corporate Sources.....39

## CITATIONS

1952

1. SMITH, N.R., R.E. Gordon and F.E. Clark. Aerobic sporeforming bacteria. U.S. Department of Agriculture, Agricultural monograph #16. Washington, DC, Government Printing Office. 1952.

1955

2. ENGLE, F.B., Jr. Persistence [survival] of microorganisms: I. Airborne organisms. Texas Reports on Biology and Medicine 13(4):712-757. 1955.

1958

3. LEDERBERG, J. and D.B. Cowie. Moondust. Science 127(3313):1473-1475. 1958.

1959

4. DAVIS, I. and J.D. Fulton. Microbiologic studies on ecologic considerations of the Martian environment. Brooks Air Force Base, TX, School of Aviation Medicine. 1959. Review 2-60. (AD 235-895; PB 165880)

1960

5. RAWSON, A.J. Remote control of biologically hazardous laboratory manipulations. A feasibility study. Fort Detrick, MD, U.S. Army Biological Warfare Laboratories. 1960. Technical study #23. 90p. (AD 238-370)

1962

6. BRUCH, C.W. Spacecraft sterilization. IN: Disinfection, Sterilization and Preservation, Lawrence, C.A. and S.S. Block, eds. Philadelphia, PA, Lea & Febiger. 1962. p. 686-702.
7. EPPLEY, R.W. Sterilization of space probes. Hawthorne, CA, Northrop Space Laboratories. 1962. NSL 62-26. 30 p. (N65-17509#; NASA CR-60875)

8. ERNST, R.R. Sterilization by heat. IN: Disinfection, Sterilization and Preservation. Lawrence, C.A. and S.S. Block, eds. Philadelphia, PA, Lea & Febiger. 1962. p. 703-740.
9. SNEATH, P.H.A. Longevity of microorganisms. Nature 195(4842): 643-646. 1962.

1963

10. GENERAL ELECTRIC CO. Voyager design study. Vol. V: Sterilization. Philadelphia, PA, Missile and Space Division. 1963. Doc. 63SD801. 76 p. (N65-36550#; NASA CR-51840)
11. HOBBY, G.L. Sterilization of spacecraft. Proceedings of the Lunar and Planetary Exploration Colloquium. 3(2):49-52. Downey, CA, North American Aviation, Inc. 1963. (N63-19484)

1964

12. FEUCHTBAUM, R.B., M.T. Willard and A.L. Landis. Development of improved heat sterilizable potting compounds. Culver City, CA, Hughes Aircraft Co., Aerospace Group. 1964. Quarterly report for period 1 January - 31 March 1964. 57 p. (N65-22176#; NASA CR-56443)
13. McDADE, J.J. Sources of microbiological contamination. IN: Conference proceedings of 3rd annual technical meeting, American Association of Contamination Control. San Francisco, CA, West Coast Publishing, Inc. 1964. Paper 3, Session XI. 5 p.
14. OPFELL, J.B. Microorganisms in solid materials. Phases I-IV. South Pasadena, CA, Dynamic Science Corporation. 1964. Final summary report #4201-A. 112 p.
15. \_\_\_\_\_. Microorganisms in solid materials: Task I: Resistance of *alpha* organisms to drying and to sterilization by ethylene oxide. South Pasadena, CA, Dynamic Science Corporation. 1964. Final summary report #4201-B. 44 p.
16. \_\_\_\_\_. Microorganisms in solid materials: Task II: Naturally occurring microbiological flora from normally prepared propellant specimens. South Pasadena, CA, Dynamic Science Corporation. 1964. Final summary report #4201-C. 33 p.

17. REED, L.L. Nature of microbiological contamination. IN: Conference proceedings of 3rd annual technical meeting, American Association for Contamination Control. San Francisco, CA, West Coast Publications, Inc. 1964. Paper 2, Session XI. 6 p.
18. WOLF, H.W. Air sampling methods for monitoring biological contamination. IN: Conference proceedings of 3rd annual technical meeting, American Association of Contamination Control. San Francisco, CA, West Coast Publishing, Inc. 1964. Paper 4, Session XI. 5 p.

1965

19. DAVIS, N.S. Feasibility study for combined method of sterilization. Vols. I and II. Prepared for Jet Propulsion Laboratory. Rochester, NY, Wilmot Castle. 1965. 380 p.
20. McNALL, E.G. Microorganisms in solid materials: Task III: Recovery levels of microbial organisms inoculated into solid propellant specimens. South Pasadena, CA, Dynamic Science Corporation. 1965. Final summary report 4201-D. 32 p.
21. McNALL, E.G. and W. Duffy. Recovery of microorganisms from the interiors of solid materials. Progress report for period 9 August - 9 October 1965. Prepared for the Jet Propulsion Laboratory. Monrovia, CA, Dynamic Science Corporation. 1965. 14 p.
22. MICHAELSON, G.S. Bacteriology of "clean rooms." Progress report for period 1 October 1964 - 31 March 1965. Minneapolis, MN, University of Minnesota. 1965. 13 p. (N65-27296#; NASA CR-63470)
23. ZWERLING, S. Assembly/sterilizer facility feasibility program. Progress report for period 21 July - 21 October 1965. Prepared for Langley Research Center. Philadelphia, PA, General Electric Co. 1965. Doc. 65SD982. 36 p.

1966

24. KAPPELL, G.F., J.J. McDade and T.R. Gavin. Experimental assembly and sterilization laboratory [EASL] operations: Phase I. Pasadena, CA, Jet Propulsion Laboratory. 1966. Technical report 32-941. 30 p. (N66-26287#; NASA CR-75152)

25. ZWERLING, S. Assembly/sterilizer facility feasibility program. Progress report for period 21 July - 21 October 1966. Prepared for Langley Research Center. Philadelphia, PA, General Electric Co. 1966. Doc. 66SD9191. 21 p.

1967

26. BRANNEN, J.P. Analysis for sterilization modeling. IN: Proceedings of the Rocky Mountain Section of the American Astronautical Society Symposium, Denver, CO. 13 - 14 July 1967. 9 p.
27. HAJEMA, E.M. Sterilization Assembly Development Laboratory; study of effects of varying established operating and maintenance procedures of the EASL facility. Prepared for Jet Propulsion Laboratory. Lowell, MA, AVCO Corporation, Space Systems Division. Doc. AVSSC-0299-67-CR. 1967. 36 p. (N68-22776; NASA CR-94385)
28. ZWERLING, S. Research study to definitize a bio-isolator suit system [BISS]. Oral presentation report No. 1 for period 22 July - 28 November 1966. Prepared for Langley Research Center. Philadelphia, PA, General Electric Co. 1967. Doc. 67SD483. 157 p.

1969

29. BRIERLEY, J.A. Parametric study to determine time-temperature-vacuum relationships for sterilization of terrestrial spores. Phase II, Summary report. Denver, CO, Martin Marietta Corporation. MCR-69-269. 1969. 37 p. (N69-29751#; NASA CR-101701)
30. BRIERLEY, J.A. AND S.E. Podlaseck. Parametric study to determine time-temperature-vacuum relationships for sterilization of terrestrial spores. Phase I. Summary report, period ending 18 April 1969. Baltimore, MD, Martin-Marietta Corporation. MCR-69-195. 1969. 38 p. (N69-23883#; NASA CR-99627)
31. MARTIN-MARIETTA CORPORATION. Development of the sterile insertion heat sealing tool and port opening. Final report for period May 1968 - January 1969. Denver, CO. MCR-68-527. 1969. 105 p. (N69-16739#; NASA CR-73609)
32. NATIONAL COMMUNICABLE DISEASE CENTER. Services provided in support of the planetary quarantine requirements of the National Aeronautics and Space Administration. Reduction of microbial dissemination. Atlanta, GA, Public Health Service, U.S. Department of Health, Education and Welfare. 1969. Thirteenth summary report of progress. 9 p. (NASA CR-123343; X71-84120)

1971

33. KOMEMUSHI, S. Problems of heat sterilization dynamics. Translated from Journal of Fermentation Technology 49(8):706-715. 1971. Washington, DC, NASA. 1972. TT F-14,543. (N72-32086#).
34. ROBINSON, G.S. Earth exposure to extraterrestrial trial matter: NASA's quarantine regulations. International Lawyer 5(2): 219-248. 1971.

1972

35. ANTHONY, H.V., M.B. Congdon, M.W. McKenzie et al. Surface contaminants. Contamination Control/Biomedical Environments. XI (11&12):12-15, 18-21 and 29. 1972.
36. GREEN, R.H. Application of planetary quarantine methodology and spacecraft sterilization technology to improved health care delivery. Presentation. Pasadena, CA, Jet Propulsion Laboratory. 1972. 10 p.
37. MOLTON, P.M. Exobiology, Jupiter and life. Spaceflight 14(6): 220-223. 1972.
38. PFLUG, I.J. Environmental microbiology as related to planetary quarantine. Semiannual progress report for period 1 June - 30 November 1972. Minneapolis, MN, University of Minnesota. 1972. 107 p. (N74-19754#; NASA CR-138002)
39. SHAPTON, D.A. and R.G. Board. Safety in microbiology. Society for Applied Microbiology, Technical series #6. New York, Academic Press Inc. 1972. 266 p.
40. BREUS, T.K., and K.I. Gringauz. Plasma in the vicinity of Venus. Comparison of the results received by means of Venera-4 and Mariner-5. Translated from Martynov, D.Y. and V.A. Bronshten, eds. "Physics of the Moon and the Planets" p. 279-283. Moscow, "Nauka Press," 1972. Washington, DC, NASA. 1973. TT F-15,128. (N73-31743#; A73-33804#)

1973

41. CAMPBELL, J.E. Ecology and thermal inactivation of microbes in and on interplanetary space vehicle components. Combined 33rd and 34th reports of progress for period 1 April - 30 September 1973. Cincinnati, OH, Food & Drug Administration, U.S. Department of Health, Education and Welfare. 1973. 72 p. (N74-20713#; NASA CR-136901)

42. CERF, O., J.-L. Berry, M. Riottot et al. Simple apparatus for the measurement of the activity of quick acting disinfecting or sterilizing solutions and its application to the measurement of the action of sodium hypochlorite on bacterial spores. *Pathologie et Biologie* 21(8):889-894. Washington,DC, NASA. 1973. TT F-15,238.
43. CLAUSEN, O.G. Study of the growth-promoting properties of fluid and solid microbial-contamination test media on small numbers of microorganisms. *Pharmaceutica Acta Helvetiae* 48(10):541-548. 1973.
44. CRICK, F.H.C. and L.E. Orgel. Directed panspermia. *Icarus* 19(3): 341-346. 1973.
45. DIMMICK, R.L., M.A. Chatigny and H. Wolochow. Studies on possible propagation of microbial contamination in planetary clouds. Oakland, CA, ONR/Naval Biomedical Research Laboratory. 1973. Quarterly status report. 2 p. (N74-74044; NASA CR-138427)
46. DIVINE, T.N. Interplanetary charged particle environments. Pasadena, CA, Jet Propulsion Laboratory. 1973. Technical memorandum 33-637. 57 p.
47. FOSTER, T.L. Response of selected microorganisms to a simulated Martian environment. College Station, TX, Texas A & M University. 1973. Ph.D. Thesis. (N74-18739)
48. IMSHENETSKIY, A.A., C.B. Lysenko, B.F. Udovenko et al. Long-term effect of high vacuum on microorganisms. *Mikrobiologiya* 42(5): 836-838. 1973. Washington DC, NASA. TT F-15,720. (N74-28564#)
49. KUSAKARI, S.I. and Y. Takagi. Fungistatic activity of soil sterilized by gamma radiation. *Canadian Journal of Microbiology* 19(10): 1333-1334. 1973.
50. LINE, S.J. and J.K. Pickerill. Testing a steam-formaldehyde sterilizer for gas penetration efficiency. *Journal of Clinical Pathology* 26(9):716-720. 1973.
51. PULEO, J.R. Protocol for a standardized calibrated system for the evaluation of physical variables in dry heat sterilization studies. Pasadena, CA, Jet Propulsion Laboratory. 1973. Presentation to AIBS P.Q. Panel.
52. PULEO, J.R., G.S. Oxborrow, N.D. Fields, et al. Microbiological profiles of four Apollo spacecraft. *Applied Microbiology* 26(6):838-845. 1973. (A74-21025)

53. RAFENSTEIN, M. Planetary quarantine computer applications. Pasadena, CA, Jet Propulsion Laboratory. 1973. Technical memorandum 33-661. 66 p. (N74-12773#; NASA CR-136220)
54. SAGAN, C. Ultraviolet selection pressure on the earliest organisms. *Journal of Theoretical Biology* 39:195-200. 1973. (A74-13960)
55. TRAUTH, C.A., Jr. Observation about the relative hardness of bacterial spores and planetary quarantine. *Space Life Sciences* 4(3&4):357-367. 1973. (A74-17956)
56. VOBLIKOVA, V.A., V.I. Myshkovskiy, E.I. Semenko et al. Gas chromatographic determination of the products of destruction of polymer materials by radiation sterilization. *Khimiko-Farmatsevicheskiy Zhurnal* 7(8):56-58. 1973. Washington DC, NASA. TT F-15,573. (N74-22800#)
57. YALE, C.E. Combination sterilizing chamber and transfer and housing isolator for use in gnotobiotic laboratories. *Laboratory Animal Science* 23(5):885-888. 1973.

1974

58. ADAM, W. Research on cold sterilization with formalin vapors. *Zentralblatt fuer Bakteriologie, Parasitenkunde, Infektionskrankheiten, und Hygiene. Abteilung I, Originale A* 227:477-481. 1974. Washington, DC, NASA. TT F-16,085. (N75-13512#)
59. BECKMAN, J.C., J.R. Hyde and S.I. Rasool. Exploring Jupiter and its satellites with an orbiter. *Astronautics & Aeronautics* 12(9):24-35. 1974.
60. BRADLEY, F.D. Scientific publications and presentations relating to planetary quarantine. Volume V. 1973 Supplement. Washington, DC, George Washington University. 1974. GWU-SCD 74-14P. 72 p.
61. BUECKER, H., G. Horneck, H. Wollenhaupt et al. Viability of *Bacillus subtilis* spores exposed to space environment in the M-191 experiment system aboard Apollo 16. IN: Sneath, P.H.A. ed., *Life Sciences and Space Research XII*:209-213. Berlin, Akademie-Verlag. 1974.
62. CAMPBELL, J.E. Ecology and thermal inactivation of microbes in and on interplanetary space vehicle components. Report of Progress for period 1 October - 31 December 1973. Cincinnati, OH, Food & Drug Administration, U.S. Department of Health, Education and Welfare. 1974. 7 p. (N74-29446#; NASA CR-138895)

63. *idem*, Progress Report for period 1 January - 31 March 1974. Cincinnati, OH, Food and Drug Administration, U.S. Department of Health, Education and Welfare. 1974. 23 p. (N74-30480#; NASA CR-139485)
64. *idem*, Report of progress for period 1 April - 30 June 1974. Cincinnati, OH, Food & Drug Administration. U.S. Department of Health, Education and Welfare. 1974. 10 p. (N75-15261#; NASA CR-141122)
65. CHATIGNY, M.A. and H. Wolochow. Evidence for metabolic activity of airborne bacteria. Oakland, CA, ONR/Naval Biomedical Research Laboratory. 1974. Quarterly status report. 14 p. (N74-21719#; NASA CR-138187)
66. DeFREES, R.E. Techniques of biological contamination avoidance by atmospheric probes. Prepared for NASA Ames Research Center. St. Louis, MO, McDonnell Douglas Astronautics Company-East. 1974. 70 p. (NASA CR-137562)
67. DIMMICK, R.L., A. Boyd and H. Wolochow. Simple method for estimation of coagulation efficiency in mixed aerosols. Oakland, CA, ONR/Naval Biomedical Research Laboratory. 1974.
68. DIMMICK, R.L., H. Wolochow, M.A. Chatigny et al. Evidence for metabolic activity of airborne bacteria. Quarterly Report 1973-74. Oakland, CA, ONR/Naval Biomedical Research Laboratory. 1974. 9 p. (N74-31552#; NASA CR-13960)
69. DIMMICK, R.L., H. Wolochow, P. Straat et al. Studies on propagation of microbes in the airborne state. Oakland, CA, ONR/Naval Biomedical Research Laboratories. 1974. Third quarterly report 1974-1975. 16 p. (N75-11590#; NASA CR-131844)
70. DIVINE, T.N. Titan atmosphere models [1973]. Pasadena, CA, Jet Propulsion Laboratory. 1974. Technical memorandum 33-672. 39 p. (N74-16536#; NASA CR-136694)
71. DUGAN, V. and R. Trujillo. Fundamental problem in radiation biology. *Journal of Theoretical Biology* 44(2):397-401. 1974. (A74-45317)
72. DUKE, M.B. and M.A. Reynolds. Lunar sample quarantine procedures: interaction with nonquarantine experiments. IN: Sneath, P.H.A., ed. *Life Sciences and Space Research*, XII:203-208. Berlin, Akademie-Verlag. 1974. (A73-35978#)

73. EXOTECH SYSTEMS, INC. Scientific and technical services directed toward the development of planetary quarantine measures for automated spacecraft. Third quarterly report. Falls Church, VA. 1974. (N74-14831#; NASA CR-136613)
74. FIELDS, N.D., G.S. Oxborrow, J.R. Puleo et al. Evaluation of membrane filter field monitors for microbiological air sampling. Applied Microbiology 27(3):517-520. 1974. (A74-45314)
75. FINK, D.E. Space shuttle flight plan written. Aviation Week and Space Technology 100(22):12-15. 1974.
76. FISHER, D.A. and I.J. Pflug. Effect of combined heat and radiation on microbial destruction. IN: Pflug, I.J., ed., Environmental Microbiology as Related to Planetary Quarantine, December 1972 - May 1973. Minneapolis, MN, University of Minnesota. 1974.
77. FOSTER, T.L. Study of psychrophilic organisms isolated from the manufacture and assembly areas of spacecraft to be used in the Viking mission. Semiannual progress report for period 1 January - 30 June 1974. Abilene, TX, Hardin-Simmons University. 1974. 36 p. (N74-30477#; NASA CR-139390)
78. FOSTER, T.L. and L. Winans, Jr. Study of psychrophilic organisms isolated from the manufacture and assembly areas of spacecraft to be used in the Viking mission. Planetary quarantine activities, 1 July - 31 December 1973. Abilene, TX, Hardin-Simmons University. 1974. 39 p. (N74-19726#; NASA CR-137346)
79. FRANKENBERG-SCHWAGER, M., H. Buecker, and H. Wollenhaupt. Survivability of microorganisms in space and its impact on planetary exploration. Raumfahrtforschung 18(Sept. - Oct.):209-212. 1974. (N74-29266#; A75-13845)
80. GARST, D.M. and W.J. Whitfield. Examination of some physical and biological differences of Cape Kennedy soil particles. Albuquerque, NM, Sandia Laboratories. 1974. SLA-74-0234. 24 p. (N74-25900#; NASA CR-138509)
81. GOAD, J.H. Jr., J.D. DiBattista, D.M. Robinson et al. Removal of spacecraft-surface particulate contaminants by simulated micrometeoroid impacts. Hampton, VA, NASA Langley Research Center. 1974. (NASA TN-D-7494; N74-22507#)

82. GONZALEZ, C.C., W. Jaworski, A.D. McDonald et al. Reduction in microbial burden of a spacecraft due to heating on entry into the atmosphere of Jupiter. IN: Sneath, P.H.A., ed. Life Sciences and Space Research XII:221-227. Berlin, Akademie-Verlag. 1974. (N73-24117#; NASA CR-132072; A73-36100#)
83. HALL, L.B. Planetary Quarantine: An important facet of environmental control. IN: Critical Reviews in Environmental Control 4(1):39-68. Cleveland, OH, Chemical Rubber Company. 1974.
84. HERBST, R.A. Is a clean room the answer? Journal of Environmental Sciences 17(4):15-18. 1974. (A74-41621)
85. HERRING, C.M., J.W. Brandsberg, G.S. Oxborrow et al. Comparison of media for detection of fungi on spacecraft. Applied Microbiology 27(3):566-569. 1974. (A74-45313)
86. HILL, L.W., S.P. Pappas and Y-C. Hsiao. Quantitation of buried contamination by use of solvents. Semiannual progress report January - June 1974. Fargo, ND, North Dakota State University. 1974. (N74-29477#; NASA CR-139381)
87. HOFFMAN, A.R., W. Jaworski and D.M. Taylor. Self sterilization of bodies during outer planet entry. Pasadena, CA, Jet Propulsion Laboratory. Presentation L.4.2 to COSPAR 1974. 21 p. (N75-10678#; NASA CR-140808)
88. HOFFMAN, A.R., W. Stavro and C. Gonzalez. Quarantine constraints as applied to satellites. IN: Sneath, P.H.A., ed. Life Sciences and Space Research, XII:229-234. Berlin, Akademie-Verlag. 1974. (N73-24116#; NASA CR-132073; A73-35976#)
89. HOFFMAN, A.R., W. Stavro, L.W. Miller et al. Terrestrial quarantine considerations for unmanned sample return missions. IN: Sneath, P.H.A., ed. Life Sciences and Space Research XII:215-220. Berlin, Akademie-Verlag. 1974.
90. HSIAO, Y-C. Solubilization and spore recovery from silicone polymers. Fargo, ND, North Dakota State University. 1974. Doctor of Philosophy thesis. 145 p. (N75-11591#; NASA CR-140769)
91. JACOBSON, R.L. Application of biometrical principles in the study of dry heat destruction of bacterial spores. IN: Summary of progress in Environmental Microbiology as Related to Planetary Quarantine, December 1973 - May 1974. Minneapolis, MN, University of Minnesota. 1974. (abstract only) 1 p.

92. JAFFEE, L.D., R.E. Cameron, G.L. Hobby et al. Mars surface sample return science requirements and contamination of earth. Pasadena, CA, Jet Propulsion Laboratory. 1974. Document 760-101. 48 p.
93. JUDD, B.R., D.W. North and J.P. Pezier. Assessment of the probability of contaminating Mars. Menlo Park, CA, Stanford Research Institute. 1974. MSU-2788. 170 p. (N74-26299#; NASA CR-138522)
94. MICHAELSEN, G.S. Safety of containment systems; state-of-the-art biobarrier technology. Minneapolis, MN, University of Minnesota. 1974. Presentation at "Martian Surface Sample Return" meeting, NASA Headquarters, June 1974.
95. MILLER, M.W., H.D. Maillie and G.E. Kaufman. Radiation belts of Jupiter and implications for planetary quarantine. Presentation to AIBS. Planetary Quarantine Panel, San Francisco, CA. February 1974. 15 p.
96. MOORE, B., R. Jacobson and I.J. Pflug. Dry heat destruction rate of bacterial spores. IN: Pflug, I.J. ed. Environmental Microbiology as Related to Planetary Quarantine. December 1972 - May 1973. Minneapolis, MN, University of Minnesota. 1974. (N75-12622#; NASA CR-140941)
97. NORTH, D.W., B.R. Judd and J.P. Pezier. New methodology for assessing the probability of contaminating Mars. COSPAR presentation V.4.3. Menlo Park, CA, Stanford Research Institute. 1974. 14 p.
98. OXBORROW, G.S., A.L. Roark, N.D. Fields et al. Mathematical estimation of the level of microbial contamination on spacecraft surfaces by volumetric air sampling. Applied Microbiology 27(4):706-712. 1974. (A74-45316)
99. PAPPAS, S.P., Y-C. Hsiao and L.W. Hill. Quantitation of buried contamination by use of solvents. Semiannual progress report, July - December 1973. Fargo, ND, North Dakota State University. 1974. 14 p. (N74-29476#; NASA CR-139383)
100. PFLUG, I.J. Environmental microbiology as related to planetary quarantine. Summary of progress for period 1 December 1972 through 31 May 1973. Minneapolis, MN, University of Minnesota. 1974. 43 p. (N74-33575#; NASA CR-140447)

101. REYNOLDS, M.C., K.F. Lindell, T.J. David et al. Thermoradiation inactivation of naturally occurring bacterial spores in soil. *Applied Microbiology* 28(3):406-410. 1974.
102. RUSCHMEYER, O.R., I.J. Pflug, R. Gove et al. Dry heat effects on survival of indigenous soil particle microflora and particle viability studies of Kennedy Space Center soil. IN: I.J. Pflug ed., *Basic studies in environmental microbiology as related to planetary quarantine. Semiannual progress report #13 for the period June - November 1974.* Minneapolis, MN, University of Minnesota. 1974.
103. RUSCHMEYER, O.R., B. Moore, G. Smith et al. Dry heat effects on viability of Cape Kennedy soil particles. IN: Pflug, I.J. (ed.). *Summary of Progress in Environmental Microbiology as Related to Planetary Quarantine for period 1 June - 30 November 1973.* Minneapolis, MN, University of Minnesota. 1974. 25 p. (N74-34559#; NASA CR-140522)
104. RUSCHMEYER, O.R., I.J. Pflug, R. Gove et al. Plate count analyses of soil particle viability of Cape Kennedy soil fractions. IN: *Summary of progress in Environmental Microbiology as Related to Planetary Quarantine, December 1973 - May 1974.* Minneapolis, MN, University of Minnesota. 1974. 12 p. (N74-33575#; NASA CR-140447)
105. RUSCHMEYER, O.R., G. Smith, I.J. Pflug et al. Dry heat resistance studies of selected bacterial spore crops. IN: Pflug, I.J. ed. *Environmental Microbiology as Related to Planetary Quarantine, December 1972 - May 1973.* Minneapolis, MN, University of Minnesota. 1974.
106. SMITH, G.M. and I.J. Pflug. Laboratory control and statistical analysis. IN: Pflug, I.J. ed. *Environmental Microbiology as Related to Planetary Quarantine December 1972 - May 1973.* Minneapolis, MN, University of Minnesota. 1974.
107. SOUZA, K.A. and L.P. Zill. Survival of common bacteria in liquid culture under carbon dioxide at high temperatures. *Nature* 247(5435):67. January 1974. (A74-18286)
108. SPICHER, G. Microbiological indicators of sterilization. General principles. *Zentralblatt fuer Bakteriologie, Parasitenkunde, Infektionskrankheiten und Hygiene. I Abteilung, Originale A,* 224(4):527-553. 1973. Washington, DC, National Aeronautics and Space Administration. 1974. (N74-15784#; TT F-15,328)

109. SPROESSIG, M., H. Muecke and R. Domnick. Experiments and observations on sterilization of thermolabile objects with peracetic acid. *Pharmazie* 29(2):132-137. 1974. Washington, DC. NASA.TT F-15,572. (N74-22139#)
110. TAYLOR, D.M. et al. Planetary quarantine. Semiannual review Space Research and Technology. 1 January - 30 June 1974. Pasadena, CA, Jet Propulsion Laboratory. 1974. Doc. 900-675. 132 p. (N75-10707#; NASA CR-14086)
111. TAYLOR, D.M., R.M. Berkman and N. Divine. Consideration of probability of bacterial growth for Jovian planets and their satellites. Pasadena, CA, Jet Propulsion Laboratory. Presentation V.4.4 to COSPAR 1974. 19 p. (N75-10712#; NASA CR-14087)
112. TAYLOR, D.M., J.R. Puleo, A.R. Hoffman et al. Planetary quarantine, Space Research and Technology, semiannual review for period 1 July - 31 December 1973. Pasadena, CA, Jet Propulsion Laboratory. 1974. Document 900-655. 127 p. (N74-19727#; NASA CR-137345)
113. TAYLOR, G.R. Space microbiology. IN: Starr, M.P., J.L. Ingraham and S. Raffel, eds. Annual Review of Microbiology 28:121-137. Palo Alto, CA, Annual Reviews, Inc. 1974.
114. TEAH, B.A. Bibliography of germfree research. Notre Dame, IN, Lobund Laboratory, University of Notre Dame. 1974. 1971 supplement. 19 p.
115. VASHKOV, V.I., N.V. Ramkova, G.V. Scheglova et al. Verification of the efficacy of spacecraft sterilization. IN: Sneath, P.H.A., ed. Life Sciences and Space Research XII:199-202. Berlin, Akademie-Verlag. 1974. (A75-12870#)
116. VELA, G.R. Survival of Azotobacter in dry soil. *Applied Microbiology* 28(1):77-79. 1974.
117. WILLIS, L.B. and B.E. Winsley. Cotton wool bacteriological swabs-effect of sterilization method on performance. *Medical Laboratory Technology* 31(1)51-58. 1974.
118. WINANS, L. Jr. Quantitative ecology and dry heat resistance of psychrophiles. Abilene, TX, Hardin-Simmons University. 1974. 119 p. (N74-31571#; NASA CR-139667)
119. WOLFSON, R.P. Scientific and technical services directed toward the development of planetary quarantine measures for automated spacecraft. Falls Church, VA, Exotech Systems, Inc. 1974. Final report NASw-2503. 76 p. (N74-19755#; NASA CR-138001)

120. WOLOCHOW, H., M.A. Chatigny and J. Herbert. Release of bacterial spores from inner walls of a stainless steel cup subjected to thermal stress. 1st Quarterly Report, 1973-74. Oakland, CA, ONR/Naval Biomedical Research Laboratory. 1974. 19 p. (N74-31553#; NASA CR-139621)
121. YUNG, Y.L. and M.B. McElroy. Ganymede: Possibility of an oxygen atmosphere. Boston, MA, Harvard University. Presentation, December 1974. 16 p.

AUTHOR INDEX

Adam, W.	58	Eppley, R.W.	7
Anthony, H.V.	35	Ernst, R.R.	8
Beckman, J.C.	59	Feuchtbaum, R.B.	12
Berkman, R.M.	111	Fields, N.D.	52,74,98
Berry, J.-L.	42	Fink, D.E.	75
Board, R.G.	39	Fisher, D.A.	76
Boyd, A.	67	Foster, T.L.	47,77,78
Bradley, F.D.	60	Frankenberg-Schwager, M.	79
Brandsberg, J.W.	85	Fulton, J.D.	4
Brannen, J.P.	26		
Breus, T.K.	40		
Brierley, J.A.	29,30	Garst, D.M.	80
Bruch, C.W.	6	Gavin, T.R.	24
Buecker, H.	61,79	Goad, J.H., Jr.	81
		Gonzalez, C.C.	82,88
		Gordon, R.E.	1
Cameron, R.E.	92	Gove, R.	102,104
Campbell, J.E.	41,62,63,64	Green, R.H.	36
Cerf, O.	42	Gringauz, K.I.	40
Chatigny, M.A.	45,65,68,120		
Clark, F.E.	1		
Clausen, O.G.	43	Hajema, E.M.	27
Congdon, M.B.	35	Hall, L.B.	83
Cowie, D.B.	3	Herbert, J.	120
Crick, F.H.C.	44	Herbst, R.A.	84
		Herring, C.M.	85
		Hill, L.W.	86,99
David, T.J.	101	Hobby, G.L.	11,92
Davis, I.	4	Hoffman, A.R.	87,88,89,112
Davis, N.S.	19	Horneck, G.	61
DeFrees, R.E.	66	Hsiao, Y-C.	86,90,99
DiBattista, J.D.	81	Hyde, J.R.	59
Dimmick, R.L.	45,67,68,69		
Divine, T.N.	46,70,111		
Domnick, R.	109	Imshenetskiy, A.A.	48
Duffy, W.	21		
Dugan, V.	71		
Duke, M.B.	72	Jacobson, R.L.	91,96
		Jaffee, L.D.	92
		Jaworski, W.	82,87
Engley, F.B., Jr.	2	Judd, B.R.	93,97

Kapell, G.F.	24	Reynolds, M.A.	72
Kaufman, G.E.	95	Reynolds, M.C.	101
Komemushi, S.	33	Riottot, M.	42
Kusakari, S.I.	49	Roark, A.L.	98
		Robinson, D.M.	81
		Robinson, G.S.	34
Landis, A.L.	12	Ruschmeyer, O.R.	102,103
Lederberg, J.	3		104,105
Lindell, K.F.	101		
Line, S.J.	50	Sagan, C.	54
Lysenko, C.B.	48	Scheglova, G.V.	115
		Semenko, E.I.	56
Maillie, H.D.	95	Shapton, D.A.	39
McDade, J.J.	13,24	Smith, G.M.	103,105,106
McElroy, M.B.	121	Smith, N.R.	1
McKenzie, M.W.	35	Sneath, P.H.A.	9
McNall, E.G.	20,21	Souza, K.A.	107
McRonal, A.D.	82	Spicher, G.	108
Michaelson, G.S.	22,94	Sproessig, M.	109
Miller, L.W.	89	Stavro, W.	88,89
Miller, M.W.	95	Straat, P.	69
Molton, P.M.	37		
Moore, B.	96,103	Takagi, Y.	49
Muecke, H.	109	Taylor, D.M.	87,110,111,112
Myshkovskiy, V.I.	56	Taylor, G.R.	113
		Teah, B.A.	114
North, D.W.	93,97	Trauth, C.A., Jr.	55
		Trujillo, R.	71
Opfell, J.B.	14,15,16	Udovenko, B.F.	48
Orgel, L.E.	44		
Oxborrow, G.S.	52,74,85,98	Vashkov, V.I.	115
		Vela, G.R.	116
Pappas, S.P.	86,99	Voblikova, V.A.	56
Pezier, J.P.	93,97		
Pflug, I.J.	38,76,96,100	Whitfield, W.J.	80
	102,104,105,106	Willard, M.T.	12
Pickerill, J.K.	50	Willis, L.H.	117
Podlaseck, S.E.	30	Winans, L., Jr.	78,118
Puleo, J.R.	51,52,74,112	Winsley, B.E.	117
		Wolf, H.W.	18
Rafenstein, M.	53	Wolfson, R.P.	119
Ramkova, N.V.	115	Wollenhaupt, H.	61,79
Rasool, S.I.	59	Wolochow, H.	45,65,67
Rawson, A.J.	5		68,69,120
Reed, L.L.	17		

Yale, C.E. 57  
Yung, Y.L. 121

Zill, L.P. 107  
Zwerling, S. 23,25,28

PERMUTED TITLE INDEX

Aerobic sporeforming bacteria	1
(aerosol)Evidence for metabolic activity of airborne bacteria	68
aerosols/Simple method for estimation of coagulation efficiency	67
airborne bacteria/Evidence of metabolic activity of	65
airborne bacteria/Evidence for metabolic activity of	68
Airborne organisms/Persistence [survival] of microorganisms: I.	2
airborne state/Studies on propagation of microbes in the	69
air sampling/Evaluation of membrane filter field monitors for mi	74
Air sampling methods for monitoring biological contamination	18
(anabiosis)Longevity of microorganisms	9
analyses of soil particle viability of Cape Kennedy soil fractio	104
Analysis for sterilization modeling	26
analysis/Laboratory control and statistical	106
(analysis)Microbiological profiles of four Apollo spacecraft	52
(analysis)Planetary quarantine computer applications	53
Apollo 16/Viability of <i>Bacillus subtilis</i> spores exposed to space	61
Apollo spacecraft/Microbiological profiles of four	52
apparatus for the measurement of the activity of quick acting di	42
Application of biometrical principles in the study of dry heat d	91
Application of planetary quarantine methodology and spacecraft s	36
assembly and sterilization laboratory [EASL] operations: Phase I	24
assembly areas of spacecraft to be used in the Viking mission/St	77
assembly areas of spacecraft to be used in the Viking mission/St	78
Assembly/sterilizer facility feasibility program	23
Assembly/sterilizer facility feasibility program	25
Assessment of the probability of contaminating Mars	93
(atmosphere)Air sampling methods for monitoring biological conta	18
(atmosphere)Consideration of probability of bacterial growth for	111
atmosphere/Ganymede: Possibility of an oxygen	121
atmosphere models [1973]/Titan	70
atmosphere of Jupiter/Reduction in microbial burden of a spacecr	82
(atmosphere)Studies on possible propagation of microbial contami	45
atmospheric probes/Techniques of biological contamination avoida	66
(back contamination)Mars surface sample return science requireme	92
bacteria/Aerobic sporeforming	1
bacteria/Evidence for metabolic activity of airborne	65
bacteria/Evidence for metabolic activity of airborne	68
Bacteriology of "clean rooms"	22
(beta-propiolactone)Sterilization of space probes	7
Bibliography of germfree research	114
(bibliography)Scientific publications and presentations relating	60

PRECEDING PAGE BLANK NOT FILMED

(bioassay)Assembly/sterilizer facility feasibility program	23
(bioassay)Assembly/sterilizer facility feasibility program	25
bio-barrier technology/Safety of containment systems; state-of-the-art	94
bio-isolator suit system[BISS]/Research study to definitize a	28
(bioload)Assessment of the probability of contaminating Mars	93
(bioload)Examination of some physical and biological differences	80
(bioload)Planetary quarantine	112
(bioload)Reduction in microbial burden of a spacecraft due to heat	82
(bioload)Release of bacterial spores from inner walls of a station	120
(bioload)Space microbiology	113
(bioload)Sterilization Assembly Development Laboratory; study of	27
(bioload)Techniques of biological contamination avoidance by atmospheric	66
biometrical principles in the study of dry heat destruction of bacteria	91
(biometry)Laboratory control and statistical analysis	106
buried contamination by use of solvents/Quantitation of	86
buried contamination by use of solvents/Quantitation of	99
(buried contamination)Microorganisms in solid materials. Phases	14
(buried contamination)Microorganisms in solid materials: Task I	20
(buried contamination)Microorganisms in solid materials: Task II	15
(buried contamination)Microorganisms in solid materials: Task III	16
(buried contamination)Recovery of microorganisms from the interplanetary	21
(buried contamination)Solubilization and spore recovery from silicon	90
carbon dioxide at high temperatures/Survival of common bacteria	107
(celestial bodies)Earth exposure to extraterrestrial material	34
(chemical)Analysis of sterilization modeling	26
(chemical)Exobiology, Jupiter and life	37
(chemical)Experiments and observations on sterilization of thermophilic	109
(chemical)Microorganisms in solid materials: Task I: Resistance	15
(chemical)Moondust	3
(chemical)Quantitation of buried contamination by use of solvent	86
(chemical)Quantitation of buried contamination by use of solvent	99
(chemical)Simple apparatus for the measurement of the activity of	42
(chemical)Solubilization and spore recovery from silicone polymer	90
(chemical)Surface contaminants	35
(chemical)Testing a steam-formaldehyde sterilizer for gas penetration	50
chromatographic determination of the products of destruction of	56
(clean room)Application of planetary quarantine methodology and	36
"clean rooms"/Bacteriology of	22
(clean room)Sources of microbiological contamination	13
clean room the answer/Is a	84
(closed ecology)Combination sterilizing chamber and transfer and	57
(closed ecology)Evidence for metabolic activity of airborne bacteria	68
clouds/Studies on possible propagation of microbial contamination	45
coagulation efficiency in mixed aerosols/Simple method for estimation	67
Combination sterilizing chamber and transfer and housing isolator	57
Comparison of media for detection of fungi on spacecraft	85
Consideration of probability of bacterial growth for Jovian planet	111
constraints as applied to satellites/Quarantine	88
containment systems; state-of-the-art bio-barrier technology/Safety	94

contaminants by simulated micrometeoroid impacts/Removal of spac	81
contaminants/Surface	35
contaminating Mars/Assessment of the probability of	93
contamination/Air sampling methods for monitoring biological	18
contamination avoidance by atmospheric probes/Techniques of biol	66
(contamination)Evaluation of membrane filter field monitors for	74
contamination in planetary clouds/Studies on possible propagatio	45
(contamination)Is a clean room the answer	84
contamination/Nature of microbiological	17
contamination of earth/Mars surface sample return science requir	92
contamination on spacecraft surfaces by volumetric air sampling/	98
(contamination)Scientific and technical services directed toward	73
contamination/Sources of microbiological	13
(contamination)Sterilization of spacecraft	11
Cotton wool bacteriological swabs-effect of sterilization method	117
(cryobiology)Longevity of microorganisms	9
(cryobiology)Response of selected microorganisms to a simulated	47
(cryobiology)Study of psychrophilic organisms isolated from the	77
(cryobiology)Study of psychrophilic organisms isolated from the	78
(cybernetics)Planetary quarantine computer applications	53
(cybernetics)Remote control of biologically hazardous laboratory	5
(decontamination)Experimental assembly and sterilization laborat	24
(decontamination)Planetary quarantine	110
(decontamination)Planetary quarantine	112
(decontamination)Spacecraft sterilization	6
(dehydration)Microorganisms in solid materials: Task I: Resistan	15
(design)Assembly/sterilizer facility feasibility program	23
(design)Combination sterilizing chamber and transfer and housing	57
(design)Remote control of biologically hazardous laboratory mani	5
(design)Research study to definitize a bio-isolator suit system	28
(design)Sterilization of space probes	7
design study. Vol. V: Sterilization/Voyager	10
destruction/Effect of combined heat and radiation on microbial	76
destruction rate of bacterial spores/Dry heat	96
detection of fungi on spacecraft/Comparison of media for	85
Development of improved heat sterilizable potting compounds	12
Development of the sterile insertion heat sealing tool and port	31
Directed panspermia	44
dissemination/Services provided in support of the planetary quar	32
(dry heat)Application of planetary quarantine methodology and sp	36
dry heat destruction of bacterial spores/Application of biometri	91
Dry heat destruction rate of bacterial spores	96
(dry heat)Ecology and thermal inactivation of microbes in and on	64
Dry heat effects on survival of indigenous soil particle microfl	102
Dry heat effects on viability of Cape Kennedy soil particles	103
(dry heat)Environmental microbiology as related to planetary qua	38
(dry heat)Environmental microbiology as related to planetary qua	100
(dry heat)Examination of some physical and biological difference	80
(dry heat)Plate count analyses of soil particle viability of Cap	104

dry heat resistance of psychrophiles/Quantitative ecology and	118
Dry heat resistance studies of selected bacterial spore crops	105
(dry heat)Spacecraft sterilization	6
(dry heat)Sterilization of spacecraft	11
(dry heat)Sterilization of space probes	7
dry heat sterilization studies/Protocol for a standardized calib	51
drying and to sterilization by ethylene oxide/Microorganisms in	15
(D-value)Application of biometrical principles in the study of d	91
(D-value)Dry heat resistance studies of selected bacterial spore	105
(D-value)Environmental microbiology as related to planetary quar	38
(D-value)Environmental microbiology as related to planetary quar	100
(D-value)Microbiological indicators of sterilization. General pr	108
(D-value)Observation about the relative hardness of bacterial s	55
(D-value)Parametric study to determine time-temperature-vacuum r	29
(D-value)Problems of heat sterilization dynamics	33
(D-value)Simple apparatus for the measurement of the activity of	42
(D-value)Sterilization by heat	8
Earth exposure to extraterrestrial trial matter: NASA's quaranti	34
ecologic considerations of the Martian environment/Microbiologic	4
ecology and dry heat resistance of psychrophiles/Quantitative	118
Ecology and thermal inactivation of microbes in and on interplan	41
Ecology and thermal inactivation of microbes in and on interplan	62
Ecology and thermal inactivation of microbes in and on interplan	63
Ecology and thermal inactivation of microbes in and on interplan	64
Effect of combined heat and radiation on microbial destruction	76
(electron microscope)Ecology and thermal inactivation of microbe	63
(environment)Air sampling methods for monitoring biological cont	18
environmental control/Planetary Quarantine: An important facet o	83
Environmental microbiology as related to planetary quarantine	38
Environmental microbiology as related to planetary quarantine	100
(environment)Assessment of the probability of contaminating Mars	93
(environment)Bacteriology of "clean rooms"	22
(environment)Consideration of probability of bacterial growth fo	111
(environment)Development of improved heat sterilizable potting c	12
(environment)Evaluation of membrane filter field monitors for mi	74
(environment)Exobiology, Jupiter and life	37
environment in the M-191 experiment system aboard Apollo 16/Viab	61
(environment)Is a clean room the answer	84
environment/Microbiologic studies on ecologic considerations of	4
(environment)Moondust	3
(environment)Nature of microbiological contamination	17
(environment)Persistence [survival] of microorganisms: I. Airbor	2
environment/Response of selected microorganisms to a simulated M	47
environments/Interplanetary charged particle	46
(environment)Sources of microbiological contamination	13
(environment)Sterilization Assembly Development Laboratory; stud	27
(environment)Study of psychrophilic organisms isolated from the	77
(environment)Survivability of microorganisms in space and its im	79
(environment)Survival of Azotobacter in dry soil	116

(equipment)Air sampling methods for monitoring biological contam	18
(equipment)Combination sterilizing chamber and transfer and hous	57
(equipment)Development of the sterile insertion heat sealing too	31
(equipment)Remote control of biologically hazardous laboratory m	5
(equipment)Research study to definitize a bio-isolator suit syst	28
(equipment)Safety in microbiology	39
(ethylene oxide)Cotton wool bacteriological swabs-effect of ster	117
(ethylene oxide)Development of the sterile insertion heat sealin	31
ethylene oxide/Microorganisms in solid materials: Task I: Resist	15
(ethylene oxide)Microorganisms in solid materials: Task II: Natu	16
(ethylene oxide)Research on cold sterilization with formalin vap	58
(ethylene oxide)Sterilization of spacecraft	11
(ethylene oxide)Sterilization of space probes	7
(ethylene oxide)Voyager design study. Vol. V: Sterilization	10
Evaluation of membrane filter field monitors for microbiological	74
Evidence for metabolic activity of airborne bacteria	65
Evidence for metabolic activity of airborne bacteria	68
Examination of some physical and biological differences of Cape	80
(exobiology)Directed panspermia	44
Exobiology, Jupiter and life	37
Experimental assembly and sterilization laboratory [EASL] operat	24
Experiments and observations on sterilization of thermolabile ob	109
Exploring Jupiter and its satellites with an orbiter	59
extraterrestrial trial matter: NASA's quarantine regulations/Ear	34
Feasibility study for combined method of sterilization	19
formaldehyde sterilizer for gas penetration efficiency/Testing a	50
formalin vapors/Research on cold sterilization with	58
Fundamental problem in radiation biology	71
Fungistatic activity of soil sterilized by gamma radiation	49
Ganymede: Possibility of an oxygen atmosphere	121
Gas chromatographic determination of the products of destruction	56
germfree research/Bibliography	114
gnotobiotic laboratories/Combination sterilizing chamber and tra	57
(gnotobiotics)Bibliography of germfree research	114
(growth)Dry heat destruction rate of bacterial spores	96
growth for Jovian planets and their satellites/Consideration of	111
(growth)Microbiologic studies on ecologic considerations of the	4
growth-promoting properties of fluid and solid microbial-contami	43
(hardware)Safety in microbiology	39
hazardous laboratory manipulations. A feasibility study/Remote c	5
heat and radiation on microbial destruction/Effect of combined	76
heating on entry into the atmosphere of Jupiter/Reduction in mic	82
heat sealing tool and port opening/Development of the sterile in	31
heat sterilizable potting compounds/Development of improved	12

heat/Sterilization by	8
heat sterilization dynamics/Problems of	33
(heat)Survival of common bacteria in liquid culture under carbon	107
(heat)Testing a steam-formaldehyde sterilizer for gas penetratio	50
(identification)Aerobic sporeforming bacteria	1
(inactivation)Long-term effect of high vacuum on microorganisms	48
inactivation of microbes in and on interplanetary space vehicle	41
inactivation of microbes in and on interplanetary space vehicle	62
inactivation of microbes in and on interplanetary space vehicle	63
inactivation of microbes in and on interplanetary space vehicle	64
inactivation of naturally occurring bacterial spores in soil/The	101
indicators of sterilization. General principles/Microbiological	108
(intercept ratio)Environmental microbiology as related to planet	38
Interplanetary charged particle environments	46
Is a clean room the answer	84
Jovian planets and their satellites/Consideration of probability	111
Jupiter and implications for planetary quarantine/Radiation belt	95
Jupiter and its satellites with an orbiter/Exploring	59
Jupiter and life/Exobiology,	37
(Jupiter)Planetary quarantine	112
Jupiter/Reduction in microbial burden of a spacecraft due to hea	82
(kinetic)Analysis for sterilization modeling	26
Laboratory control and statistical analysis	106
laboratory manipulations. A feasibility study/Remote control of	5
(lander)Protocol for a standardized calibrated system for the ev	51
(landers)Spacecraft sterilization	6
(life support system)Research study to definitize a bio-isolator	28
Longevity of microorganisms	9
Long-term effect of high vacuum on microorganisms	48
Lunar sample quarantine procedures: interaction with nonquaranti	72
(magnetic field)Exploring Jupiter and its satellites with an orb	59
(magnetic field)Plasma in the vicinity of Venus. Comparison of t	40
(Mariner)Plasma in the vicinity of Venus. Comparison of the resu	40
Mars/Assessment of the probability of contaminating	93
(Mars)Microbiologic studies on ecologic considerations of the Ma	4
Mars/New methodology for assessing the probability of contaminat	97
Mars surface sample return science requirements and contaminatio	92
(Mars)Terrestrial quarantine considerations for unmanned sample	89
Martian environment/Microbiologic studies on ecologic considerat	4
Martian environment/Response of selected microorganisms to a sim	47
Mathematical estimation of the level of microbial contamination	98

membrane filter field monitors for microbiological air sampling	74
metabolic activity of airborne bacteria/Evidence for	65
metabolic activity of airborne bacteria/Evidence for	68
methodology for assessing the probability of contaminating Mars/	97
microbes in and on interplanetary space vehicle components/Ecolo	41
microbes in and on interplanetary space vehicle components/Ecolo	62
microbes in and on interplanetary space vehicle components/Ecolo	63
microbes in and on interplanetary space vehicle components/Ecolo	64
microbes in the airborne state/Studies on propagation of	69
microbial burden of a spacecraft due to heating on entry into th	82
microbial contamination in planetary clouds/Studies on possible	45
microbial contamination on spacecraft surfaces by volumetric air	98
microbial destruction/Effect of combined heat and radiation on	76
microbial dissemination/Services provided in support of the plan	32
microbiological air sampling/Evaluation of membrane filter field	74
microbiological contamination/Nature of	17
microbiological contamination/Sources of	13
Microbiological indicators of sterilization. General principles	108
Microbiological profiles of four Apollo spacecraft	52
Microbiologic studies on ecologic considerations of the Martian	4
microbiology as related to planetary quarantine/Environmental	38
microbiology as related to poanetary quarantine/Environmental	100
microbiology/Safety in	39
microbiology/Space	113
(microorganism)Directed panspermia	44
(microorganism)Planetary quarantine	110
microorganisms from the interiors of solid materials/Recovery of	21
Microorganisms in solid materials. Phases I-IV	14
Microorganisms in solid materials: Task I: Resistance of <i>alpha</i> o	15
Microorganisms in solid materials: Task II: Naturally occurring	16
Microorganisms in solid materials: Task III: Recovery levels of	20
microorganisms in space and its impact on planetary exploration/	79
microorganisms/Longevity of	9
microorganisms: I. Airborne organisms/Persistence [survival] of	2
(microorganisms)Problems of heat sterilization dynamics	33
microorganisms/Study of the growth-promoting properties of fluid	43
microorganisms to a simulated Martian environment/Response of se	47
models [1973]/Titan atmosphere	70
Moon dust	3
Nature of microbiological contamination	17
New methodology for assessing the probability of contaminating M	97
(nucleic acid)Fundamental problem in radiation biology	71
Observation about the relative hardness of bacterial spores and	55
orbiter/Exploring Jupiter and its satellites with an	59
outer planet entry/Self sterilization of bodies during	87
(outer planet)Exploring Jupiter and its satellites with an orbit	59
(outer planet)Ganymede: Possibility of an oxygen atmosphere	121

(outer planet)Planetary quarantine	110
(outer planet)Quarantine constraints as applied to satellites	88
(outer planet)Titan atmosphere models [1973]	70
oxygen atmosphere/Ganymede: Possibility of an	121
panspermia/Directed	44
(panspermia)Moondust	3
Parametric study to determine time-temperature-vacuum relationsh	29
Parametric study to determine time-temperature-vacuum relationsh	30
particle environments/Interplanetary charged	46
particle microflora and particle viability studies of Kennedy Sp	102
particles/Dry heat effects on viability of Cape Kennedy soil	103
particles/Examination of some physical and biological difference	80
particle viability of Cape Kennedy soil fractions/Plate count an	104
particulate contaminants by simulated micrometeoroid impacts/Rom	81
(particulate)Dry heat destruction rate of bacterial spores	96
(particulate)Evidence for metabolic activity of airborne bacteri	68
(particulate)Recovery of microorganisms from the interiors of so	21
(particulate)Services provided in support of the planetary quara	32
peracetic acid/Experiments and observations on sterilization of	109
Persistence [survival] of microorganisms: I. Airborne organisms	2
planetary clouds/Studies on possible propagation of microbial co	45
planetary exploration/Survivability of microorganisms in space a	79
Planetary quarantine	110
Planetary quarantine	112
Planetary quarantine: An important facet of environmental contro	83
Planetary quarantine computer applications	53
planetary quarantine/Environmental microbiology as related to	38
planetary quarantine/Environmental microbiology as related to	100
planetary quarantine measures for automated spacecraft/Scientifi	73
planetary quarantine measures for automated spacecraft/Scientifi	119
planetary quarantine methodology and spacecraft sterilization te	36
planetary quarantine/Radiation belts of Jupiter and implications	95
planetary quarantine/Scientific publications and presentations r	60
Plasma in the vicinity of Venus. Comparison of the results recei	40
(plasma)Planetary quarantine	110
Plate count analyses of soil particle viability of Cape Kennedy	104
polymer materials by radiation sterilization/Gas chromatographic	56
polymers/Solubilization and spore recovery from silicone	90
potting compounds/Development of improved heat sterilizable	12
(pressure)Exploring Jupiter and its satellites with an orbiter	59
probability of bacterial growth for Jovian planets and their sat	111
probability of contaminating Mars/Assessment of the	93
probability of contaminating Mars/New methodology for assessing	97
(probability of contamination)Reduction in microbial burden of a	82
(probability of growth)Planetary quarantine	110
(probability of growth)Quarantine constraints as applied to sate	88
(probability of growth)Studies on possible propagation of microb	45
probes/Techniques of biological contamination avoidance by atmos	66
Problems of heat sterilization dynamics	33

propagation of microbes in the airborne state/Studies on	69
propagation of microbial contamination in planetary clouds/Studi	45
propellant specimens/Microorganisms in solid materials: Task II:	16
propellant specimens/Microorganisms in solid materials: Task III	20
Protocol for a standardized calibrated system for the evaluation	51
psychrophiles/Quantitative ecology and dry heat resistance of	118
(psychrophiles)Response of selected microorganisms to a simulate	47
psychrophilic organisms isolated from the manufacture and assemb	77
psychrophilic organisms isolated from the manufacture and assemb	78
publications and presentations relating to planetary quarantine/	60
Quantitation of buried contamination by use of solvents	86
Quantitation of buried contamination by use of solvents	99
Quantitative ecology and dry heat resistance of psychrophiles	118
Quarantine: An important facet of environmental control/Planetar	83
quarantine computer applications/Planetary	53
quarantine considerations for unmanned sample return missions/Te	89
Quarantine constraints as applied to satellites	88
quarantine/Planetary	110
quarantine/Planetary	112
quarantine procedures: interaction with nonquarantine experiment	72
quarantine regulations/Earth exposure to extraterrestrial trial	34
quarantine/Scientific publications and presentations relating to	60
Radiation belts of Jupiter and implications for planetary quaran	95
radiation biology/Fundamental problem in	71
(radiation)Cotton wool bacteriological swabs-effect of steriliza	117
(radiation)Environmental microbiology as related to planetary qu	100
(radiation)Exploring Jupiter and its satellites with an orbiter	59
(radiation)Feasibility study for combined method of sterilizatio	19
radiation/Fungistatic activity of soil sterilized by gamma	49
radiation on microbial destruction/Effect of combined heat and	76
(radiation)Planetary quarantine	110
(radiation)Planetary quarantine	112
radiation sterilization/Gas chromatographic determination of the	56
(radiation)Sterilization of space probes	7
(radiation)Survivability of microorganisms in space and its impa	79
(radiation)Techniques of biological contamination avoidance by a	66
(radiation)Voyager design study. Vol. V: Sterilization	10
(recontamination)Planetary quarantine	110
Recovery of microorganisms from the interiors of solid materials	21
Reduction in microbial burden of a spacecraft due to heating on	82
(relative humidity)Ecology and thermal inactivation of microbes	41
(relative humidity)Effect of combined heat and radiation on micr	76
(relative humidity)Persistence [survival] of microorganisms: I.	2
(relative humidity)Sterilization Assembly Development Laboratory	27
Release of bacterial spores from inner walls of a stainless stee	120
Remote control of biologically hazardous laboratory manipulation	5
Removal of spacecraft-surface particulate contaminants by simula	81

(requirements)Lunar sample quarantine procedures: interaction wi	72
Research on cold sterilization with formalin vapors	58
Research study to definitize a bio-isolator suit system [BISS]	28
Resistance of <i>alpha</i> organisms to drying and to sterilization by	15
resistance of psychrophiles/Quantitative ecology and dry heat	118
resistance studies of selected bacterial spore crops/Dry heat	105
Response of selected microorganisms to a simulated Martian envir	47
Safety in microbiology	39
Safety of containment systems; state-of-the-art biobarrier techn	94
(safety)Remote control of biologically hazardous laboratory mani	5
sample quarantine procedures: interaction with nonquarantine exp	72
sample return missions/Terrestrial quarantine considerations for	89
sample return science requirements and contamination of earth/Ma	92
(sampling)Assembly/sterilizer facility feasibility program	23
sampling/Evaluation of membrane filter field monitors for microb	74
sampling/Mathematical estimation of the level of microbial conta	98
sampling methods for monitoring biological contamination/Air	18
(sampling)Microbiological profiles of four Apollo spacecraft	52
(sampling)Services provided in support of the planetary quaranti	32
(sampling)Space microbiology	113
satellites/Quarantine constraints as applied to	88
Scientific and technical services directed toward the developmen	73
Scientific and technical services directed toward the developmen	119
Scientific publications and presentations relating to planetary	60
Self sterilization of bodies during outer planet entry	87
Services provided in support of the planetary quarantine require	32
(shedding)Services provided in support of the planetary quaranti	32
Simple apparatus for the measurement of the activity of quick ac	42
Simple method for estimation of coagulation efficiency in mixed	67
simulated Martian environment/Response of selected microorganism	47
(simulated)Microbiologic studies on ecologic considerations of t	4
simulated micrometeoroid impacts/Removal of spacecraft-surface p	81
(simulation)Analysis for sterilization modeling	26
(simulation)Assessment of the probability of contaminating Mars	93
(simulation)Exobiology, Jupiter and life	37
(simulation)Planetary quarantine computer applications	53
(simulation)Quarantine constraints as applied to satellites	88
(simulation)Study of psychrophilic organisms isolated from the m	77
(simulation)Titan atmosphere models [1973]	70
(soil)Dry heat destruction rate of bacterial spores	96
(soil)Moondust	3
soil particles/Dry heat effects on viability of Cape Kennedy	103
soil particles/Examination of some physical and biological diffe	80
soil particle viability of Cape Kennedy soil fractions/Plate cou	104
(soil)Response of selected microorganisms to a simulated Martian	47
soil sterilized by gamma radiation/Fungistatic activity of	49
soil/Survival of <i>Azotobacter</i> in dry	116
soil/Thermoradiation inactivation of naturally occurring bacteri	101

Solubilization and spore recovery from silicone polymers	90
solvents/Quantitation of buried contamination by use of	86
solvents/Quantitation of buried contamination by use of	99
Sources of microbiological contamination	13
spacecraft/Comparison of media for detection of fungi on	85
spacecraft due to heating on entry into the atmosphere of Jupite	82
(spacecraft)Ecology and thermal inactivation of microbes in and	62
spacecraft/Microbiological profiles of four Apollo	52
(spacecraft)New methodology for assessing the probability of con	97
(spacecraft)Observation about the relative hardness of bacteria	55
(spacecraft)Protocol for a standardized calibrated system for th	51
(spacecraft)Radiation belts of Jupiter and implications for plan	95
spacecraft/Scientific and technical services directed toward the	73
spacecraft/Scientific and technical services directed toward the	119
(spacecraft)Space shuttle flight plan written	75
Spacecraft sterilization	6
spacecraft/Sterilization of	11
spacecraft sterilization technology to improved health care deli	36
spacecraft sterilization/Verification of the efficacy of	115
spacecraft-surface particulate contaminants by simulated microme	81
spacecraft surfaces by volumetric air sampling/Mathematical esti	98
(spacecraft)Survivability of microorganisms inspace and its imp	79
spacecraft to be used in the Viking mission/Study of psychrophil	77
spacecraft to be used in the Viking mission/Study of psychrophil	78
(spacecraft)Voyager design study. Vol. V: Sterilization	10
Space microbiology	113
space probes/Sterilization of	7
Space shuttle flight plan written	.75
space vehicle components/Ecology and thermal inactivation of mic	41
space vehicle components/Ecology and thermal inactivation of mic	62
space vehicle components/Ecology and thermal inactivation of mic	64
spore crops/Dry heat resistance studies of selected bacterial	105
(spore)Ecology and thermal inactivation of microbes in and on in	41
(spore)Ecology and thermal inactivation of microbes in and on in	63
(spore)Ecology and thermal inactivation of microbes in and on in	64
(spore)Environmental microbiology as related to planetary quaran	38
(spore)Environmental microbiology as related to planetary quaran	100
sporeforming bacteria/Aerobic	1
(spore)Laboratory control and statistical analysis	106
(spore)Long-term effect of high vacuum on microorganisms	48
(spore)Moon dust	3
spore recovery from silicone polymers/Solubilization and	90
(spore)Recovery of microorganisms from the interiors of solid ma	21
(spore)Research on cold sterilization with formalin vapors	58
spores and planetary quarantine/Observation about the relative h	55
spores/Application of biometrical principles in the study of dry	91
spores/Dry heat destruction rate of bacterial	96
spores exposed to space environment in the M-191 experiment syst	61
spores from inner walls of a stainless steel cup subjected to th	120
spores in soil/Thermoradiation inactivation of naturally occurri	101

spores. Phase I/Parametric study to determine time-temperature-v	30
spores. Phase II/Parametric study to determine time-temperature	29
spores/Simple apparatus for the measurement of the activity of q	42
(spore)Sterilization by heat	8
(spore)Testing a steam-formaldehyde sterilizer for gas penetrati	50
Sterilization Assembly Development Laboratory; study of effects	27
(sterilization)Assembly/sterilizer facility feasibility program	25
sterilization by ethylene oxide/Microorganisms in solid material	15
Sterilization by heat	8
(sterilization)Development of improved heat sterilizable potting	12
sterilization dynamics/Problems of heat	33
(sterilization)Ecology and thermal inactivation of microbes in a	62
sterilization/Feasibility study for combined method of	19
sterilization/Gas chromatographic determination of the products	56
sterilization. General principles/Microbiological indicators of	108
sterilization laboratory [EASL] operations: Phase I/Experimental	24
sterilization method on performance/Cotton wool bacteriological	117
sterilization modeling/Analysis for	26
(sterilization)Observation about the relative hardness of bacte	55
sterilization of bodies during outer planet entry/Self	87
Sterilization of spacecraft	11
Sterilization of space probes	7
sterilization of terrestrial spores. Phase I/Parametric study to	30
sterilization of terrestrial spores. Phase II/Parametric study t	29
sterilization of thermolabile objects with peracetic acid/Experi	109
(sterilization)Safety in microbiology	39
(sterilization)Scientific and technical services directed toward	119
sterilization/Spacecraft	6
(sterilization)Space microbiology	113
sterilization studies/Protocol for a standardized calibrated sys	51
sterilization technology to improved health care delivery/Applic	36
(sterilization)Testing a steam-formaldehyde sterilizer for gas p	50
sterilization/Verification of the efficacy of spacecraft	115
Sterilization/Voyager design study. Vol. V:	10
sterilization with formalin vapors/Research on cold	58
sterilized by gamma radiation/Fungistatic activity of soil	49
stress/Release of bacterial spores from inner walls of a stainle	120
Studies on possible propagation of microbial contamination in pl	45
Studies on propagation of microbes in the airborne state	69
Study of psychophilic organisms isolated from the manufacture a	77
Study of psychrophilic organisms isolated from the manufacture a	78
Study of the growth-promoting properties of fluid and solid micr	43
Surface contaminants	35
(surface contamination)Mathematical estimation of the level of m	98
(surface contamination)Release of bacterial spores from inner wa	120
surface particulate contaminants by simulated micrometeoroid imp	81
surface sample return science requirements and contamination of	92
Survivability of microorganisms in space and its impact on plane	79
Survival of Azotobacter in dry soil	116
Survival of common bacteria in liquid culture under carbon diox	107
survival of indigenous soil particle microflora and particle via	102

swabs-effect of sterilization method on performance/Cotton wool	117
(techniques)Comparison of media for detection of fungi on spacec	85
(techniques)Development of the sterile insertion heat sealing to	31
(techniques)Is a clean room the answer	84
(techniques)Microorganisms in solid materials. Phases I-IV	14
(techniques)Microorganisms in solid materials: Task III: Recover	20
Techniques of biological contamination avoidance by atmospheric	66
(techniques)Safety in microbiology	39
(techniques)Simple apparatus for the measurement of the activity	42
(techniques)Sterilization of spacecraft	11
(techniques)Study of the growth-promoting properties of fluid an	43
(techniques)Verification of the efficacy of spacecraft steriliza	115
technology/Safety of containment systems; state-of-the-art bioba	94
(teflon ribbon)Ecology and thermal inactivation of microbes in a	62
(teflon ribbon)Planetary quarantine	110
(teflon ribbon)Protocol for a standardized calibrated system for	51
(temperature)Dry heat destruction rate of bacterial spores	96
(temperature)Dry heat effects on viability of Cape Kennedy soil	103
(temperature)Dry heat resistance studies of selected bacterial s	105
(temperature)Effect of combined heat and radiation on microbial	76
(temperature)Long-term effect of high vacuum on microorganisms	48
(temperature)Persistence [survival] of microorganisms: I. Airbor	2
(temperature)Reduction in microbial burden of a spacecraft due t	82
(temperature)Response of selected microorganisms to a simulated	47
temperatures/Survival of common bacteria in liquid culture under	107
(temperature)Sterilization Assembly Development Laboratory; stud	27
(temperature)Survivability of microorganisms in space and its im	79
temperature-vacuum relationships for sterilization of terrestria	29
temperature-vacuum relationships for sterilization of terrestria	30
Terrestrial quarantine considerations for unmanned sample return	89
Testing a steam-formaldehyde sterilizer for gas penetration effi	50
thermal inactivation of microbes in and on interplanetary space	41
thermal inactivation of microbes in and on interplanetary space	62
thermal inactivation of microbes in and on interplanetary space	63
thermal inactivation of microbes in and on interplanetary space	64
Thermoradiation inactivation of naturally occurring bacterial sp	101
(thermal resistance parameters)Feasibility study for combined me	19
thermal stress/Release of bacterial spores from inner walls of a	120
thermolabile objects with peracetic acid/Experiments and observa	109
Titan atmosphere models [1973]	70
(Titan)Consideration of probability of bacterial growth for Jovi	111
(tolerance)Application of biometrical principles in the study of	91
(tolerance)Dry heat destruction rate of bacterial spores	96
(tolerance)Dry heat resistance studies of selected bacterial spo	105
(tolerance)Ecology and thermal inactivation of microbes in and o	41
(tolerance)Ecology and thermal inactivation of microbes in and o	64
(tolerance)Environmental microbiology as related to planetary qu	38
(tolerance)Environmental microbiology as related to planetary qu	100
(tolerance)Examination of some physical and biological differenc	80

(tolerance)Exobiology, Jupiter and life	37
(tolerance)Fundamental problem in radiation biology	71
(tolerance)Laboratory control and statistical analysis	106
(tolerance)Microorganisms in solid materials: Task II: Naturally	16
(tolerance)Nature of microbiological contamination	17
(tolerance)Parametric study to determine time-temperature-vacuum	29
(tolerance)Parametric study to determine time-temperature-vacuum	30
(tolerance)Plate count analyses of soil particle viability of Ca	104
(tolerance)Quantitative ecology and dry heat resistance of psych	118
(tolerance)Sterilization by heat	8
(tolerance)Survival of Azotobacter in dry soil	116
(ultraviolet)Feasibility study for combined method of sterilizat	19
(ultraviolet)Longevity of microorganisms	9
Ultraviolet selection pressure on the earliest organisms	54
(vacuum)Development of improved heat sterilizable potting compou	12
vacuum on microorganisms/Long-term effect of high	48
(vacuum)Planetary quarantine	110
(vacuum)Planetary quarantine	112
vacuum relationships for sterilization of terrestrial spores. Ph	29
vacuum relationships for sterilization of terrestrial spores. Ph	30
Venus. Comparison of the results received by means of Venera-4 a	40
Verification of the efficacy of spacecraft sterilization	115
(viability)Cotton wool bacteriological swabs-effect of steriliza	117
(viability)Ecology and thermal inactivation of microbes in and o	63
(viability)Longevity of microorganisms	9
(viability)Microbiological indicators of sterilization. General	108
(viability)Microorganisms in solid materials. Phases I-IV	14
(viability)Nature of microbiological contamination	17
(viability)New methodology for assessing the probability of cont	97
Viability of <i>Bacillus subtilis</i> spores exposed to space environme	61
viability of Cape Kennedy soil fractions/Plate count analyses of	104
viability of Cape Kennedy soil particles/Dry heat effects on	103
(viability)Radiation belts of Jupiter and implications for plane	95
(viability)Release of bacterial spores from inner walls of a sta	120
(viability)Services provided in support of the planetary quarant	32
viability studies of Kennedy Space Center soil/Dry heat effects	102
(viability)Study of psychrophilic organisms isolated from the ma	77
(viability)Survival of Azotobacter in dry soil	116
(viability)Survival of common bacteria in liquid culture under c	107
Viking mission/Study of psychrophilic organisms isolated from th	77
Viking mission/Study of psychrophilic organisms isolated from th	78
(Viking)New methodology for assessing the probability of contami	97
(Viking)Scientific and technical services directed toward the de	119
Voyager design study. Vol. V: Sterilization	10

BOOKS CONTAINING  
PLANETARY QUARANTINE RELATED MATERIAL

Each of the following books, cited in this bibliography, contains information pertinent to the substantive program of the NASA Planetary Quarantine mission.

U.S. Department of Agriculture monograph #16, Aerobic Sporeforming Bacteria. Washington DC, Government Printing Office. 1952.

Annual Review of Microbiology, Vol. 28. Starr, M.P., J.L. Ingraham and S. Raffel, eds. Palo Alto, CA. Annual Reviews, Inc. 1974.

Critical Reviews in Environmental Control, Vol. 4. Cleveland, OH. CRC Press. 1974.

Disinfection, Sterilization and Preservation. Lawrence, C.A. and S.S. Block, eds. Philadelphia, PA, Lea & Febiger. 1962.

Life Sciences and Space Research, Vol. XII. Sneath, P.H.A., ed. Berlin, Akademie-Verlag. 1974.

Physics of the Moon and the Planets, Martynov, D.Y. and V.A. Bronshten, eds. Moscow, Nauka Press. 1972.

Safety in Microbiology. Society for Applied Microbiology, technical series #6. New York, Academic Press Inc. 1972.

## JOURNALS PUBLISHING

### PLANETARY QUARANTINE RELATED ARTICLES

Below is an alphabetical list of journals in which articles germane to planetary quarantine have been published. The number of articles from each journal cited in this bibliography is indicated parenthetically.

Applied Microbiology	(6)
Astronautics & Aeronautics	(1)
Aviation Week and Space Technology	(1)
Canadian Journal of Microbiology	(1)
Contamination Control/Biomedical Environments	(1)
Icarus	(1)
International Lawyer	(1)
Laboratory Animal Science	(1)
Journal of Clinical Pathology	(1)
Journal of Environmental Sciences	(1)
Journal of Fermentation Technology	(1)
Journal of Theoretical Biology	(2)
Khimiko-Farmatsevicheskiy Zhurnal	(1)
Mikrobiologiya	(1)
Medical Laboratory Technology	(1)
Nature	(2)
Pathologie et Biologie	(1)
Pharmaceutica Acta Helvetiae	(1)
Pharmazie	(1)
Raumfahrtforschung	(1)
Science	(1)
Spaceflight	(1)
Space Life Sciences	(1)
Texas Reports on Biology and Medicine	(1)
Zentralblatt fuer Bakteriologie, Parasitenkunde, Infektionskrankheiten und Hygiene Abteilung I, Originale A	(2)

PRECEDING PAGE BLANK NOT FILMED

PROCEEDINGS PUBLISHING

PLANETARY QUARANTINE RELATED PAPERS

Below is an alphabetical list of the proceedings in which papers germane to planetary quarantine have appeared. The number of papers from each meeting cited in this bibliography is indicated parenthetically.

- American Association of Contamination Control, San Francisco, CA, West Coast Publishing, Inc. 1964. Conference proceedings of 3rd annual technical meeting. (3)
- American Astronautical Society. Proceedings of the Rocky Mountain Section symposium. Denver, CO. 1967. (1)
- Lunar and Planetary Exploration Colloquium Vol. 3(2):49-52. 1963. Downey, CA, North American Aviation, Inc. (1)

~~PRECEDING PAGE REAMT NOT BY MED~~

## CORPORATE SOURCES

Below is an alphabetical address list of NASA centers, NASA contractors, and other sources of the material cited in this bibliography.

Agriculture, U.S. Department of  
Washington, DC 20250

Air Force, Department of the  
School of Aviation Medicine  
Brooks Air Force Base  
TX 78235

American Association for Contamination Control  
6 Beacon Street  
Boston, MA 02108

American Astronautical Society  
6060 Duke Street  
Alexandria, VA 22304

American Institute of Biological Sciences  
1401 Wilson Boulevard  
Arlington, VA 22209

Ames Research Center  
National Aeronautics and Space Administration  
Moffett Field, CA 94035

Army, Department of the  
Biological Warfare Laboratories  
Fort Detrick  
Frederick, MD 21701

Avco Corporation  
Space Systems Division  
Lowell Industrial Park  
Lowell, MA 01851

Chemical Rubber Company, The  
18901 Cranwood Parkway  
Cleveland, OH 44128

**PRECEDING PAGE BLANK NOT FILMED**

Dynamic Science Corporation  
1900 Walker Avenue  
Monrovia, CA 91016

Exotech Systems, Inc.  
1200 Quince Orchard Boulevard  
Gaithersburg, MD 20760

Food and Drug Administration  
Cincinnati Research Laboratories  
U.S. Department of Health, Education and Welfare  
1090 Tusculum Avenue  
Cincinnati, OH 45226

Frankfurt, University of  
Kennedy Allee 97  
6000 Frankfurt/Main 70  
Germany

General Electric Company  
Missile and Space Division  
Valley Forge Space Technology Center  
P.O. Box 8555  
Philadelphia, PA 19101

General Electric Company  
Re-entry and Environmental Systems Department  
Missiles and Space Division  
3198 Chestnut Street  
Philadelphia, PA 19104

George Washington University Medical Center, The  
Science Communication Division  
Department of Medical and Public Affairs  
2001 S Street, N.W.  
Washington, DC 20009

Hardin-Simmons University  
Department of Biology  
Abilene, TX 79601

Harvard University  
Cambridge, MA 02138

Hughes Aircraft Company  
Aerospace Group  
Centinela Avenue and Teale Street  
Culver City, CA 90230

Jet Propulsion Laboratory  
California Institute of Technology  
4800 Oak Grove Drive  
Pasadena, CA 91103

Joint Publications Research Service  
1000 North Glebe Road  
Arlington, VA 22201

Langley Research Center  
National Aeronautics and Space Administration  
Langley Station  
Hampton, VA 23365

Martin Marietta Corporation  
Aerospace Division  
151 Chesapeake Park Plaza  
Baltimore, MD 21220

Martin Marietta Corporation  
P.O. Box 179  
Denver, CO 80201

McDonnell Douglas Astronautics Company-East  
P.O. Box 516  
St. Louis, MO 63166

Minnesota, University of  
Space Science Center  
School of Public Health  
Minneapolis, MN 55455

National Aeronautics and Space Administration  
Headquarters  
Washington, DC 20546

National Center for Disease Control  
Public Health Service  
U.S. Department of Health, Education and Welfare  
1600 Clifton Road N.E.  
Atlanta, GA 30322

Navy, Department of the  
Office of Naval Research  
Biomedical Research Laboratory  
Naval Supply Center  
University of California, Berkeley  
Oakland, CA 94625

North American Aviation, Inc.  
Downey, CA 90241

North Dakota State University  
Fargo, ND 58102

Northrop Space Laboratories  
Hawthorne, CA 90250

Notre Dame, University of  
Lobund Laboratory  
Notre Dame, IN 46556

Rochester, The University of  
Department of Radiation Biology and Biophysics  
School of Medicine and Dentistry  
Rochester, NY 14642

Sandia Laboratories  
Sandia Corporation  
P.O. Box #5800  
Albuquerque, NM 87115

Stanford Research Institute  
Menlo Park, CA 94025

Texas A & M University  
College Station  
Bryan, TX 77801

Wilmot Castle Company  
Rochester, NY 14601