Publications of the Planetary Biology Program for 1977
A Special Bibliography

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Compiled by Linda G. Pleasant and Richard S. Young
Office of Space Science
Washington, D.C.
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INTRODUCTION

The Planetary Biology Program, within the Office of Space Science of the National Aeronautics and Space Administration, is the first and only integrated program to methodically investigate the planetary events which may have been responsible for, or related to, the origin, evolution, and distribution of life in the universe. Research supported by this program is divided into the seven areas listed below together with a statement of the principal objective of each research area.

Chemical Evolution - To understand how biologically significant organic molecules are synthesized under conditions presumed to have existed on the primitive Earth before the advent of life or which may presently exist on other planets.

Organic Geochemistry - To analyze terrestrial and extraterrestrial material for organic molecules, biological structures, and other clues to the origin(s) of life on this and other planets.

Life Detection - To develop and implement techniques to search for, detect, and characterize life and life-related molecules on this and other planets.

Biological Adaptation - To understand the adaptive mechanisms used by terrestrial organisms to survive and/or grow in environmental extremes approaching those on other planets.

Bioinstrumentation - To design, develop, and test prototype spaceflight instruments which will be used to detect and characterize life and life-related molecules on the surface and in the atmosphere of other planets.

Planetary Environments - To develop analytical techniques which measure environmental parameters on other planets which are relevant to the search for life.

Origin of Life - To identify the sequence of events leading from the putative complex organic milieu in the primordial terrestrial oceans to the origin of the first living systems.

The arrangement of references in this bibliography follows the division of research described. Articles are listed alphabetically by author under the research area with which they are most closely related. Only those publications which resulted from research supported by the Planetary Biology Program and which bear a 1977 publication date have been included. Abstracts, theses, and presentations are not included because of the preliminary and abbreviated nature of the former and the frequent difficulty of obtaining the latter.
Our intent in compiling this bibliography is twofold. First, we would like to provide the scientific community with an annual listing, beginning with 1975, of current publications resulting from research pursued under the auspices of NASA's Planetary Biology Program. Secondly, we hope to stimulate the exchange of information and ideas among scientists working in the different areas of the program. To facilitate the exchange process, we have identified, by asterisk, the author of each publication who is presently participating in the program. Current addresses for all principal investigators are given in the Appendix.

We wish to thank all the participants of the Planetary Biology Program for their cooperative response to our request for an enumeration of their 1977 publications.
Chemical Evolution


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1Lederberg, J., Principal Investigator


¹Orgel, L.E., Principal Investigator


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1Lederberg, J., Principal Investigator
Organic Geochemistry


¹Calvin, M., Principal Investigator


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1 Calvin, M., Principal Investigator


Philp¹, R.P. Recent advances in the study of potential kerogen precursors from recently-deposited algal-mats. American Chemical Society, Division of Fuel Chemistry Preprints 22(3): 177-182. 1977.


¹Calvin, M., Principal Investigator


\[1\] Calvin, M., Principal Investigator


Calvin, M., Principal Investigator
Life Detection


Biological Adaptation


\textsuperscript{1}Stoeckenius, W., Principal Investigator

\textsuperscript{2}Horowitz, N.H., Principal Investigator


Bioinstrumentation

No publications.
Planetary Environments


Origin of Life


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1 Rein, R., Principal Investigator
2 Nagyvary, J., Principal Investigator


APPENDIX: PRINCIPAL INVESTIGATORS

Professor Elso S. Barghoorn
The Biological Laboratories
Harvard University
16 Divinity Avenue
Cambridge, Massachusetts 02138

Professor Ralph S. Becker
Department of Chemistry
University of Houston
Houston, Texas 77004

Professor Klaus Biemann
Department of Chemistry
Massachusetts Institute of Technology
Cambridge, Massachusetts 02139

Professor William A. Bonner
Department of Chemistry
Stanford University
Stanford, California 94305

Associate Professor Joseph Bragin
Department of Chemistry
California State University
5151 State University Drive
Los Angeles, California 90032

Dr. A.L. Burlingame
Biomedical and Environmental Mass Spectrometry Resource
Space Sciences Laboratory
University of California
Berkeley, California 94720

Professor Melvin Calvin
Department of Chemistry
University of California
Berkeley, California 94720

Mr. Glenn C. Carle
Ames Research Center
Code LPD
Moffett Field, California 94035
Professor L.E. Casida, Jr.
Department of Microbiology and Cell Biology
The Pennsylvania State University
University Park, Pennsylvania 16802

Dr. Sherwood Chang
Ames Research Center
Code LPE
Moffett Field, California 94035

Professor John R. Cronin
Department of Chemistry
Arizona State University
Tempe, Arizona 85281

Professor James F. Danielli
Department of Life Sciences
Worcester Polytechnic Institute
Worcester, Massachusetts 01609

Professor Margaret O. Dayhoff
National Biomedical Research Foundation
Georgetown University Medical Center
3900 Reservoir Road, N.W.
Washington, D.C. 20007

Mr. Paul H. Deal
Ames Research Center
Code LPB
Moffett Field, California 94035

Dr. David J. Des Marais
Ames Research Center
Code LX
Moffett Field, California 94035

Dr. Donald L. DeVincenzi
Ames Research Center
Code LP
Moffett Field, California 94035

Professor Frederick R. Eirich
Department of Chemistry
Polytechnic Institute of New York
333 J Street
Brooklyn, New York 11201
Mr. Lawrence I. Hochstein  
Ames Research Center  
Code LPB  
Moffett Field, California 94035

Professor Norman H. Horowitz  
Department of Biology  
California Institute of Technology  
Pasadena, California 91109

Professor Jerry Hubbard  
School of Biology  
Georgia Institute of Technology  
Atlanta, Georgia 30332

Dr. Richard D. Johnson  
Ames Research Center  
Code LB  
Moffett Field, California 94035

Professor Thomas H. Jukes  
Space Sciences Laboratory  
University of California  
Berkeley, California 94720

Professor Ian R. Kaplan  
Department of Biology  
Institute of Geophysics and Planetary Physics  
University of California  
Los Angeles, California 90024

Dr. Harold P. Klein  
Ames Research Center  
Code L  
Moffett Field, California 94035

Dr. Bessel Kok  
Martin Marietta Laboratories  
Martin Marietta Corporation  
1450 South Rolling Road  
Baltimore, Maryland 21227

Professor William R. Kuhn  
Department of Atmospheric and Oceanic Sciences  
University of Michigan  
Ann Arbor, Michigan 48109
Professor James C. Lacey, Jr.
Laboratory of Molecular Biology
University of Alabama School of Medicine
University Station
Birmingham, Alabama 35294

Mr. Janos K. Lanyi
Ames Research Center
Code LPB
Moffett Field, California 94035

Mr. James G. Lawless
Ames Research Center
Code LPE
Moffett Field, California 94035

Dr. Edward R. Leadbetter
Department of Biology
Amherst College
Amherst, Massachusetts 01002

Professor Joshua Lederberg
Department of Genetics
Stanford University School of Medicine
Stanford, California 94305

Dr. Gilbert V. Levin
Biospherics Incorporated
4928 Wyaconda Road
Rockville, Maryland 20852

Dr. Elliott C. Levinthal
Department of Genetics
Stanford University School of Medicine
Stanford, California 94305

Dr. Gilda H. Loew
Stanford University
Stanford, California 94035

Associate Professor Russell E. MacDonald
Section of Biochemistry, Molecular and Cell Biology
Division of Biological Sciences
College of Agriculture and Life Sciences
Cornell University
Ithaca, New York 14853
Dr. Robert D. MacElroy  
Ames Research Center  
Code LPB  
Moffett Field, California 94035

Associate Professor Lynn Margulis  
Department of Biology  
Boston University  
2 Cummington Street  
Boston, Massachusetts 02215

Mr. James S. Martin, Jr.  
Vice President for Planning and Advanced Programs  
Martin Marietta Aerospace Corporation  
6801 Rockledge Drive  
Bethesda, Maryland 20034

Mr. Edward L. Merek  
Ames Research Center  
Code LPD  
Moffett Field, California 94035

Professor Stanley L. Miller  
Department of Chemistry, B-017  
University of California, San Diego  
La Jolla, California 92093

Professor Bartholomew Nagy  
Department of Geosciences  
Laboratory of Organic Geochemistry  
University of Arizona  
Tucson, Arizona 85721

Dr. Joseph Nagyvary  
Department of Biochemistry and Biophysics  
Texas A&M University  
College Station, Texas 77843

Dr. Leslie E. Orgel  
Salk Institute for Biological Studies  
P.O. Box 1809  
San Diego, California 92112

Professor John Oro  
Laboratory of Biomolecular Analysis  
Department of Biophysical Sciences  
University of Houston  
Houston, Texas 77004
Mr. Vance I. Oyama  
Ames Research Center  
Code LPD  
Moffett Field, California  94035

Mr. Glenn E. Pollock  
Ames Research Center  
Code LPE  
Moffett Field, California  94035

Professor Cyril Ponnamperuma  
Laboratory of Chemical Evolution  
Department of Chemistry  
University of Maryland  
College Park, Maryland  20742

Professor D.H. Pope  
Department of Biology  
Rensselaer Polytechnic Institute  
Troy, New York  12181

Dr. Robert Rein  
New York State Department of  
Health  
Roswell Park Division Research Laboratory  
666 Elm Street  
Buffalo, New York  14263

Dr. Alexander Rich  
Department of Biology  
Massachusetts Institute of Technology  
Cambridge, Massachusetts  02139

Associate Professor Edward M. Ripley  
Department of Geology  
Indiana University  
1005 East Tenth Street  
Bloomington, Indiana  47401

Professor Duane L. Rohlfing  
Department of Biology  
University of South Carolina  
Columbia, South Carolina  29208

Professor Carl E. Sagan  
Laboratory for Planetary Studies  
Center for Radiophysics and Space Research  
Cornell University  
Ithaca, New York  14853
Professor Carl R. Woese  
Department of Genetics and Development  
University of Illinois  
Urbana, Illinois 61801

Associate Professor John H. Yopp  
Department of Botany  
Southern Illinois University  
Carbondale, Illinois 62901

Dr. Richard S. Young  
Chief, Planetary Biology and Protection  
Code SBL  
National Aeronautics and Space Administration  
Washington, D.C. 20546

Professor G.U. Yuen  
Department of Chemistry  
Arizona State University  
Tempe, Arizona 85281

Dr. Leonard P. Zill  
Ames Research Center  
Code LX  
Moffett Field, California 94035
**Title and Subtitle**

Publications of the Planetary Biology Program for 1977
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**Abstract**

List of 1977 publications resulting from research pursued under the auspices of NASA's Planetary Biology Program.