

This document has been  
approved for public  
release and sale; its  
distribution is unlimited.

AD 659343

TECHNICAL REPORT  
68-1

BIBLIOGRAPHY OF TECHNICAL PUBLICATIONS AND PAPERS

July 1966 - June 1967

August 1967

U. S. ARMY NATICK LABORATORIES  
Natick, Massachusetts 01760

## FOREWORD

This bibliography is a list of technical publications and papers by personnel of the U. S. Army Natick Laboratories and its contractors for the period July 1966 through June 1967.

Reprints of journal articles, in some cases, are available from the individual authors. Copies of technical reports may be obtained from (1) the Defense Documentation Center, Cameron Station, Alexandria, Virginia 22314, or (2) the Clearinghouse for Federal Scientific and Technical Information, Springfield, Virginia 22151. The "AD" number should be cited when ordering copies of reports. Those reports marked with an asterisk (\*) are not available for distribution outside the agencies of the Department of Defense.

  
W. M. MANTZ  
Brigadier General, USA  
Commanding

## Contents

	<u>Page</u>
Office of the Commanding General	1
Office of Deputy Commander	1
Office of Scientific Director	2
Technical Library	4
Airdrop Engineering Laboratory	5
Clothing and Organic Materials Laboratory	6
Earth Sciences Laboratory	15
Food Laboratory	20
General Equipment and Packaging Laboratory	35
Pioneering Research Laboratory	39
Index to authors	51

ABSTRACT

A bibliographic listing of technical publications and papers by the personnel of the U. S. Army Natick Laboratories and its contractors for the period July 1966 through June 1967.

U. S. ARMY NATICK LABORATORIES

COMMANDING GENERAL

Technical Papers

1. MANTZ, W. M. Aerial delivery systems and aircraft crew protection system. Advanced Planning Briefings for Industry Seminar, Army Aviation Association of America and U. S. Army Aviation Materiel Command, St. Louis, Mo., 20 June 1967.
2. Human engineering. Man-Mobility-Survivability Forum, Allison Division of General Motors, Indianapolis, Ind., 11-12 April 1967.
3. A look into the future. Officer Candidate Class 07-2 Graduation, U. S. Army Quartermaster School, Fort Lee, Va., 19 January 1967.
4. Management and operational activities at U. S. Army Natick Laboratories. Installation Management Course, Class 2, U. S. Army Management School, Fort Belvoir, Va., 24 October 1966.
5. New developments of Army equipment. Signal Officers' Basic Course, U. S. Army Southeastern Signal School, U. S. Army School/Training Center, Fort Gordon, Ga., 13 January 1967.
6. Research and development management at U. S. Army Natick Laboratories. Research and Development Management Orientation Course, U. S. Army Logistics Management Center, Fort Lee, Va., 7 April 1967.
7. U. S. Army Natick Laboratories in 1976. Research Society of America, Natick, Mass., 29 August 1966.

DEPUTY COMMANDER

Technical Papers

8. RIORDAN, C. T. Remarks, Industrial Security Requirements Seminar for Contracting Officers, U. S. Army Natick Laboratories, Natick, Mass., 11 October 1966.

DEPUTY COMMANDER

Technical Papers (continued)

9. RIORDAN, C. T. Remarks. Meeting of the Radiological Officers, Office of Civil Defense, U. S. Army Natick Laboratories, Natick, Mass., 23 May 1967.
10. \_\_\_\_\_ U. S. Army Natick Laboratories item development for U. S. Troops in Southeast Asia. Quartermaster Officer Basic Course, Class 67-3 Graduation, U. S. Army Quartermaster School, Fort Lee, Va., 17 November 1966.
11. \_\_\_\_\_ U. S. Army Natick Laboratories - Program management of personnel, equipment, and relations with Congress. Conference on Organometallic Chemistry, U. S. Army Natick Laboratories, Natick, Mass., 2 May 1967.
12. \_\_\_\_\_ Packaging for soldier oriented supplies for Southeast Asia and the Natick Laboratories. Methodist Church, Maynard, Mass., 17 April 1967.
13. \_\_\_\_\_ Packaging in Vietnam. Defense Suppl. Association Fall Meeting, U. S. Army Natick Laboratories, Natick, Mass., 26 October 1966; Practical Package Development Trends in Military Package Management Seminar, Engineering Institute, University of Wisconsin, Madison, Wis., 9 May 1967.
14. \_\_\_\_\_ Report of Packaging Assistance Team Visit to Southeast Asia. Third Annual AMC Storage Management Conference, Arlington, Va., 6 December 1966.
15. \_\_\_\_\_ You have never had it so good logistically - forget the "good old days." Army Supply Officer Class 67-8 Graduation, U. S. Army Quartermaster School, Fort Lee, Va., 28 April 1967.

OFFICE OF SCIENTIFIC DIRECTOR

Technical Papers

10. FLANAGAN, J. H. Coupling research to design. Technical Working Group, Design Coupling, Fort Belvoir, Va., 7 December 1966.

OFFICE OF SCIENTIFIC DIRECTOR

Technical Papers (continued)

17. OESTERLING, J. F. The friendly and unfriendly natural environment. Tennessee Junior Science and Humanities Symposium, University of Tennessee, Knoxville, Tenn., 31 March 1967.
18. SIELING, D. H. Advancement in food preservation. Epicurean Club of Framingham, 1812 House, Framingham, Mass., 13 March 1967.
19. Activities at U. S. Army Natick Laboratories. Natick Service Council, Fiske Memorial Church, Natick, Mass., 13 April 1967.
20. New foods and packaging developed at U. S. Army Natick Laboratories. Seventeenth School Lunch Workshop, Mt. St. Mary College, Hooksett, N. H., 1 September 1966.
21. The combat soldier's needs, an engineering challenge. Southern Arizona Chapter of the Arizona Society of Professional Engineers, University of Arizona, Tucson, Arizona, 14 February 1967.
22. The combat soldier's needs, a research challenge. Newton Rotary Club, Brae Burn Country Club, Newton, Mass., 10 October 1966.
23. Thoughts for food. Worcester Engineering Society (Ladies Night), Pleasant Valley Country Club, Sutton, Mass., 13 October 1966.

Technical Reports

24. On membrane frequencies for spherical shell vibrations, E. W. ROSS, JR., 67-74 OSD, May 1967 (AD 651475).

## TECHNICAL LIBRARY

### Technical Reports

25. Applications of microwave heating to food processing and cookery. E. G. BEARY. Bibliographic Series 67-2. February 1967.
26. Moisture equilibrium in relation to the chemical stability of dehydrated foods. E. G. BEARY. Bibliographic Series 67-1 January 1967.
27. Selective dissemination of information (SDI): Vol. 1, Pilot test at U. S. Army Natick Laboratories. Information Dynamics Corp., Contract No. DA19-129-AMC-957(N). 14 May 1967 (AD 654997).
28. Selective dissemination of information (SDI): Vol. 2. Implementation manual. Information Dynamics Corp., Contract No. DA19-129-AMC-957(N). 13 June 1967 (AD 654990).
29. Selective dissemination of information: Review of selected systems and a design for Army technical libraries. W. A. BIVONA and E. J. GOLDBLUM, Information Dynamics Corp.. Contract No. DA19-129-AMC-957(N). August 1966 (AD 636910).
30. Technical and medical research libraries and information centers of the Department of the Army. R. L. MARTIN. ATLIS Report No. 1, September 1966 (AD 655535).

### Technical Papers

31. MARTIN, R. L. Library employee development. Tenth Annual Military Librarians' Workshop. San Diego, Calif., 13 October 1966.
32. \_\_\_\_\_ and W. A. BIVONA (Information Dynamics Corp.). A library system for selective dissemination of information. First ATLIS Workshop: Automation in Libraries, Redstone Scientific Information Center, Redstone Arsenal, Ala.. 16 November 1966.

## AIRDROP ENGINEERING LABORATORY

### Technical Reports

33. Design of cushioning systems for airdrop. M. P. GIONFRIDDO. 67-59-AD, February 1967 (AD 655280).
34. Feasibility study for an ultimate personnel/cargo lowering and retrieval system for the CH-47 Helicopter. G. D. DeSANTIS. ADEL Report, unnumbered, 15 August 1966.
35. Lowering device, personnel/cargo. 500-lb capacity and tiedown assembly aircraft floor anchor for UH-1B, UH-1D, and CH-34 Helicopter. E. LUNSFORD. Advance Data Package, 27 March 1967.
36. Release assembly parachute ripcord, automatic free-fall, Type FF-1 and Stopwatch, parachutist's with 5-minute register. E. LUNSFORD. Advance Data Package, 5 April 1967.

### Technical Papers

37. BUDNICK, M. L. Data and equipment for process control of expanded paper honeycomb energy dissipater material. Symposium on Correlation of Material Characteristics with Systems Performance, Technical Cooperation Program, Orlando Air Force Base, Florida, 12 May 1967.
38. DeSANTIS, G. C. Feasibility study for an ultimate personnel/cargo lowering and retrieval system for the CH-47 Helicopter. National Aerospace Electronics Conference (NAECON), Dayton, Ohio, 17 May 1967.
39. FALABELLA, G. U. S. Army airdrop program. Air Standardization Coordinating Committee Working Party 44 (Air Transport Systems), Canberra, Australia, 12-20 December 1966.
40. GIONFRIDDO, M. P. Engineering problems in airdrop. Mechanical Engineering Department, University of Rhode Island, Kingston, R. I., 10 November 1966.
41. A survey of the U. S. Army R&D programs in airdrop. Aerodynamic Deceleration Systems Conference, American Institute of Aeronautics and Astronautics, Houston, Texas, 7-9 September 1966.

CLOTHING AND ORGANIC MATERIALS LABORATORY

Technical Reports

42. Appraisal of white marking media for application on Air Force blue cotton webbing, A. P. SNYDER and T. KAPALA. 67-21-CM (MRE 67-1). September 1966 (AD 645970).
43. Behavior characteristics of a caliber .30 AP projectile after penetrating biaxially stretched acrylic. J. R. PETERS. Armor Material Examination Report No. 8339, March 1967.
44. Comparative study of picker and draw-frame blends of cotton and nylon, S. D. SHAHANE, V. SINGH, and L. I. WEINER. 67-22-CM (TS-143), November 1966 (AD 645153).
45. Design tables for textile fabrics: tables of solutions or equations for maximum wearability fabrics made from single fiber species and blends. L. I. WEINER. 67-20-CM (TS-144). August 1966 (AD 640502).
46. Development, fabrication, and prooftesting of optimum foot protection against antipersonnel mines using a supplementary device. E. S. FUJINAKA and J. L. McDONALD, IIT Research Institute. Contract No. DA19-129-QMC-379(N). 67-45-CM (TS-144), December 1966 (AD 813883).\*
47. Development of a carbon heating unit, M. J. McGOFF and W. MILICH. Mine Safety Appliance Research Corp., Contract No. DA19-12--AMC-105(N). 67-13-CM (MR&E 66-3), July 1966 (AD 642930).
48. The development of a combat boot last for Thai and Vietnamese military forces, D. SWAIN and R. J. McLEAN. AFPA report, 67-81-CM, May 1967.
49. Development of an inorganic phototropic system for flashblindness protection, A. M. MARKS. Marks Polarized Corp., Contract No. DA19-129-AMC-158(N). 67-2-CM (CM-22). July 1966 (AD 639701).
50. Development of charcoal impregnation process for CW protective overgarment, D. D. GAGLIARDI, Gagliardi Research Corp. Contract No. DA19-129-AMC-675(N). Final Report. October 1966 (AD 805099).\*

## CLOTHING AND ORGANIC MATERIALS LABORATORY

### Technical Reports (continued)

51. Effectiveness of aviators' garments in protecting against gasoline fires, E. T. WALDRON, M. DiPAOLO, W. KOZA, H. MADNICK, and D. DALUZ. C&OM Laboratory report, February 1967.
52. Effects of dynel fiber blending on yarn shrinkage and woven fabric properties, P. J. ANGELO, JR., D. H. PFISTER, J. A. GOODWIN, and V. DUXBURY, Lowell Technological Institute Research Foundation, Contract No. DA19-129-AMC-894(N). 67-64-CM (TS-150), January 1967.
53. Electrically heated handwear, H. MADNICK and A. PARK. 67-82-CM (C&ED-46), March 1967.
54. Evaluation of 5-gallon experimental water container, F. RAMSDELL, C&OM Laboratory report, August 1966.
55. Evaluation of Swedish helmet for tank crewmen. A. L. LASTNIK. 67-39-CM (C&ED-44), November 1966 (AD 653603).
56. Feasibility of using fluorescent colorants to afford camouflage protection against photographic detection, A. O. RAMSEY and J. T. WALWOOD. 67-26-CM (TS-145) October 1966 (AD 653604).
57. Feasibility study of personnel shirt-sleeve clothing and disposal, M. E. DARBY. NASA, Order L-67, 067, M.S. 138, Final Progress Report, Phase II, December 1966.
58. Lightweight insulated footwear, R. POOLEY, L. FISHER, A. SHAW III, and C. S. ROHS, U. S. Rubber Co., Contract No. DA 9-129-AMC-690(N). 67-23-CM (C&OM-26), September 1966 (AD 640629).
59. Low temperature traction rubber sole compound for MS combat footwear. V. JAVIER. 67-72-CM (C&OM-3), January 1967.
60. Methods for removal of hard-water scale from U. S. Army kitchen equipment, T. KAPALA and G. J. MERRITT. 67-83-CM (C&OM-32), March 1967 (AD 654378).
61. Physical and rheological properties of fluoronitile rubbers, G. L. BALL III, I. O. SALYER, J. V. PUSTIMER, and H. S. WILSON, Monsanto Research Corp., Contract No. DA19-129-AMC-151(N), Final Report, 67-63-CM (C&OM-31), April 1967.

CLOTHING AND ORGANIC MATERIALS LABORATORY

Technical Reports (continued)

62. Point system for evaluating quality in textiles, H. J. McISAAC. 67-29-QM (TS-146), October 1966 (AD 641496).
63. Polymerization studies leading to high-strength chemical resistant elastomers serviceable at temperature extremes, D. I. RELYEA, H. P. SMITH, and A. N. JOHNSON, U. S. Rubber Co., Contract No. DA19-129-AMC-487(N), Semiannual Report No. 4, 67-58-QM, December 1966 (AD 648860).\*
64. Potential military applications of disposable items - a review of NLABS activities, 1959-1967. M. E. DARBY, May 1967.
65. Punch-card information retrieval systems for flashblindness protection research. I. Photochromic materials R. N. MacNAIR. 67-14-QM (C&OM-24), November 1966 (AD 643772).
66. Research and development of blast protective footwear, fabrication and proof-testing. E. S. FUJINAKA and J. L. MacDONALD, IIT Research Institute, Contract No. DA19-129-QM-2061 (OI 6137) 67-5-QM (TS-141), July 1966 (AD 648417).
67. Research design study of variable armor concepts. R. RODZEN, F. SCRIBAND, M. BURNS, and E. BARRON, IIT Research Institute, Contract No. DA19-129-AMC-555(N) 67-40-QM (TS-148), September 1966 (AD 814379).\*
68. Research on synthesis of unsaturated fluorocarbon compounds. P. TARRANT, F. DRAKESMITH, O. J. STEWART, J. P. TANDON, S. MISAKI, D. SAYERS, J. HEYES, W. OLIVER, A. C. WRIGHT, D. PERRY, and A. WRIGHT, University of Florida, Contract No. DA19-129-AMC-74(N), Semianual, No. 7, 67-60-QM, September 1966 (AD 649346), and Final Fepcr, 67-79-QM (C&OM-33), March 1967.
69. Research study on cold drawing phenomena in high polymers. R. D. ANDREW, JR., S. W. ALLISON, D. H. ENDER, R. M. KIMMEL and W. WHITNEY, Massachusetts Institute of Technology, Contract No. DA19-129-AMC-238(N), 67-10-QM (C&OM-25), August 1966 (AD 644021).
70. Response of non-woven synthetic fiber textiles to ballistic impact. T. P. IPSON and E. P. WITTRICK, Colorado Seminary, Contract No. DA19-129-AMC-157(N), 67-8-QM (TS-142), July 1966 (AD 641433).

CLOTHING AND ORGANIC MATERIALS LABORATORY

Technical Reports (continued)

71. A review of photochromism in triphenylmethane derivatives and related compounds, R. N. MacNAIR. 67-51-CM (C&OM-29), January 1967 (AD 654798).
72. Sorption and diffusion of water in a rubbery polyurethane, N. S. SCHNEIDER, L. V. DUSABLON, H. B. HOPFENBERG, L. A. SPANO, and F. VOTTA, JR., NASA R-135, Status Report No. 7, December 1966.
73. Studies on the structure of rubbery polyurethanes, N. S. SCHNEIDER, S. B. CLOUGH, and I. A. SPANO, NASA R-135, Status Report No. 8. 67-77-CM (MRF-67-2). January 1967.
74. Study of the surface emissivity of textile fabrics and materials in the 1 to 15 $\mu$  range, M. MASON and I. COLEMAN, Block Engineering Co., Contract No. DA19-129-AMC-523(N). 67-86-CM (TS-151), March 1967.
75. Synthesis of chromotropic colorants: Part II, R. A. COLEMAN, J. KAZAN, M. VEGA, and M. MASON, American Cyanamid Co., Contract No. DA19-129-AMC-269(N). 67-33-CM (TS-147), February 1967 (AD 808708).\*
76. Synthesis of organolead compounds, M. C. HENRY and B. PANT, Quarterly Reports No. 21, September 1966, No. 22, December 1966, and No. 23, May 1967.
77. The synthesis of special fluorine-containing monomers, J. D. PARK and J. R. LACHER, University of Colorado, Contract No. DA19-129-AMC-869(N), Semiannual Report No. 2, 67-48-CM, 15 December 1966 (AD 645432).
78. Theoretical and experimental study of low-velocity penetration phenomena, E. T. CANNON, Utah Research and Development Co., Inc., Contract No. DA19-129-AMC-150(X), Final Report, November 1966.

Journal Articles

79. BURROWS, W. D. Clarke-Eschweiler cyclization. Scope and mechanism. J. Organic Chem., 31:3099 (1966).

CLOTHING AND ORGANIC MATERIALS LABORATORY

Journal Articles (continued)

80. BURROWS, W. D. Mesoionic ex-zolones. A new synthesis and electrophilic substitution reaction. *J. Organic Chem.*, 31:3435 (1966).
81. DAVIDSOHN, W., and M. C. HENRY. Organometallic acetylenes of the main groups III-V. *Chem. Rev.*, 67:73 (February 1967).
82. DESPER, C. R., and R. S. STEIN. Measurement of pole figures and orientation functions for polyethylene films prepared by unidirectional and oriented crystallization. *J. Appl. Phys.*, 37(11):3990 (October 1966).
83. KOERNER von GUSTORF, E., M. C. HENRY, R. E. SACHER, and C. DiPIETRO. Radiation chemical reductions of aromatic nitro compounds with  $\text{Fe}(\text{CO})_5$ . *Zeitschrift fur Naturforschung*, 21b:12 (1966).
84. LALIBERTE, B., W. DAVIDSOHN, and M. C. HENRY. Some reactions of di-n-butyltin dihydride. *J. Organometallic Chem.*, 5:526 (1966).
85. PROSSER, R. A., J. T. STAPLER, and W. E. C. YELLAND. A pyrolysis oven which utilizes a preheated helium stream. *Analytical Chem.*, 39(6):694-695 (May 1967).
86. RAMSLEY, A. O. Fluorescence of dyes in the infrared. *Color Engineering*, 5(1):20-24 (1967).
87. Measurement of infrared fluorescence of surfaces. *J. Opt. Soc. Amer.*, 57:111-12 (1967).
88. SACHER, R., D. H. LEMMON, and F. A. MILLER. Infrared and raman spectra of  $\text{Si}(\text{C}\equiv\text{CH})_4$ ,  $\text{Ge}(\text{C}\equiv\text{CH})_4$ , and infrared spectrum of  $\text{Sn}(\text{C}\equiv\text{CH})_4$ . *Spectrochimica acta*, Vol. 23A, No. 5 (May 1967).
89. SELIGSBERGER, L. Vulcanized boots for combat footwear. *J. Amer. Leather Chem. Assn.*, 62(5):346-360 (May 1967).
90. STEIN, R. S., P. F. ERHARDT, S. B. CLOUGH, and G. ADAMS. Scattering of light by films having nonrandom orientation fluctuations. *J. Appl. Phys.*, 37(11):3980 (October 1966).
91. WILSON, A. Measurement of the elasticity of rubber at low temperatures using a twist apparatus. *Rubber World*, 156(1):81-80 (April 1967).

CLOTHING AND ORGANIC MATERIALS LABORATORY

Technical Papers

92. BURROWS, W. D. The effect of structure on the rates of thermal decomposition of solid benzylidemethylsulphonium salts. American Chemical Society, Miami Beach Fla., April 1967.
93. CLOUGH, S. B., and N. S. SCHNEIDER. Structural studies on polyurethane elastomers. Northeastern Section, Plastics and Elastomers Group, American Chemical Society, Cambridge, Mass., 9 March 1967.
94. \_\_\_\_\_ and N. S. SCHNEIDER. Structural studies on polyurethane elastomers. Division of High Polymer Physics, American Physical Society, Chicago, Ill., 29 March 1967.
95. DESPER, C. R. Structure and properties of extruded polyethylene films. Northeastern Section, Plastics and Elastomers Group, American Chemical Society, Cambridge, Mass., 9 March 1967.
96. \_\_\_\_\_ The mathematics of the polarized fluorescence experiment. Division of High Polymer Physics, American Physical Society, Chicago, Ill., 29 March 1967.
97. HENRY, M. C. First International Conference on Organolead Chemistry and Its Applications, U. S. Army Natick Laboratories, Natick, Mass., 2 May 1967.
98. KENNEDY, S. J. Boots, clothing, and body armor for our troops in Vietnam. University of Rhode Island, Kingston, R. I., 2 November 1966.
99. \_\_\_\_\_ Functional design in military clothing. University of Connecticut, Storrs, Conn., 15 December 1966.
100. \_\_\_\_\_ Military textiles and clothing - changing needs. Northern Textile Association, West Harwich, Mass., 29 September 1966.
101. \_\_\_\_\_ Textiles and clothing for our troops in Vietnam. Textile Dinner Club, Boston, Mass., 8 December 1966.
102. \_\_\_\_\_ The role of textiles in military operations today. Textile Research Institute, New York, N. Y., 6 April 1967.

CLOTHING AND ORGANIC MATERIALS LABORATORY

Technical Papers (continued)

103. KENNEDY, S. J. The textile technologist in a consumer world. University of Rhode Island, Kingston, R. I., 3 January 1967.
104. KLIMAN, M. I. Ceramic personnel armor specifications. Ceramic Seminar, New York, N. Y., 17 November 1966.
105. MARTIN, D. M. A scanning method for photoelasticity. American Ceramic Society, New York, N. Y., 5 May 1967.
106. MacNAIR, R. N. Photochromic materials and mechanisms. Informal Committee for Eye Protection against LASERS U. S. Army Natick Laboratories, Natick, Mass., 24 May 1967.
107. McQUADE, A. J. Fire-resistant textiles. American Association of Textile Chemists and Colorists, Danvers, Mass., 26 May 1967.
108. MILES, T. D. Flame-resistant textiles. Symposium on Burns and Flame-Resistant Textiles, New York Academy of Medicine, New York, N. Y., 14 December 1966.
109. PIROG, J. A., A. W. BERGER, and R. H. JACKSON (Monsanto Research Corp.). The flash photolysis of tetrakis-(p-octylphenyl)-hydrazine. Informal Symposium on Reversible Photochemical Processes Dayton, Ohio, 1-3 May 1967.
110. SACHER, R. E. Infrared and raman spectra of  $\text{Si}(\text{C}\equiv\text{CH})_4$ ,  $\text{Ge}(\text{C}\equiv\text{CH})_4$ , and  $\text{Sn}(\text{C}\equiv\text{CH})_4$ . Symposium on Molecular Structure and Spectroscopy, Columbus, Ohio, 6-10 September 1966.
111. SCHNEIDER, N. S., R. TRASKOS, and A. HOFFMAN. Column fraction of branched polyethylenes. Northeastern Section, Plastics and Elastomers Group, American Chemical Society, Cambridge, Mass., 9 March 1967.
112. \_\_\_\_\_, R. TRASKOS, and A. HOFFMAN. Column fractionation of branched polyethylenes. Polymer Research Institute, Amherst, Mass., 26 May 1967.
113. \_\_\_\_\_, L. V. DUSABLON, and L. SPANO. Water vapor transport in polyurethanes. Symposium on Coated Fabrics, U. S. Army Engineer Research and Development Laboratories, Fort Belvoir, Va., 17 April 1967.

CLOTHING AND ORGANIC MATERIALS LABORATORY

Technical Papers (continued)

114. SHURTLEFF, S. J. Substrate coating adhesion. Symposium on Coated Fabrics, U. S. Army Engineer Research and Development Laboratories, Fort Belvoir, Va., 18 April 1967.
115. SPANO, L. Thermoelectric powered heating and ventilating system. International Electronic Devices Meeting, Washington, D. C., 26-28 October 1966.
116. URBANEK, J. P. Adhesive seaming problems. Symposium on Coated Fabrics, Panel P-3, Organic Materials, The Technical Cooperation Program, U. S. Army Engineer Research and Development Laboratories, Fort Belvoir, Va., 18 April 1967.
117. WELLS, R. D. Information access and retrieval. The Fiber Society, Asheville, N. C., 5 May 1967.
118. \_\_\_\_\_ Patterns of flow of technical information. A design problem for the textile industry. Textile Research Institute, New York, N. Y., 5 April 1967.
119. WILDE, A. F. Dynamic birefringence and strain produced in two transparent polymers by mechanical impact. Sixth International Symposium on High Speed Testing: The Rheology of Solids, Boston, Mass., 7 March 1967.
120. \_\_\_\_\_ Dynamic photoelasticity. New England Section, Society for Experimental Stress Analysis, Newton, Mass., 7 December 1966.
121. WILSON, A. Low temperature testing of elastomers. Northeastern Section, Elastomers and Plastics Group, American Chemical Society, Newton, Mass., January 1967.
122. \_\_\_\_\_ Measurement of the elasticity of rubber at low temperatures using a twist recovery apparatus. American Chemical Society, New York, N. Y., 14-16 September 1966.
123. YELLAND, W. E. C. Inorganic phosphors and image converter systems. Informal Committee for Eye Protection against Lasers, U. S. Army Natick Laboratories, Natick, Mass., 24 May 1967.

CLOTHING AND ORGANIC MATERIALS LABORATORY

Book Chapters

124. SCHNEIDER, N. S. Structure properties relations in high polymers.  
In Chapter 2, R. W. Lenz, Organic Chemistry of High Polymers.  
Interscience Publishers, New York, N. Y. (1967).

EARTH SCIENCES LABORATORY

Technical Reports

125. Arthropods of medical importance in Africa, part I and II, B. V. TRAVIS, C. E. MENDOZA, and R. M. LABADAN, Cornell University, Contract No. DA19-129-AMC-417(N). 67-55-ES (ES-31), February 1967 (AD 650931 and AD 650949).
126. Arthropods of medical importance in Asia and European U.S.S.R., part I and II, B. V. TRAVIS and R. M. LABADAN, Cornell University, Contract No. DA19-129-AMC-417(N). 67-65-ES (ES-32), June 1967.
127. Botanical and zoological expedition to the Angmagssalik district, East Greenland, 1966 (Preliminary Report), F. J. A. DANIELS, J. J. HOOFT, and J. G. deMOLENAAR, Contract NLABS (NATICK) No. 247.
128. Climatological conditions favoring occurrence of high temperatures at Yuma Proving Ground, Arizona, L. WILLIAMS. 67-42-ES (ES-28), January 1967 (AD 648016).
129. Environment of the NLABS Annex, D. W. HOGUE. 67-9-ES (ES-30). September 1966 (AD 655278).
130. Little America V Micrometeorology program, data and analysis, H. H. LETTAU, S. H. WOLLASTON, and P. C. DALRYMPLE. (Contribution No. 97, Institute of Polar Studies, Ohio State University). 67-46-ES (ES-29), January 1967 (AD 650188).
131. Rock glaciers and mass-wastage in the Galena Creek Area, Northern Absaroka Mountains, Wyoming, N. OTTER, JR., Contract No. DA19-129-AMC-967(N). March 1967.
132. Seasonal changes revealed by time-lapse photography, R. J. FRODIGH. 67-34-ES (ES-27). March 1967 (AD 652732).
133. Southern Hemisphere glacier atlas, J. H. MERCER, American Geographical Society, New York, Contract No. DA49-092-ARO-25. 67-76-ES (ES-33). June 1967.
134. Testing of NLABS cold-wet prototype uniform in Tierra del Fuego, E. J. MILLER, Contract No. DA19-129-AMC-834(N). July 1966.
135. World color regions atlas, J. V. CHAMBERS. 67-31-ES (ES-21). March 1967 (AD 815834).\*

EARTH SCIENCES LABORATORY

Journal Articles

136. ANSTEY, R. L. A comparison of alluvial fans in West Pakistan and the United States. *Pakistan Geographical Review*, 21(2):14-20 (July 1966).
137. \_\_\_\_\_ Geographical climatology. *Tokyo J. Climatology* 3(1):61 (December 1966).
138. BLACKFORD, P. A. Project TREND: Environmental research in Thailand. *Army R&D Newsmagazine*, 8(3):2,24-25 (March 1967).
139. DALRYMPLE, P. C., and L. STROSCHEIN. Antarctic plateau radiation climatology. *U. S. Antarctic J.*, p.190 (September-October 1966).
140. THOMPSON, W. F. Military significance of mountain environment studies. *Army R&D Newsmagazine*, 8(5):30-32 (May 1967).

## EARTH SCIENCES LABORATORY

### Technical Papers

141. AHMAD, N. East Pakistan urban centers and their recent growth. Third Annual Conference on Bengal Studies, University of Michigan, Ann Arbor, Mich., 11-13 May 1967.
142. ANSTEY, R. L. Military geography. 1634th Mobilization Designation Detachment, The Pentagon, Washington, D. C., 2 May 1967.
143. DODD, A. V., and A. GREENWALD. Local humidity variations in the U. S. Army Natick Laboratories area. Association of American Geographers, Toronto Canada, 28-31 August 1966.
144. ROBISON, W. C. Geographers in government. Annual Conference, Departments of Geography and Earth Science, Massachusetts State Colleges, Boston, Mass., 28 April 1967.
145. \_\_\_\_\_ Some problems of geographical terminology. Institute of Australian Geographers, Sydney, Australia. 15 August 1966.
146. SHARON, D. Probability prediction of the persistence in weather elements. Massachusetts Institute of Technology, Cambridge, Mass., 10 May 1967.
147. STROSCHEIN, L. Project TREND. Army Meteorological R&D Coordination Committee, Hanover, N. H., 1-3 November 1966.
148. \_\_\_\_\_ Micrometeorology and microclimatology of the Antarctic. U. S. Antarctic Research Programs, Skyland, Va., September 1966.
149. TRUEBLOOD, L. W. Applied research in military geography. Association of American Geographers, Toronto, Canada, 28-31 August 1966.
150. \_\_\_\_\_ The geography program at the U. S. Army Natick Laboratories. Oregon State University, Corvallis, Oregon. 23-24 February 1967.
151. WEXLER, R. L. The relationship between daily and annual rainfall in Thailand. Joint Technical Exchange Conference, Monterey, Calif., 6 April 1967.
152. WILLIAMS, L. Climatological aspects of high temperatures at Yuma Test Station, Arizona. Conference on Fair Weather Meteorology, American Meteorological Society, Santa Barbara, Calif., 28 February - 2 March 1967.

## EARTH SCIENCES LABORATORY

### Book Chapters

153. DALRYMFLE, P. C. A physical climatology of the Antarctic plateau. In *Studies in Antarctic Meteorology*, American Geophysical Union National Academy of Sciences--National Research Council, Publication 1482 (1966).
154. \_\_\_\_\_, H. H. LETTAU, and S. H. WEAVER. South Pole micrometeorology program: Data analysis. In *Studies in Antarctic Meteorology*, American Geophysical Union, National Academy of Sciences--National Research Council, Publication 1482 (1966).

### Book Reviews

155. ROBISON, W. C. Geography of coastal deserts, by Peveril Meigs. *The Professional Geographer*, 18(6):400 (November 1966).
156. \_\_\_\_\_ Native inheritance, the story of corn in America, by Howard T. Walden, II. *The Professional Geographer*, 19(3) 102 (May 1967).

## EARTH SCIENCES LABORATORY

### Other Publications

157. ANSTEY, R. L. Application of quantified terrain data to vehicle design criteria. Proc. Army Science Conference, Washington, D. C., 1:23-36, August 1966.
158. \_\_\_\_\_ The physical environment of a typical tropical environment. Proc. Institute of Environmental Sciences, 13th Annual Technical Meeting, Washington, D. C., 1:49-57, 1967.
159. FRODIGH, R. J. Military implications of seasonal environmental change as revealed through time-lapse photography. Proc. Army Science Conference, Washington, D. C., 1:263-277, August 1966.
160. ROBISON, W. C., and L. W. TRUEBLOOD. Contributions to "Arid-Lands Research Institutions - a World Directory," by P. PAYLORE, The University of Arizona Press, Tucson, Ariz., Contract No. DA49-092-ARO-71, 1967 (AD 655006).
161. WILLIAMS, L. Refuse disposal - a metropolitan problem. Proc. Second International Meeting, Commission on Applied Geography, International Geographical Union, editor, A. A. Michel, The University of Rhode Island Press, Kingston, R. I., pp 79-83, April 1967.
162. An inventory of geographic research of the humid tropic environment, Vol. II, Compendium and Appendices. Texas Instruments, Inc., Contract No. DA49-092-ARO-33. 67-44-ES, December 1966.
163. Inventory of research on weather and climate of desert environments, C. H. REITAN and C. R. GREEN, Office of Arid Lands Research, The University of Arizona, Tucson, Ariz., Contract No. DA49-092-ARO-71, 1967.

## FOOD LABORATORY

### Technical Reports

164. Amino carboxylic inhibition of lipid oxidation in dehydrated foods, M. KAREL and S. R. TANNENBAUM, Massachusetts Institute of Technology, Contract No. DA19-120-AMC-254(N). 67-27-FD (FD-53), September 1966 (AD 640959).
165. Changes in TBA value of meat under controlled conditions M. E. BAILEY, V. C. WITTE, and G. F. KRAUSE, University of Missouri, Contract No. DA19-120-AMC-638(N). 67-67-FD (FD-55). April 1967 (AD 652-11).
166. Development of dehydrated and bite-sized food items. H. HOLLENDER and M. V. KLICKA. Air Force Systems Command. AMRL-TR-65-10. December 1965.
167. Development of edible mouth coolants, R. W. SCROGES, IIT Research Institute, Contract No. DA19-120-AMC-46(N). 66-53-FD (FD-51). June 1966 (AD 638427).
168. Edible coatings for dried and compacted foods - part II, M. S. COLE, Archer Daniels Midland Company. Contract No. DA19-120-AMC-102(N). 66-38-FD (FD-48), May 1966 (AD 634252).
169. Hygroscopic equilibrium and texture of freeze-dried foods, J. G. KAPSALIS. 67-87-FL (FL-56). June 1967.
170. Incidence of Clostridium botulinum in raw meats, R. B. TOMPKIN, Swift & Company, Contract No. DA19-120-AMC-101(N). 66-44-FD (FD-50), June 1966 (AD 630221).
171. Isolation, nutrition, and metabolism of photosynthesizing plant tissues, A. C. HILDEBRANDT, University of Wisconsin. DA19-120-QM-1817(N). 67-12-FD (FD-52), August 1966 (AD 637848).
172. Neutron and bremsstrahlung activation analysis, P. P. COOPER and G. L. BROWNELL, Massachusetts Institute of Technology, MITNE-82. May 1967.
173. Requirements for instant prepared, ready-to-eat, freeze-dried scrambled eggs, P. E. MCONE and L. D. MINK, Swift & Company Contract No. DA19-120-AMC-121(N). 67-40-FD (FD-54), January 1967 (AD 650637).
174. A study of the microbiology of selected dehydrated food products, F. E. WELLS, Midwest Research Institute, Contract No. DA19-120-AMC-206(N). 66-35-FD (FD-47), May 1966 (AD 633390).

## FOOD LABORATORY

### Journal Articles

175. ANELLIS, A., D. BERKOWITZ, C. JARBOE, and H. M. EL-BISI. Radiation sterilization of prototype military foods. II. Cured ham. *Appl. Microbiol.*, 15:166-177 (1967).
176. \_\_\_\_\_, D. BERKOWITZ, C. JARBOE, and H. M. EL-BISI. Radiation sterilization of prototype military foods. III. Pork loin. *Bacteriol. Proc.*, A10 (1967).
177. ANTI, A. W. Considerations different for space candies. *Candy Industry and Confectioners' J.*, 127(14):54,56,59 (December 13, 1966).
178. BISHOV, S. J., and A. S. HENICK. A gas chromatographic method for continuous accelerated study of O<sub>2</sub> uptake in fats. *J. Am. Oil Chem. Soc.*, 43:477 (1966).
179. \_\_\_\_\_, Y. MASUOKI, and A. S. HENICK. Fat quality and stability in dehydrated proteinaceous food mixes. *Food Technol.*, 21:(3A)466(148A) (1967).
180. BROCKMANN, M. C. Compression of foods. *Activities Report*, 18:173-177 (Fall, 1966).
181. \_\_\_\_\_ Seafood products for military use. *Activities Report*, 19(1):82-87 (Spring, 1967).
182. \_\_\_\_\_ Storage stability of freeze-dried foods. *Heating, Refrig. and Air Conditioning Eng. Assoc. J.*, p.54-58 (August 1966).
183. COOPER, R. D., and G. L. BROWNELL. A large coaxial Ge(Li) detector with plastic anticoincidence scintillator for activation analysis. *Nuci. Inst. and Methods*, 51:72-76 (1967).
184. DYMSZA, H. A., and G. S. STOEWSAND. High-energy diets from synthetic sources. *Activities Report*. 18(2):119-124 (Fall, 1966).
185. \_\_\_\_\_, G. S. STOEWSAND, P. DONOVAN, F. F. BARRETT, and P. A. LACHANCE. Development of nutrient-defined formula diets for space feeding. *Food Technol.*, 20(10):109-112 (October 1966).

FOOD LABORATORY

Journal Articles (continued)

186. GREENBERG, R. A., R. B. TOMPKIN, B. O. BLADEL, R. S. KITAKA, and A. ANELLIS. Incidence of mesophilic Clostridium spores in raw pork, beef, and chicken in processing plants in the United States and Canada. *Appl. Microbiol.*, 14:789-793 (1966).
187. HEILIGMAN, F., C. K. WADSWORTH, and C. E. PHILLIPS. Development of radiation-sterilized chicken. *Food Technol.*, 21(5):174-177 (May 1967).
188. JOSEPHSON, E. S. Review of Army meat-sterilization radiation program. *Isotopes and Radiation Technol.*, 3(4):353-356 (1960).
189. MATTHEW, R. O. The potential of algae as food. *Activities Report*, 18(2):101-110 (Fall, 1966).
190. McGEACHIN, R. L., W. M. PAVORD, D. N. WIDMER, and P. A. PRELL. Comparative inhibition of mammalian amylases by goat antisera to hog pancreatic amylase. *Comp. Biochem. Physiol.*, 18:767-772 (1965).
191. MEHRLICH, F. P. For all the little pigs that never went to market. *Columbia J. of World Business*, 2(1) 57-61 (January-February 1967).
192. MEYER, R. A. Induced radioactivity in food and electron sterilization. *Health Physics*, 12:1027-1037 (1966).
193. \_\_\_\_\_ and J. L. BURKHARDT. Calculation of induced radioactivity in electron sterilized food. *Health Physics*, 12:1581-1587 (1966).
194. MULVEY, P. F., J. A. CARDARELLI, M. ZOUKIS, R. D. COOPER and B. A. BURROWS. Sensitivity of bremsstrahlung activation analysis for iodine determination. *J. Nucl. Med.*, 7:603-611 (1966).
195. PORTER, W. L., A. S. HENICK, and M. CLIFFORD. The autoxidative contraction of monolayers of linoleic acid at a gas-water interface. *J. Am. Oil Chem. Soc.* 44:185 (1967).
196. PRATT, G. B., L. E. KNEELAND, F. HEILIGMAN, and J. J. KILLORAN. Irradiation induced gases in packaged foods. I. Identification and measurements. *J. Food Sci.*, 32(2):200-205 (1967).

## FOOD LABORATORY

### Journal Articles (continued)

197. PREVITE, J. J. Salmonellosis, the problem and a potential remedy. Activities Report, 19(1):64-72 (1967).
198. \_\_\_\_\_, Y. CHANG, and H. M. EL-BISI. Detoxification of Salmonella typhimurium lipopolysaccharide by ionizing radiation. J. Bacteriol., 93(5) 1607-1614 (1967).
199. \_\_\_\_\_, Y. CHANG, and H. M. EL-BISI. Effect of radiation environment and recovery media on Salmonella typhimurium survival. Bacteriol. Proc., 3 (May 1967).
200. ROWLEY, D. B., and H. S. LEVINSON. Changes in spores of Bacillus megaterium treated with thioglycolate at a low pH and restoration of germinability and heat resistance by cations. J. Bacteriol., 93(3):1017-1022 (1967).
201. STOEWSAND, G. S., H. A. DYMSZA, S. M. SWIFT, M. A. MEHLMAN, and D. G. TERRIAULT. Effect of feeding polyhydric alcohols on tissue lipids and the resistance of rats to extreme cold. J. Nutrition, 89(4):414-418 (August 1966).
202. STRASSER, J., and J. W. GIFFEE. The free radical-siccation process. Activities Report, 19(1):12 (Spring, 1967).
203. SWIFT, J. \$3 for hardware solves cont'd. problem. Food Eng., 38(10):79 (October 1966).
204. TOLLENAAR, D. Effects of mineral and vitamin supplementation on swimming times and other parameters related to performance of rats on a low calorie regimen. J. Nutrition, 90(4):441-448 (December 1966).
205. WALKER, J. E., and D. M. HOWELL. Dichlorobis (hydroxylamine) zinc. II. Inorgan. Syn., 4(2), (1967).

### Technical Papers

206. ANELLIS, A. Annual research review on C. botulinum and 12-D concept. Interagency Botulinum Conference, Washington, D. C., June 1967.

FOOD LABORATORY

Technical Papers (continued)

207. ANELLIS, A. Radiation sterilization of prototype military foods. III. Pork Loin. American Society for Microbiology, New York, N. Y., May 1967.
208. ANTI, A. W., and E. E. ANDERSON. Surface coatings for space foods. American Chemical Society, New York, N. Y., 11-16 September 1966.
209. BAKER, L. J. Radiation preservation of foods. Framingham State College, Framingham, Mass., 6 July 1967.
210. BRAZIL, T., A. JMINA, and D. E. WESTCOTT. Factors affecting the flavor, color and texture of flexibly-packaged thermally-processed bread. Institute of Food Technologists, Minneapolis, Minn., 16 May 1967.
211. BROCKMANN, M. C. The development and use of military food specifications. Egg Processors Conference, Iowa State University, Ames, Iowa, 5 January 1967.
212. \_\_\_\_\_ Military food research. U. S. Army Quartermaster School, Fort Lee, Va., 30 November 1966 and 2-3 May 1967.
213. \_\_\_\_\_ Military development of new poultry products. Conference on Advances in Poultry and Egg Processing. Research Council, Institute of American Poultry Industries, Columbus, Ohio, 16 June 1967.
214. BRYNJOLFSSON, A. Cost of irradiation. New York Academy of Sciences, New York, N. Y., 12 April 1967.
215. \_\_\_\_\_ Machine irradiation sources and irradiation technology. American Institute of Chemical Engineers, Atlantic City, N. J., 21 September 1965.
216. \_\_\_\_\_ and T. G. MARTIN, III. Radiation protection problems associated with electron accelerators. AMC Radiation Protection Symposium, Edgewood Arsenal, Md., 26 May 1967.
217. BUCK, P. A. Looking at the earth as the greatest spacecraft. Institute of Food Technologists, Stamford, Conn., 6 December 1966; Food Update Seminar, San Francisco, Calif., 3 March 1967; Canadian Institute of Food Technologists, Montreal, Canada, 25 May 1967.

## FOOD LABORATORY

### Technical Papers (continued)

218. CHANDLER, H. K. Current status of food irradiation program. Association of Food and Drug Officials of the Southern States, Roanoke, Va., 4 April 1967; Association of Food and Drug Officials of the Central Atlantic States, Baltimore, Md., 24 May 1967.
219. COOPER, R. D. Neutron and bremsstrahlung activation analysis with a Ge(Li) spectrometer. Massachusetts Institute of Technology, Cambridge, Mass., 13 March 1967.
220. \_\_\_\_\_, D. M. LINEKIN, and G. L. BROWNELL. Activation analysis of biological tissue without chemical separation. International Atomic Energy Agency Symposium on Nuclear Activation Techniques in the Life Sciences. Amsterdam, Netherlands, 8-12 May 1967.
221. \_\_\_\_\_, D. M. LINEKIN, and G. L. BROWNELL. Measurement of trace elements in tissue by means of a Ge(Li) detector with Compton suppression. American Nuclear Society, San Diego, Calif., June 1967.
222. CROWLEY, N. H. Comparisons of energy expenditure with selected biochemical findings in healthy college women. American Dietetic Association, Boston, Mass., 26 October 1966.
223. DYMSZA, H. A. Interrelationship between diet and intestinal microflora in gnotobiotes, VIIth International Congress of Nutrition, Hamburg, Germany, 3-10 August 1966.
224. \_\_\_\_\_, G. S. STOEWSAND, and S. A. MILLER. Metabolizable energy content of unconventional food esters. Federation of American Societies for Experimental Biology, Chicago, Ill., 17-21 April 1967.
225. EL-BISI, H. M. Food-borne microbial pathogenesis. School of Public Health and Administrative Medicine, Institute of Nutrition Sciences, Columbia University, New York, N. Y., March 1967.
226. \_\_\_\_\_ Mechanism and kinetics of resistance of bacterial endospores to heat and radiation. Unilever Research Laboratories, Bedford, England, 8 July 1966.

## FOOD LABORATORY

### Technical Papers (continued)

227. EL-BISI, H. M. Microbiological aspects of irradiated food. Danish Atomic Energy Commission, Riso, Denmark, 11 July 1966.
228. Microbiological safety and stability of military procurements - research and development aspects at NLABS. Central Institute for Nutrition and Food Research, Zeist, Netherlands, July 1966.
229. NLABS R&D program in microbiology of food and food processes. Swedish Institute for Food Preservation Research, Goteborg, Sweden, July 1966.
230. What is new in food microbiology. Northeastern, Leo-Rettger and New York Chapters. American Society for Microbiology, Hartford, Conn., November 1966.
231. Salmonellosis control in military procurement. Conference on Destruction of Salmonellae. Albany, Calif., 1966.
232. Summary and conclusions. Food Microbiology Symposium Northeastern Chapter. Institute of Food Technologists, Cambridge, Mass., February 1967.
233. GIDDINGS, G. G., and E. WIERBICKI. Development of radiation-sterilized shrimp. Institute of Food Technologists, Minneapolis, Minn., 17 May 1967.
234. HEILIGMAN, F., and G. G. GIDDINGS. Irradiation-sterilization of sea food items. Atlantic Fisheries Technological Conference, Point Pleasant, N. J., 26 September 1966.
235. HOLLENDER, H. A., M. V. KLICKA, and P. A. LACHANCE. Space feeding - meeting the challenge. American Association of Cereal Chemists, Los Angeles, Calif., 2-6 April 1967.
236. JOSEPHSON, E. S. The Army program. Nuclear Application Opportunities Briefing on Radiation Preservation of Foods. Southern Interstate Nuclear Board and U. S. Atomic Energy Commission, Oak Ridge Tenn., 2 February 1967.
237. Preservation of foods by ionizing radiation. Canadian Institute of Food Technology, Montreal, Canada. 25 May 1967.

## FOOD LABORATORY

### Technical Papers (continued)

238. JOSEPHSON, E. S. Radiation preservation of foods. Military Science Professional Lecture Series, University of Rhode Island, Kingston, R. I., 19 April 1967.
239. \_\_\_\_\_ Radiation preservation of foods. A report on progress, status, outstanding problems and plans for commercialization. Ontario Research Foundation, Toronto, Canada, 17 November 1966.
240. \_\_\_\_\_ Status of the U. S. Army program in food irradiation. American Institute of Chemical Engineers, Atlantic City, N. J., 21 September 1966.
241. \_\_\_\_\_ The present general outlook for radiation processing. Dairy and Food Industries Supply Association Food Forum, Atlantic City, N. J., 25 October 1966.
242. \_\_\_\_\_, A. BRYNJOLFSSON, and E. WIERBICKI. Engineering and economics of food radiation. New York Academy of Sciences, Division of Engineering, New York, N. Y., 12 April 1967.
243. KATSALIS, J. G., and B. DRAKE. Hygroscopic equilibrium and textural parameters of special freeze-dried foods. Institute of Food Technologists, Minneapolis, Minn., 14-19 May 1967.
244. \_\_\_\_\_, M. WOLF, M. DRIVER, and J. WALKER. The effect of moisture content on flavor and texture stability of dehydrated foods. American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Minneapolis, Minn., 26-27 June 1967.
245. KAUFFMAN, F. L., J. W. HARLAN, and E. WIERBICKI. Changes in irradiation flavor intensity of beef steaks during storage at room temperature. American Chemical Society, New York, N. Y., 11-16 September 1966.
246. \_\_\_\_\_, J. W. HARLAN, and E. WIERBICKI. Investigation of the nature of the chemical and physical changes in beef steaks as influenced by irradiation temperature, dose, and storage time. American Chemical Society, Miami Beach, Fla., 10-14 April 1967.
247. KENYON, E. M. Microwave food preparation for the Army in the field. U. S. Army Reserve R&D Group 1209 (Training), Massachusetts Institute of Technology, Cambridge, Mass.. 15 September 1966.

## FOOD LABORATORY

### Technical Papers (continued)

248. KENYON, E. M. Rations for defense requirements. U. S. Air Force Reserve Squadron 9230, Cambridge, Mass., 11 October 1966.
249. KILLORAN, J. J., and E. WIERBICKI. Electron versus gamma radiation sterilization of beef and ham in flexible packages. Institute of Food Technologists, Minneapolis, Minn., 16 May 1967.
250. KILMORE, M. A., W. BATCHELDER, L. SANTORO, and S. M. SWIFT. Cecum size of the axenic rat as influenced by diet. Association of Gnotobiotics, Madison, Wis., 11-13 June 1967.
251. \_\_\_\_\_, J. McCORMICK, R. L. FLENTGE, and W. K. CALHOUN. Gastrointestinal blood flow as influenced by changes in dietary fat level. Federation of American Societies for Experimental Biology, Chicago, Ill., 17-21 April 1967.
252. \_\_\_\_\_, J. McCORMICK, and L. M. BRESLOUF. Relationship of dietary intake to water requirements for exhaustive running in rats. American Physiological Society, Houston, Texas, 29 August - 2 September 1966.
253. KLICKA, M. V. Army field rations. Walter Reed Army Institute of Research, Walter Reed Army Medical Center, Washington D. C., 21 March 1967.
254. \_\_\_\_\_ Combat feeding systems. U. S. Army Quartermaster School, Fort Lee, Va., 2-3 May 1967.
255. \_\_\_\_\_ Foods of the future. Wellesley Hills Women's Club, Wellesley Hills, Mass., 13 October 1966.
256. \_\_\_\_\_ Foods for space travel. New York Home Economics Association, Western District, Buffalo, N. Y., 2 November 1966.
257. \_\_\_\_\_ Operational rations, current and future. U. S. Army Transportation School, Fort Eustis, Va., 23 March 1967.
258. \_\_\_\_\_ Space foods. Men's Brotherhood, Congregational Church, Lexington, Mass., 7 December 1966; Marlboro High School, Marlboro, Mass., 14 April 1967; St. Anselm's College, Manchester, N. H., 17 May 1967.

## FOOD LABORATORY

### Technical Papers (continued)

259. KLICKA, M. V. Space nutrition. Department of Foods and Nutrition, Syracuse University, Syracuse, N. Y., 19 June 1967.
260. \_\_\_\_\_, H. A. HOLLOWELLER, and P. A. LACHANCE. Foods for astronauts. Central New York Home Economists, Syracuse, N. Y., 19 October 1966; American Dietetic Association Meeting, Boston, Mass., 27 October 1966; Cardozo Lodge, Knights of Pythias, Framingham, Mass., 6 February 1967; Milne School, Albany, N. Y., 4 May 1967; Eastern District Home Economics Association, Albany, N. Y., 4 May 1967.
261. KOHN, R. The application of ionizing radiation in technique and nature sciences. Northeastern University, Boston, Mass., 27 January 1967.
262. LACHANCE, P. A., M. V. KLICKA, and H. A. HOLLOWELLER. Cereal food products utilized in the U. S. manned space program. American Association of Cereal Chemists, Los Angeles, Calif., 2-6 April 1967.
263. LEE, F. H. New utilization of food processing and at home in space. Jr. High School Assembly, Reading, Mass., 12 May 1967; Trade School Assembly, Worcester, Mass., 18 May 1967; Framingham North High School, Framingham, Mass., 2 June 1967.
264. \_\_\_\_\_ Understanding the B-ration. Seminar for Dietitians of the Armed Services, U. S. Army Natick Laboratories, Natick, Mass., 24 October 1966.
265. MARTIN, T. G., III. Radiation protection in radioisotope laboratories. Suffolk University, Boston, Mass., 22 March 1967.
266. MATTHEWS, R. O. Potential use of extraterrestrial resources in life support systems. Fifth Annual Meeting, Working Group on Extraterrestrial Resources, George C. Marshall Space Center, Huntsville, Ala., March 1967.
267. MEHRLICH, F. P. Agricultural experiences throughout the world. Massachusetts Flower Growers' Association, Boston, Mass., 23 October 1966.
268. \_\_\_\_\_ Army combat ration. Walter Reed Army Institute of Research, Washington, D. C., 4 August 1966.

FOOD LABORATORY

Technical Papers (continued)

269. MEHRLICH, F. P. Biscuits in the sky. The New England Bakers Association, Boston, Mass., 5 December 1966.
270. Current status of garrison and combat feeding in the U. S. Army. Third Far Eastern Symposium on Nutrition, Manila, P. I., 18 February 1967.
271. Foods in the space age. American School Food Service Association, Pittsburgh, Pa., 16-20 October 1966.
272. Introduction of new and improved subsistence items into the military supply system. Research and Development Associates, Richmond, Va., 11 April 1967.
273. New processes in dehydration. American Dietetic Association, Boston, Mass., 26 October 1966.
274. The wholesomeness of military foods. Sixth U. S. Army Veterinary Civil California Association of Sanitarians, Los Angeles, Calif., 13 April 1967; Defense Training Seminar, Sixth Army Presidio, San Francisco, Calif., 9 February 1967.
275. O'CONNOR, E. Food Division of the U. S. Army Natick Laboratories Regis College, Weston, Mass., 30 November 1966.
276. PHILLIPS, C. E. Acceptance of irradiated foods. American Dietetic Association, Boston, Mass., 26 October 1966.
277. PRELL, P. A. Food frontiers. Daughters of the American Revolution, Wayland, Mass., 4 March 1967, Happy Hollow School, Wayland, Mass., 11 May 1967.
278. PREVITE, J. J. The laboratory notebook. Honor Student Lecture of Thayer Academy Students, U. S. Army Natick Laboratories, Natick, Mass., 14 July 1966.
279. Mutagenic effects of low dose irradiation in salmonellae. Food Laboratory Seminar, U. S. Army Natick Laboratories, Natick, Mass., 23 February 1967.
280. On the nature of botulism. Food Laboratory Seminar, U. S. Army Natick Laboratories, Natick, Mass., 11 January 1967.

## FOOD LABORATORY

### Technical Papers (continued)

281. PREVITE, J. J., Y. CHANG, and H. M. EL-BISI. Radiation induced mutation and alteration in virulence and antigenicity and/or antibiotic resistance of S. typhimurium. Project Meeting on Radiation Pasteurization of Fresh Poultry, Oak Ridge, Tenn., 3 February 1967.
282. RAHMAN, A. R., E. E. ANDERSON, K. R. JOHNSON, and D. S. CRIZ. The effect of various sweetening agents on the quality of canned jellied cranberry sauce. Institute of Food Technologists, Minneapolis, Minn., 15 May 1967.
283. RAUCH, A. C. U. S. Armed Forces subsistence specifications. New England Food Processors Association, Inc., Waltham, Mass., 22 June 1967.
284. SCHMIDT, T. R. Dehydrated foods and space foods. Mattapan-Milton Lion's Club, Milton, Mass., 6 October 1966.
285. Freeze-dried foods. Wellesley Hills Junior Women's Club, Wellesley, Mass., 3 October 1966.
286. Space feeding. Special Orientation Program, Research and Development Group, Boston, Mass., 15 September 1966.
287. Space foods. Christ the King Lutheran Church, Holliston, Mass., 13 November 1966.
288. SHULTS, G. W., and E. WIERBICKI. Development of new irradiated meat items: corned beef and hamburger. Research and Development Associates, Richmond, Va., 11 April 1967.
289. \_\_\_\_\_ and E. WIERBICKI. Time-temperature relationship for enzyme-inactivation in irradiated beef steaks. Institute of Food Technologists, Minneapolis, Minn., 15 May 1967.
290. STOEWSAND, G. S. Synthetic sources of calories in the diets of rats and dogs. VIIth International Congress of Nutrition, Hamburg, Germany, 3-10 August 1966.
291. STRASSER, J. The freeze-desiccation process. Institute of Food Technologists, Minneapolis, Minn., 14-19 May 1967.
292. TUOMY, J. M. Food for space travel. Metropolitan Dairy Technology Society, New York, N. Y., 11 October 1966.

## FOOD LABORATORY

### Technical Papers (continued)

293. TUOMY, J. M., L. HINNERNARDT, and R. L. HELMER. Effect of head-space oxygen on the quality of freeze-dried beef and chicken stews. Institute of Food Technologists, Minneapolis, Minn., 14-19 May 1967.
294. UMINA, A. P. Research and development in cereal and bakery products for military feeding. U. S. Army Quartermaster School, Subsistence Officers' Class Fort Lee, Va., March 1967.
295. WESTCOTT, D. E. Research and development in cereal and bakery products for military feeding. U. S. Army Quartermaster School, Subsistence Officers' Class, Fort Lee, Va., 28 September 1966.
296. \_\_\_\_\_ Supporting life in space. Newburgh Free Academy, Newburgh, N. Y., 21 November 1966.
297. \_\_\_\_\_ What the military expects of industry. American Association of Cereal Chemists, New York N. Y., 1 November 1966.
298. WHITE, V. M. Foods for the future. State of Maine Private School Lunch Workshop, Waterville, Me., 16 August 1966; Massachusetts School Lunch Workshop, Boston, Mass., 19 April 1967; Michigan School Food Service Association Mt. Pleasant, Mich., 28 June 1967.
299. \_\_\_\_\_ How to teach basic nutrition in this changing world. American School Food Service Convention, Pittsburgh, Pa., 18-19 October 1966.
300. \_\_\_\_\_ How to teach nutrition in the space age. State of Maine Private School Lunch Workshop, Waterville, Me., 17 August 1966.
301. \_\_\_\_\_ New developments in foods. New Jersey School Food Service Association Spring Convention, Cherry Hill, N. J., 14 April 1967.
302. WHITEHAIR, L. A., and D. E. HILMAS. Radiological problems in the national food irradiation program. Conference on Importance and Safety of Foods, Mayaguez, Puerto Rico, 26-28 April 1967.
303. WIERBICKI, E. Bacon in the atomic age. Meat Science Institute, Rutgers University, New Brunswick, N. J., 22 August 1966.

## FOOD LABORATORY

### Technical Papers (continued)

304. WIERBICKI, E. High-dose radiation processing of meat, poultry, and sea food items. Nuclear Application Opportunities Briefing on Radiation Preservation of Foods, Southern Interstate Nuclear Board and U. S. Atomic Energy Commission, Oak Ridge, Tenn.. 2 February 1967.
305. \_\_\_\_\_, C. K. WADSWORTH, and E. S. JOSEPHSON. Industrial production tests of irradiated food for the Armed Forces. Research and Development Associates, Richmond, Va., 11 April 1967.

### Book Chapters

306. HARLAN, J. W., F. L. KAUFFMAN, and F. HEILIGMAN. Effect of irradiation temperature and processing conditions on organoleptic properties of beef and chemical yields in model systems. In Radiation Preservation of Foods, American Chemical Society, Washington, D. C. (1967).
307. JARRETT, R. D., SR. Radiation dosimetry in relation to high intensity radiation sources. In Radiation Preservation of Foods, American Chemical Society, Washington, D. C. (1967).
308. \_\_\_\_\_ U. S. Army radiation laboratory. In Radiation Preservation of Foods, American Chemical Society, Washington, D. C. (1967).
309. JOSEPHSON, E. S. Simplified procedures for obtaining clearance of foods preserved by ionizing energy. In Food Irradiation, International Atomic Energy Agency, Vienna (1966).
310. \_\_\_\_\_ and J. H. FRANKFURT. Preface. In Radiation Preservation of Foods, American Chemical Society, Washington, D. C. (1967).
311. MANDELS, M., and E. T. REESE. B-glucanases other than cellulase, methods in enzymology. In Complex Carbohydrates, Vol. 8, Academic Press, New York (1966).
312. SINNHUBER, R. O., M. K. LANDERS, T. C. YU, M. SIMON, and F. HEILIGMAN. Development of radiation-sterilized sea food products. I. Enzyme-inactivated cod and halibut patties. In Food Irradiation, International Atomic Energy Agency, Vienna (1966).

FOOD LABORATORY

Other Publications

313. EL-BISI, H. M., O. P. SNYDER, and R. E. LEVIN. Radiation death kinetics of Clostridium botulinum spores at cryogenic temperatures. Botulism 1966. In Proc. of the Fifth International Symposium on Food Microbiology, Chapman and Hall, London, England (1967).
314. \_\_\_\_\_, R. M. VONDEL, and P. WASSARMAN. Significant process parameters for microbial death in the vapor phase. In Abstracts of Papers, Organizing Committee of the Congress, IX International Congress for Microbiology, Moscow, USSR (1966).
315. JOSEPHSON, E. S. Discussion and summary. In Radiation Preservation of Foods, U. S. Atomic Energy Commission, Division of Technical Information, Oak Ridge, Tenn. (1966).
316. \_\_\_\_\_ Statement. In Hearings before the Subcommittee on Research, Development, and Radiation of the Joint Committee on Atomic Energy, Congress of the United States, Superintendent of Documents, Washington, D. C. (1966).
317. \_\_\_\_\_ The present general outlook for radiation processing. Proc. of the Technology of the Food Supply: Management Looks at Current Resources, Dairy and Food Industries Supply Association, Inc., Washington, D. C. (February 1967).
318. \_\_\_\_\_ and K. G. SHEA. Food preservation. Proc. of the American Nuclear Society, National Topical Meeting, 1:IV-3-IV-25 (May 1966).
319. MEHRLICH, F. P. Army rations. In Encyclopedia on Food and Food Science, John Wiley & Sons, Inc., New York, N. Y. (1967).
320. WIERBICKI, E. Summary of acceptance data on irradiated ham. Minutes of Meeting, National Academy of Science-National Research Council, 9 March 1967.

## GENERAL EQUIPMENT AND PACKAGING LABORATORY

### Technical Reports

321. Biaxial tensile tester for fabrics, R. E. SEBRING and W. D. FREESTON, JR., Fabric Research Laboratories, Inc., Contract No. DA19-129-AMC-1042(N). 67-71-GP, May 1967.
322. Design manual for ground mounted air-supported structures (single and double wall), A. E. DIETZ, R. B. PROFFITT, and R. S. CHABOT, Hayes International Corp., Contract No. DA19-129-AMC-129(N). 67-35-ME, October 1966 (AD 648645).
323. Determination of container design criteria, M. GERTEL and D. FRANKLIN, Mitron Research and Development Corp., Contract No. DA19-129-QM-2082. 67-50-GP, January 1967 (AD 817510).
324. Development of paper cutter, high-capacity, high-speed, lightweight, J. F. WHEELER. 67-69-GP, May 1967 (AD 816391).\*
325. Development of the 15,000-lb capacity electric missile handling vehicle, N. H. FERTMAN. 67-1-ME (MHE-15), September 1966 (AD 802514).\*
326. Evaluation of Army uniform buttons, heavy-duty shank, P. J. CONNOLLY. 67-32-ME, September 1966 (AD 803373).\*
327. Evaluation of lightweight, insulated cargo containers, F. W. FRANKE. 67-06-GP, March 1967 (AD 815553).\*
328. Evaluation of light weight, urethane foam insulated, prefabricated refrigerators, E. B. THOMAS. 67-73-GP, May 1967 (AD 817589).\*
329. Evaluation of 12- and 36-pan dough proofing cabinet. J. K. PRIFTI. 67-56-GP, January 1967 (AD 815295).\*
330. Evaluation studies of gasoline lanterns. A. G. MILLER. 67-75-GP, May 1967 (AD 816539).\*
331. Evaluation of truck, experimental, forklift, 2,000, 4,000, and 6,000-lb capacity, transistorized, electric-powered, S. B. VINDSBERG. 67-30-ME (MHE-16), September 1966 (AD 808770).\*
332. Evaluation of truck, forklift, electric, 4,000-lb capacity, 72-volt, battery-operated, S. B. VINDSBERG. 67-18-ME (MHE-14), September 1966 (AD 802366).\*

GENERAL EQUIPMENT AND PACKAGING LABORATORY

Technical Reports (continued)

333. Evaluation of wax impregnated corrugated fiberboard containers, A. MILLER. 67-4-CD, July 1966 (AD 637113).
334. Guide for estimating maximum anchor loads on air-supported structures, T. C. STRAIN and R. F. TUMEINSKI. 67-54-GP, March 1967 (AD 65279).
335. Heating media for processing foods in flexible packages - Phase II, Final, I. J. PFLUG and C. BORRERO, Michigan State University Contract No. DA19-12<sup>a</sup>-AMC-145(N). 67-4<sup>a</sup>-GP, May 1967 (AD 653536).
336. Migration of flexible packaging components into foods, R. L. FERM, The Pillsbury Company, Contract No. DA19-12<sup>a</sup>-AMC-384(N). 66-56-CD, June 1966.
337. Product improvement of food container, insulated, H. W. THIBODEAU. 67-70-GP, May 1967.
338. Resistance of flexible packaging materials to penetration by microbial agents, R. A. LAMPI, FMC Corporation, Contract No. DA19-12<sup>a</sup>-AMC-662(N). 67-63-GP, April 1967 (AD 651493).
339. Storage stability of Civil Defense shelter rations, J. G. WOODROOF and S. R. CECIL, University of Georgia, Georgia Experiment Station, Contract No. DA19-12<sup>a</sup>-QM-2050(N). 67-25-CD, October 1966 (AD 640823).
340. Study of commercial gasoline engines for heater, duct-type, portable, gasoline, 250,000 BTU, C. J. McKEOWN. 67-78-GP, June 1967 (AD 817590).\*
341. Tent, pop-up, 5-man (tropical climate), D. B. SHAW. 67-61-GP March 1967 (AD 812948).\*
342. Value engineering study of stove, gasoline, two-burner, J. C. PERRY, J. K. PRIFTI, and A. G. MILLER. 67-88-GP, June 1967.\*
343. Wind tunnel tests and analyses for ground-mounted, air-supported structures, A. E. DIETZ, R. B. PROFFITT, and R. S. CHABOT. 67-36-ME, October 1966 (AD 651954).

## GENERAL EQUIPMENT AND PACKAGING LABORATORY

### Journal Articles

344. KILLORAN, J. J. Packaging of irradiated foods. *Modern Packaging*, 40(8):179-183 '196 ..
345. \_\_\_\_\_ Some frontiers in packaging. *Food Technol.*, 20(8):52-59 (1967).
346. \_\_\_\_\_, F. HEILIGMAN, G. B. PRATT, and L. E. KNEELAND. Irradiation-induced gases in packaged foods. 1. Identification and measurements. *J. Food Sci.*, 32(2):200-205 (March-April 1967).
347. LAMPI, R. A. Microbial recontamination in flexible films. *Activities Report*, 19(1):51-58 (Spring, 1967).
348. NEBESKY, E. A., and M. S. PETERSON. A new plan and goal for packaging research. *Army R&D News magazine*, 8(3):34 (March 1967).
349. \_\_\_\_\_ and M. S. PETERSON. Packaging for foods in 1986. *Activities Report*, 18(2):156-162 (Fall, 1966).
350. \_\_\_\_\_ and M. S. PETERSON. Packaging research: A challenge to industry. *Package Eng.*, 11(12):84 (December 1966).

### Technical Papers

351. HU, K. H. Flexible package material characteristics related to moisture and gas transmission. *Military-Industry Conference, Research and Development Associates, Natick, Mass.*, 18-19 October 1966, and *New England Chapter, The Packaging Institute, Newton, Mass.*, 1 February 1967.
352. \_\_\_\_\_ Gas and water vapor transmission into foil laminated pouches. *Institute of Food Technologists, Minneapolis, Minn.*, 14-19 May 1967.
353. KILLORAN, J. J. Irradiated foods. *Holy Name Society, Our Lady of Angels Church, Worcester, Mass.*, 8 January 1967, and *College of the Holy Cross, Worcester, Mass.*, 18 January 1967.
354. \_\_\_\_\_ and D. MAUNDER. A biotest method for detection of loss of integrity of abused flexible packages of processed shelf-stable foods. *Institute of Food Technologists, Minneapolis, Minn.*, 14-19 May 1967.

## GENERAL EQUIPMENT AND PACKAGING LABORATORY

### Technical Papers (continued)

355. KILLORAN, J. J. and E. WIERBICKI. Electron versus gamma radiation sterilization of beef and ham in flexible packages. Institute of Food Technologists, Minneapolis, Minn., 14-i, May 1957.
356. NEBESKY, E. A. Forecast in packaging. Annual National Forum The Packaging Institute, New York, N. Y., 4 October 1966.
357. Future developments in packaging. Philadelphia Chapter, Society of Packaging and Handling Engineers, Philadelphia, Pa., 26 September 1960, and Connecticut Chapter, Society of Packaging and Handling Engineers, Meridan, Conn., 9 February 1967.
358. Professionalism in the food industry. Food Update Seminar, San Francisco, Calif., 6 March 1967.
359. VENETOS, M. A. Development of velocity shock recorder for measurement of shipping environments. Symposium on Shock and Vibration, Los Angeles, Calif., 18-20 October 1968.

### Other Publications

360. NEBESKY, E. A., and M. S. PETERSON. Forecast in packaging. Proc. 28th Annual National Forum, The Packaging Institute, New York, N. Y., 2:104, 3-5 October 1966.
361. VENETOS, M. A. Development of velocity shock recorder for measurement of shipping environments. Shock and Vibration Bulletin, No. 36, Naval Research Laboratory, Washington, D. C., February 1967.

PIONEERING RESEARCH LABORATORY

Technical Reports

362. Analysis of U. S. Army food preference survey (1963), J. M. KAMEN, D. R. PERYAM, D. B. PERYAM, and B. J. KROLL. Peryam & Kroll Research Corporation, Contract No. DA19-129-AMC-719(N). 67-15-PR, May 1967 (AD 652910).
363. Attitudes of troops in the tropics, R. J. LEE. 67-57-PR (EPT-6), February 1967 (AD 649540).
364. Chemical and biological analysis of tan-o-quill-QM-treated water-fowl feathers, H. MARKARIAN and J. J. PRATT, JR. 67-85-PR (AE-8), May 1967 (AD 655283).
365. Human factors requirements for the design of helicopter aircrew-men's seat and groin protective units, R. L. BURSE. 67-28-PR (EPR-11), September 1966 (AD 640801).
366. Microbial ecology in a hydrocarbon fuel-water-metal environment, M. H. KUO. Stanford Research Institute, Contract No. DA19-129-AMC-216(N). Final. 67-68-PR, 31 January 1967 (AD 813185).\*
367. Proceedings of the fifteenth conference on prevention of microbiological deterioration of military materiel, A. M. KAPLAN. 67-80-PR, June 1967 (AD 816380).\*
368. Thermal conductivity of vitreous silica: selected values, L. C. K. CARWILE and H. J. HOGE. 67-7-PR (TC-4), July 1966 (AD 636276).

Journal Articles

369. ALTENAU, A. C., and C. MERRITT, JR. Selected copper-amine complexes as stationary phases. *J. Gas Chromatography*, 5(1):30 (January 1967).
370. ANGELINI, P., D. A. FORSS, M. L. BAZINET, and C. MERRITT, JR. Methods of isolation and identification of volatile compounds in lipids. *J. Am. Oil Chem. Soc.*, 44(1):26 (January 1967).
371. BLATT, W. F., S. M. ROBINSON, F. M. ROBBINS, and C. A. SARAVIS. An ultrafiltration membrane for the resolution and purification of bovine alpha lactalbumin. *Anai. Biochem.*, 18:81 (January 1967).

PIONEERING RESEARCH LABORATORY

Journal Articles (continued)

372. BRANNON, D. R., F. W. PARRISH, B. J. WILEY, and L. LONG, JR. Microbial transformation of a series of androgens with Aspergillus tamarii. *J. Org. Chem.*, 32(5):1521 (May 1967).
373. CAREY, F. A., D. H. BAILL, and L. LONG, JR. 1,2,3,5-D<sub>1</sub>-O-isopropylidene- $\alpha$ -D-apio-L-furanose. *Carbohydrate Res.*, 3(2) 205 (December 1966).
374. CHEN, F. C., and E. T. REESE. Proanthocyanidin from persimmon fruits. *J. Chinese Chem. Soc.*, 14(1):41 (March 1967).
375. CLAPP, R. C., R. A. COBURN, F. H. BISSETT, and L. LONG, JR. Cyanogenesis in manioc. Linamarin and isolinamarin. *Phytochem.* 5:1323 (November 1966).
376. COBURN, R. A., and L. LONG, JR. Gynocardin. *J. Org. Chem.*, 31:4312 (December 1966).
377. DATEO, G. P., and L. M. ROTH. D-Gluconic Acid: Isolation from the defensive secretion of the cockroach Eurycotis decipiens. *Science*, 155:88 (6 January 1967).
378. EVANS, M. E., and F. W. PARRISH. Methyl 2,3:4,6-Di-O-isopropylidene- $\alpha$ -D-glucopyranoside. *Tetrahedron Letters*, 32:3305 (1966).
379. \_\_\_\_\_, F. W. PARRISH, and L. LONG, JR. Acetal exchange reactions. *Carbohydrate Res.*, 3(4):453 (February 1967).
380. FLORENTINE, G. J. An abdominal receptor of the American cockroach, Periplaneta americana (L.) and its response to airborne sound. *J. Insect Physiol.*, 13(2):215 (February 1967).
381. FORSS, D. A., P. ANGELINI, M. L. BAZINET, and C. MERRITT, JR. Volatile compounds produced by copper-catalyzed oxidation of butterfat. *J. Am. Oil Chem. Soc.*, 44(2):141 (February 1967).
382. GURNEY, A. B., and L. M. ROTH. Two new genera of South American cockroaches superficially resembling loboptera, with notes on bionomics (*Dictyoptera*, *Blattaria*, *Blattellidae*). *Psyche*, 73(3):196 (September 1966).

PIONEERING RESEARCH LABORATORY

Journal Articles (continued)

383. HAGEN, P., E. T. REESE, and O. H. STAMM. Enzymatische Hydrolyse reaktiv gefärbter celiulose. *Helv. Chim. Acta*, 49(7):2278 (31 October 1966).
384. HARTMAN, H. B., and L. M. ROTH. Stridulation by a cockroach during courtship behaviour. *Nature*, 213(5082):1243 (25 March 1967).
385. \_\_\_\_\_ and L. M. ROTH. Stridulation by the cockroach Nauphoeta cinerea (Olivier) during courtship behaviour. *J. Insect Physiol.*, 13:579 (April 1967).
386. HAYON, E. M. The electron in solution. *Science*, 2(8):67 (August 1966).
387. \_\_\_\_\_ and J. J. McGARVEY. Flash photolysis in the vacuum ultraviolet region of  $\text{SO}_4^{2-}$ ,  $\text{CO}_3^{2-}$ , and  $\text{OH}^-$  ions in aqueous solutions. *J. Phys. Chem.*, 71(5):1472 (April 1967).
388. HEINMETS, F. Cellular growth, injury and death: Mathematical formulation and analog computer analysis. *Helgoländer wiss. Meeresunters.*, 185:168 (1966).
389. HOGE, H. J., and R. A. SEGARS. Reply by authors to W. C. Rolison and J. R. Nelson. *Amer. Inst. Aeronautics and Astronautics J.*, 4(7):1310 (July 1966).
390. \_\_\_\_\_ and R. A. SEGARS. An equation for the entrainment of ejectors. *Amer. Inst. Aeronautics J.*, 4(8):1689 (September 1966).
391. HYATT, M. T., P. K. HOLMES, and H. S. LEVINSON. Activation of Bacillus megaterium spore germination by water in the vapor phase. *Biochem. et Biophys. Res. Comm.*, 24(5):701 (8 September 1966).
392. KRONMAN, M. J. Fluorescence studies of the molecular conformation of alpha lactalbumin. *Biochem. et Biophys. Acta*, 133:19 (18 January 1967).
393. \_\_\_\_\_, L. G. HOLMES, and F. M. ROBBINS. Inter- and intra-molecular interactions of alpha lactalbumin. VIII. The alkaline conformational change. *Biochem. et Biophys. Acta*, 133:46 (18 January 1967).

PIONEERING RESEARCH LABORATORY

Journal Articles (continued)

394. LEVINSON, H. S., and E. J. GARBER. Release of inorganic phosphate from irradiated yeast. Radiation biodosimetry and evaluation of radioprotective compounds. *Ant. Microbiol.*, 15(2): 431 (March 1967).
395. LOCKHART, J. M. Ambient temperature and time estimation. *J. Exper. Psychol.*, 73(2):280 (February 1967).
396. MANDELS, G. R., and R. J. HOLLS. Constitutive and induced trehalose transport mechanisms in spores of the fungus Myrothecium verrucaria. *J. Bact.*, 111:159 (January 1967).
397. MARKARIAN, H., J. L. PRATT, JR., F. KANI, and B. H. KANTACK. Insecticide residue in foods subjected to aero-*s* under simulated warehouse conditions. *J. Econ. Entomology*, 71(4): 844 (August 1968).
398. McGRATH, W., and J. J. McGARVEY. The production deactivation and chemical reactions of  $\gamma(^{1}D)$  atoms. *Planetary Space Sci.*, 15:427 (1967).
399. MERRITT, C., JR., D. A. FORSS, P. ANGELINI, and M. L. BAZINET. Volatile compounds produced by irradiation of butterfat. *J. Am. Oil Chem. Soc.*, 44(2):144 (February 1967).
400. \_\_\_\_\_ and D. H. ROBERTSON. The analysis of proteins, peptides and amino acids by pyrolysis gas chromatography and mass spectrometry. *J. Gas Chromatography*, 5(2): 3c (February 1967).
401. PARRISH, F. W., and E. T. REESE. Isomeric form of D-glucose produced during enzymolysis. *Carbohydrate Res.*, 3(4):424 (February 1967).
402. REESE, E. T., and F. W. PARRISH. A comparison of synthetic dextran with a natural product by enzymic methods. *Biopolymers*, 4(9): 1043 (October-November 1966).
403. ROBBINS, F. M., R. L. ANDREOTTI, L. G. HOLMES, and M. J. KRONMAN. Inter- and intramolecular interactions of alpha lactalbumin. VII. The hydrogen ion titration curve of alpha lactalbumin. *Biochem. et Biophys. Acta*, 133:33 (8 January 1967).
404. ROBERTSON, D. H., and C. MERRITT, JR. Tandem operation features pyrolysis gas chromatography with mass spectrometry. *Laboratory Management*, 4(7):32 (July, 1966).

PIONEERING RESEARCH LABORATORY

Journal Articles (continued)

405. ROTH, L. M. The evolutionary significance of rotation of the cotheca in the Blattaria. *Psyche*, 74(2):85 (June 1967).
406. \_\_\_\_\_ and R. H. BARTH, JR. The sense organs employed by cockroaches in mating behaviour. *Behaviour*, 28(1-2):58 (1967).
407. ROTH, M., L. M. ROTH, and T. E. FISNER. The allure of the female mosquito. *Natural History*, 75:26 (December 1966).
408. ROWLEY, D. B., and H. S. LEVINSON Changes in spores of Bacillus megaterium treated with thioglycolate at a low pH and restoration of germinability and heat resistance by cations. *J. Bact.*, 93:1017 (March 1967).
409. SHIBATA, Y., and M. J. KRONMAN. Inactivation of glyceraldehyde 3-phosphate dehydrogenase. *Arch Biochem. et Biophys.*, 118(2):410 (February 1967).
410. SIMMONS, E. G. Typification of Alternaria, Stemphylium, and Ulocladium. *Mycologia*, 59(1):67 (January-February 1967).
411. TANENHOLTZ, S. D. A versatile photo-optical system for the study of ballistic phenomena. *J. Soc. Photo-optical Instrumentation Engrs.*, 5(2):54 (December 1966-January 1967).
412. WALSH, J. T., and D. M. ROSIE. Studies of the gas density cell. *J. Gas Chromatography*, 5(5):232 (May 1967).
413. WESTWOOD, J. H., R. C. CHALK, D. H. BALL, and L. LONG, JR. Syntheses of 6-deoxy-2,4-di-O-methyl-D-galactose (Labiiose) and of 2,4-di-O-methyl-D-galactose. *J. Org. Chem.*, 32(5):1643 (May 1967).
414. WHARTON, D. R. A., M. BAZINET, and M. L. WHARTON. A leak-proof argon ionization detector cell. *J. Gas Chromatography*, 4(9):353 (September 1966).
415. \_\_\_\_\_, J. E. LOLA, and M. L. WHARTON. Population density survival, growth and development of the American cockroach. *J. Insect. Physiol.*, 13(5):699 (May 1967).

PIONEERING RESEARCH LABORATORY

Technical Papers

416. ALTENAU, A. G., and C. MERRITT, JR. Selected copper-amine complexes as stationary phases. American Chemical Society, New York, N. Y., September 1966.
417. BAZINET, M. L. Analysis of natural products wit' the time of flight mass spectrometer. Eighth Annual Time of Flight Mass Spectrometer Symposium, Cincinnati, Ohio, September 1966.
418. \_\_\_\_\_, C. MERRITT, JR., J. I. MASTERS, P. VOLROS, and J. P. CLUNE. The evaporated silver bromide film as a detector for organic ions. 15th Annual Conference on Mass Spectrometry and Allied Topics, Denver, Colo., May 1967.
419. FREER, J. H., and H. S. LEVINSON. Fine structure of Bacillus megaterium during microcycle sporogenesis. American Society for Microbiology, New York, N. Y., May 1967.
420. HARTMAN, H. B. Functional organization of the Crustacean proprioceptor, the Propus-dactylus organ. Seminar, Marine Biological Laboratory, Woods Hole, Mass., July 1966.
421. \_\_\_\_\_ Functional organization of the Prepvl-dactylus organ in decapod Crustacea. University of Iowa, Iowa City, Iowa, March 1967.
422. \_\_\_\_\_ Relationship of structure and function of the Crustacean proprioceptor, the Propus-dactylus organ. Seminar, Vanderbilt University, Nashville, Tenn., October 1966.
423. \_\_\_\_\_ Stridulation of the cockroach Nauphoeta cinerea during courtship behavior. American Association for Advancement of Science, Washington, D. C., December 1966, and State University College of New York, Brockport, N. Y. February 1967
424. \_\_\_\_\_ Structure and function in a Crustacean proprioceptor, the Propus-dactylus organ. University of Rhode Island, Kingston R. I. March 1967.
425. HAYON, E. Absorption spectra and reaction kinetics of inorganic radicals. Seminar, Boston University, Boston, Mass., February 1967.

PIONEERING RESEARCH LABORATORY

Technical Papers (continued)

426. HAYON, E. Electron spin resonance study of the radiolysis of low temperature organic glasses. Seminar, University of Wisconsin, Madison, Wis., May 1967.
427. Flash photolysis studies of some inorganic ions in aqueous solutions. Institute of Physical Chemistry, Uppsala University, Sweden, September 1966.
428. Radical yields in the radiation chemistry of water. Fifth informal symposium on Radiation Chemistry of Water, Notre Dame University, South Bend, Ind., October 1966.
429. Radical recombination reactions in radiation chemistry. Brandeis University, Waltham, Mass., December 1966.
430. Some recent aspects of the radiation chemistry of aqueous systems. Symposium on Radiation and Photochemistry, Northeastern Section, American Chemical Society, Cambridge, Mass., May 1967.
431. HEINMETS, F. Studies on cell growth regulation: Analog computer analysis of a model system. Symposium on Recent Developments in Research Methods and Instrumentation, National Institutes of Health, Bethesda, Md., October 1966.
432. HOGE, H. J. Problems encountered in the generation of standard reference data in the physical sciences-general considerations. Gordon Research Conference on The Numerical Data of Science and Technology, Enumclaw, Wash., August 1966.
433. HYATT, M., P. K. HOLMES, and H. LEVINSON. Activation of B. megaterium spore germination by water vapor and by aqueous ethanol. American Society for Microbiology, New York, N. Y., May 1967.
434. JACOBS, H. L. Sensory and metabolic regulation of food intake. Plenary Session, VII International Conference of Nutrition, Hamburg, Germany, August 1966.
435. Sensory and metabolic signals in the regulation of food intake. Conference on Neural Regulation of Food and Water Intake. New York Academy of Sciences, New York, N. Y., February 1967.

PIONEERING RESEARCH LABORATORY

Technical Papers (continued)

436. JACOBS, H. L. The regulation of food and water intake: Glucose appetite and the problem of satiety. Seminar, Army Research Office (ARO), Life Sciences Group, Arlington, Va., December 1966.
437. KAPLAN, A. M. Germicides for water purification, fresh fruits and vegetables, mess gear and surfaces. Surgeon General's Reserve Officers' Training Program in Military Nutrition, U. S. Army Natick Laboratories, Natick, Mass., July 1960.
438. Microbial degradation process in coated fabrics. Symposium, Research on Coated Fabrics, Fort Belvoir, Va., April 1967.
439. Prevention of microbiological deterioration of materials in the United States - present state of the art. Bond voor Materialekennis (Society for Materials Science), Utrecht, The Netherlands, November 1966.
440. KRONMAN, M. J. The molecular conformational changes of alpha lactalbumin. Johns Hopkins University, Baltimore, Md., October 1966.
441. Reaction of N-bromo-succinimide with lysozyme. Federation of American Societies for Experimental Biology, Chicago, Ill., April 1967.
442. MERRITT, C., JR. Advances in combined gas chromatography and mass spectrometry. Gas Chromatography Discussion Group, Washington, D. C., November 1960.
443. Combined gas chromatographic and mass spectrometric techniques for the study of radiation effects on food and food substances. Seminar, Max Planck Institut für Kohlenforschung, Mulheim am Ruhr, Germany, September 1966.
444. Combined mass spectrometer - Gas chromatographic techniques. Seminar, Sandoz, A. G., Basle, Switzerland, September 1966.
445. Detection and identification of volatile flavor components. Nutmeg Section, Institute of Food Technologists, East Norwalk, Conn., April 1967.

PIONEERING RESEARCH LABORATORY

Technical Papers (continued)

446. MERRITT, C., JR. The mass spectrometer in functional group analysis. Eighth Eastern Analytical Symposium, New York, N. Y., November 1966.
447. \_\_\_\_\_ Spectrometric identification of compounds isolated from natural products. Seminar, Army Research Institute for Environmental Medicine, Natick, Mass., February 1967.
448. \_\_\_\_\_, P. ISSENBERG, and M. L. BAZINET. Performance of a direct coupled real time spectrum digitizer and a rapid scanning high resolution mass spectrometer. 15th Annual Conference on Mass Spectrometry and Allied Topics, Denver, Colo., May 1967.
449. \_\_\_\_\_ and D. H. ROBERTSON. The analysis of proteins, peptides, and amino acids by pyrolysis gas chromatography and mass spectrometry. International Symposium on Pyrolysis Gas Chromatography, Paris, France, September 1966.
450. \_\_\_\_\_ and D. H. ROBERTSON. The use of complex metal hydrides in reductive cleavage reactions on amino acids, peptides and protein. American Chemical Society, Miami Beach, Fla., April 1967.
451. \_\_\_\_\_, D. H. ROBERTSON, and D. J. McADOO. The identification of volatile compounds in coffee. American Chemical Society, New York, N. Y., September 1966.
452. \_\_\_\_\_ and J. T. WALSH. Multichannel open tubular columns. Fourth International Symposium, Advances in Gas Chromatography, New York, N. Y., April 1967.
453. PARRISH, F. W. Glycosides and antibiotics. Course in Carbohydrate Chemistry and Biochemistry, New York Medical College, New York, N. Y., November 1966.
454. REESE, E. T. Carbohydrases. Course in Carbohydrate Chemistry and Biochemistry, New York Medical College, New York, N. Y., November 1966.
455. ROBERTSON, D. H., and C. MERRITT, JR. Some studies in the thermal degradation of amino acids, peptides, and proteins. International Symposium on Macromolecular Chemistry, International Union of Pure and Applied Chemistry, Tokyo, and the Chemical Society of Japan, Kyoto, Japan, October 1966.

PIONEERING RESEARCH LABORATORY

Technical Papers (continued)

456. ROGERS, M. R. Biodegradation of detergents. Surgeon General's Reserve Officers' Training Program in Military Nutrition, U. S. Army Natick Laboratories, Natick, Mass., July 1966.
457. ROTH, L. M. The evolution of reproduction in cockroaches. University of Connecticut, Storrs, Conn., November 1966.
458. \_\_\_\_\_ Sound production and its evolutionary significance in the Blattaria. Entomological Society of America, Portland, Ore., December 1966.
459. ZAGIEBOYLO, W. Shock-wave interaction with air-supported structures. Society of Experimental Stress Analysis, Pittsburgh, Pa., November 1966.

Book Chapters

460. BAZINET, M. L., and C. MERRITT, JR. Mass spectrometry. In Encyclopedia of Industrial Methods of Analysis, Vol. II, John Wiley and Sons, New York, N. Y. (1966).
461. JACOBS, H. L. Taste and the role of experience in the regulation of food intake. In The Chemical Senses and Nutrition, Part III. Johns Hopkins Press, Baltimore, Md. (1967).
462. LOCONTI, J. D. Bulk purification. In Fractional Solidification, Vol. I, M. Zief and W. R. Wilcox (edit.), Marcel Dekker, Inc., New York, N. Y. (1967).
463. MERRITT, C., JR. Gas chromatography. In Encyclopedia of Industrial Methods of Analysis, Vol. II. John Wiley and Sons, New York, N. Y. (1966).
464. \_\_\_\_\_, P. ANGELINI, D. McADOO, and M. BAZINET. Irradiation damage in lipids. In Flavor Chemistry Monograph, Advances in Chemistry Series, No. 50, American Chemical Society, Washington, D. C. (1966).
465. REESE, E. T., and M. MANDELS. Beta-glucanases other than cellulases. In Methods in Enzymology, Vol. VII, Colowick and Kaplan (edit.), Academic Press, New York, N. Y. (1966).

PIONEERING RESEARCH LABORATORY

Book Chapters (continued)

466. ROTH, L. M. Male pheromones. In Yearbook of Science and Technology for 1967, p.293, McGraw-Hill, New York, N. Y. (1967).
467. WALSH, J., and C. MERRITT, JR. Multichannel open tube columns. In Advances in Gas Chromatography, A. Zlatkis (edit.). Proc. Fourth International Symposium, New York, N. Y., p.48, 3-6 April 1967, Preston Tech. Abst. Co., Evanston, Ill. (1967).

Book Reviews

468. JACOBS, H. L. The rat, S. A. Barnett (edit.), Chicago, Ill. Aldine. Am. J. Psychol., 79:512 (September 1966).
469. LEVINSON, H. S. Spores: Their dormancy and germination, A. S. Sussman and H. O. Haivorsen (edit.). In Quarterly Review of Biology, 42:318 (June 1967).

Other Publications

470. JACOBS, H. L. Sensory and metabolic regulation of food intake: Thoughts on a dual system regulated by energy balance. Proc. Seventh International Nutrition Congress, Vol. II (1967).
471. KAPLAN, A. M. Prevention of microbiological deterioration of materials in the United States - Present state of the art. TNO-Nieuws, The Netherlands (June 1967).
472. LONG, L., JR., C. H. TROTTIER, M. R. ROGERS, and A. M. KAPLAN. Biodegradable detergents. Proc. Army Science Conference, Vol. II, West Point, N. Y. (1966).
473. MERRITT, C., JR. Chemical changes induced by irradiation in meats and meat components. Proc. Joint International Symposium on Food Irradiation, International Atomic Energy Agency/Food and Agriculture Organization of the United Nations, Vienna, Austria (1966).
474. ROBERTSON, D. H., and C. MERRITT, JR. Some studies in the thermal degradation of amino acids, peptides and proteins. Proc. International Symposium on Macromolecular Chemistry, International Union of Pure and Applied Chemistry, and the Chemical Society of Japan, 11:35 (1966).

PIONEERING RESEARCH LABORATORY

Other Publications (continued)

475. WEINSTEIN, J., A. L. BLUHM, M. E. LANGMUIR, and E. T. STROM.  
Light attenuation by photochemical means Photochromism.  
Proc. Army Science Conference, Vol. II, West Point, N. Y.  
(1966).

INDEX TO AUTHORS  
(Entry Number)

- Adams, G. 90  
Ahmed, N. 141  
Allison, S. W. 69  
Altenau, A. G. 369, 416  
Anderson, E. E. 208, 282  
Andreotti, R. E. 403  
Andrews, R. D. Jr. 69  
Aneilis, A. 175, 176, 186, 206, 207  
Angelini, P. 370, 381, 399, 464  
Angelo, P. J. Jr. 52  
Anstey, R. L. 136, 137, 142, 157, 158  
Anti, A. W. 177, 208
- Bailey, M. E. 165  
Baker, L. J. 209  
Ball, D. H. 373, 413  
Ball, G. L. III 61  
Barrett, F. F. 185  
Barron, E. 67  
Barth, R. H. Jr. 406  
Batchelder, W. 250  
Bazinet, M. L. 370, 381, 399, 414, 417,  
    418, 448, 460, 464  
Beary, E. G. 25, 26  
Berger, A. W. 109  
Berkowitz, D. 175, 176  
Bishov, S. J. 178, 179  
Bissett, F. H. 375  
Bivona, W. A. 29, 32  
Blackford, P. A. 138  
Bladel, B. O. 186  
Blati, W. F. 371  
Bluhm, A. L. 475  
Borrero, C. 335  
Brannon, D. R. 372  
Brazil, T. 210  
Breslouf, L. M. 252  
Brockman, M. C. 180, 181, 182, 211, 212.  
    213  
Brownell, G. L. 172, 183, 220, 221  
Brynjolfsson, A. 214, 215, 216, 242  
Buck, P. A. 217
- Budnick, M. L. 37  
Burkhardt, J. L. 193  
Jrns, M. 67  
Burrows, B. A. 194  
Burrows, W. D. 79, 80, 92  
Burse, R. L. 365
- Calhoun, W. K. 251  
Cannon, E. T. 78  
Cardarelli, J. A. 194  
Carey, F. A. 373  
Carwile, L. C. K. 368  
Cecil, S. R. 339  
Chabot, R. S. 322, 343  
Chalk, R. C. 413  
Chambers, J. V. 135  
Chandler, H. K. 218  
Chang, Y. 198, 199, 281  
Chen, F. C. 374  
Clapp, R. C. 375  
Clifford, M. 195  
Clough, S. B. 73, 9C, 93, 94  
Ciune, J. P. 418  
Coburn, R. A. 375, 376  
Cole, M. S. 168  
Coleman, I. 74  
Coleman, R. A. 75  
Connolly, P. J. 326  
Cooper, R. D. 172, 183, 194, 219,  
    220, 221  
Criz, D. S. 282  
Crowley, N. H. 222
- Dalrymple, P. C. 130, 139, 153, 154  
Daluz, D. 51  
Daniels, F. J. A. 127  
Darby, M. E. 57, 64  
Dateo, G. P. 377  
Davidsohn, W. 81, 84  
deMolenaar, J. G. 127  
DeSantis, G. D. 34, 38

- Desper, C. R. 82, 95, 96  
 Dietz, A. B. 322, 343  
 DiPacio, M. 51  
 DiPietro, C. 83  
 Dodd, A. V. 143  
 Donovan, P. 185  
 Drake, B. 243  
 Drakesmith, F. 68  
 Driver, M. 244  
 Dusablon, L. V. 72, 113  
 Duxbury, V. 52  
 Dymsha, H. A. 184, 185, 201, 223, 224  
  
 Eisner, T. E. 407  
 El-Bisi, H. M. 175, 176, 198, 199, 225,  
     226, 227, 228, 229, 230,  
     231, 232, 281, 313, 314  
 Ender, D. H. 69  
 Erhardt, P. F. 90  
 Evans, M. E. 378, 379  
  
 Falabella, G. 39  
 Ferm, R. L. 336  
 Fertman, N. H. 325  
 Fisher, L. 58  
 Flanagan, J. H. 16  
 Flentge, R. L. 251  
 Florentine, G. J. 380  
 Forss, D. A. 370, 381, 399  
 Franke, F. W. 327  
 Frankfurt, J. H. 310  
 Franklin, D. 323  
 Freer, J. H. 419  
 Freeston, W. D. Jr. 321  
 Frodigh, R. J. 132, 159  
 Fujinaka, E. S. 46, 66  
  
 Gagliardi, D. D. 50  
 Garber, E. B. 394  
 Gertel, M. 323  
 Giddings, G. G. 233, 234  
 Giffee, J. W. 202  
 Gionfriddo, M. P. 33, 40, 41  
 Goldblum, E. J. 29  
 Goodwin, J. A. 52  
 Green, C. R. 163  
 Greenberg, R. A. 186  
  
 Greenwald, A. 143  
 Gurrey, A. B. 382  
  
 Hagen, P. 383  
 Harlan, J. W. 245, 246, 306  
 Hartman, H. B. 384, 385, 420, 421,  
     422, 423, 424  
 Hayon, E. 236, 387, 425, 526, 427,  
     428, 429, 430  
 Heiligman, F. 187, 196, 234, 306,  
     312, 346  
 Heinmets, F. 388, 431  
 Helmer, R. L. 293  
 Henick, A. S. 178, 179, 195  
 Henry, M. C. 76, 81, 83, 84, 97  
 Heyes, J. 68  
 Hildebrandt, A. C. 171  
 Hilmas, D. E. 302  
 Hinnergardt, L. 293  
 Hoffman, A. 111, 112  
 Hoge, H. J. 368, 389, 390, 432  
 Hogue, D. W. 129  
 Hollender, H. A. 166, 235, 260,  
     262  
 Holmes, L. G. 393, 403  
 Holmes, P. K. 391, 433  
 Hooft, J. J. 127  
 Hopfenberg, H. B. 72  
 Howell, D. M. 205  
 Hu, K. H. 351, 352  
 Hyatt, M. T. 391, 433  
  
 Information Dynamics Corp. 27, 28  
 Ipson, T. P. 70  
 Issenberg, P. 448  
  
 Jackson, R. H. 109  
 Jacobs, H. L. 434, 435, 436, 461,  
     468, 470  
 Jarboe, C. 175, 176  
 Jarrett, R. D. Sr. 307, 308  
 Javier, V. 59  
 Johnson, A. N. 63  
 Johnson, K. R. 282  
 Josephson, E. S. 188, 236, 237, 238,  
     239, 240, 241, 242,  
     305, 309, 310, 315,  
     316, 317, 318

- Kamen, J. M. 362  
 Kane, F. 30  
 Kantack, B. H. 397  
 Kapala, T. 42, 60  
 Kaplan, A. M. 367, 437, 438, 439, 471, 472  
 Kapsalis, J. G. 169, 243, 244  
 Karel, M. 164  
 Kauffman, F. L. 245, 246, 306  
 Kazan, J. 75  
 Kennedy, S. J. 98, 99, 100, 101, 102, 103  
 Kenyon, E. M. 247, 248  
 Killoran, J. J. 196, 249, 344, 345, 346, 353, 354, 355  
 Kilmore, M. A. 250, 251, 252  
 Kimmei, R. M. 69  
 Kittaka, R. S. 186  
 Klicka, M. V. 166, 235, 253, 254, 255, 256, 257, 258, 259, 260, 262  
 Kliman, M. I. 104  
 Kneeland, L. E. 196, 346  
 Koerner von Gustorf, E. 83  
 Kohn, R. 261  
 Koza, W. 51  
 Krause, G. F. 165  
 Kroll, B. J. 362  
 Kronman, M. J. 392, 393, 403, 409, 440, 441  
 Kuo, M. H. 366  
  
 Labadan, R. M. 125, 126  
 Lachance, P. A. 185, 235, 260, 262  
 Lacher, J. R. 77  
 Laliberte, B. 84  
 Lampi, R. A. 338, 347  
 Landers, M. K. 312  
 Langmuir, M. E. 475  
 Lastnik, I. L. 55  
 Lee, F. H. 263, 264  
 Lee, R. J. 363  
 Lemmon, D. H. 88  
 Lettau, H. H. 130, 154  
 Levin, R. E. 313  
 Levinson, H. S. 200, 391, 394, 408, 419, 433, 469  
 Linekin, D. M. 220, 221  
  
 Lockhart, J. M. 395  
 Loconti, J. D. 462  
 Lola, J. E. 415  
 Long, L. Jr. 372, 373, 375, 376, 379, 413, 472  
 Lunsford, E. 35, 36  
  
 MacDonald, J. L. 66  
 MacNair, R. N. 65, 71, 106  
 Madnick, H. 51, 53  
 Mandels, G. R. 396  
 Mandels, M. 311, 465  
 Mantz, W. M. 1, 2, 3, 4, 5, 6, 7  
 Markarian, H. 364, 397  
 Marks, A. M. 49  
 Martin, D. M. 105  
 Martin, R. L. 30, 31, 32  
 Martin, T. G. III 216, 265  
 Mason, M. 74, 75  
 Masters, J. I. 418  
 Masuoka, Y. 179  
 Matlhern, R. O. 189, 266  
 Maunder, D. 354  
 McAdoo, D. J. 451, 464  
 McCormick, J. 251, 252  
 McDonald, J. L. 46  
 McGarvey, J. J. 387, 398  
 McGeachin, R. L. 190  
 McGoff, M. J. 47  
 McGrath, W. 398  
 McIsaac, H. J. 62  
 McKeown, C. J. 740  
 McLean, R. J. 48  
 McQuade, A. J. 107  
 Mehlman, M. A. 201  
 Mehrlich, F. P. 191, 267, 268, 269, 270, 271, 272, 273, 274, 319  
 Mendoza, C. E. 125  
 Mercer, J. H. 133  
 Merritt, C. Jr. 369, 370, 381, 399, 400, 404, 416, 418, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 455, 460, 463, 464, 467, 473, 474  
 Merritt, G. J. 60

- Meyer, R. A. 192, 193  
 Michel, A. A. 161  
 Miles, T. D. 108  
 Milich, W. 47  
 Miller, A. G. 330, 333, 342  
 Miller, E. J. 134  
 Miller, F. A. 38  
 Miller, S. A. 224  
 Mink, L. D. 173  
 Misaki, S. 68  
 Mone, P. E. 173  
 Mulvey, P. F. 104  
  
 Nebesky, E. A. 348, 349, 350, 356,  
                   357, 358, 360  
  
 O'Connor, E. 275  
 Oesterling, J. F. 17  
 Oliver, A. 68  
  
 Pant, B. 76  
 Park, A. 53  
 Park, J. D. 77  
 Parrish, F. W. 372, 378, 379, 401,  
                   402, 453  
  
 Patter, N. Jr. 131  
 Pavord, W. M. 190  
 Perry, D. 68  
 Perry, J. C. 342  
 Peryam, D. B. 362  
 Peryam, D. R. 362  
 Peters, J. R. 43  
 Peterson, M. S. 348, 349, 350  
 Pfister, D. H. 52  
 Pflug, I. J. 335  
 Phillips, C. E. 187, 276  
 Pirog, J. A. 109  
 Pooley, R. 58  
 Porter, W. L. 195  
 Pratt, G. B. 196, 346, 364, 397  
 Prell, P. A. 190, 277  
 Previte, J. J. 197, 198, 199, 278,  
                   279, 280, 281  
 Prifti, J. K. 329, 342  
 Proffitt, R. B. 322, 343  
 Prosser, R. A. 85  
  
 Pustinger, J. V. 61  
  
 Rahman, A. R. 282  
 Ramsdell, F. 54  
 Ramsley, A. O. 56, 86, 87  
 Rauch, A. C. 283  
 Reese, E. T. 311, 274, 383, 401  
                   402, 454, 465  
 Reitan, C. H. 163  
 Relyea, D. I. 63  
 Riordan, C. T. 8, 1, 10, 11, 12,  
                   13, 14, 15  
 Robbins, F. M. 371, 393, 403  
 Robertson, D. H. 410, 404, 449, 450,  
                   451, 455, 474  
 Robinson, S. M. 371  
 Robison, W. C. 144, 145, 155, 156  
                   161  
 Rodzen, R. 67  
 Rogers, M. R. 456, 472  
 Rohs, C. S. 58  
 Rosie, D. M. 412  
 Ross, E. W. Jr. 24  
 Roth, L. M. 377, 382, 384, 385, 405,  
                   406, 407, 457, 458, 467  
 Roth, M. 407  
 Rowley, D. B. 230, 408
- Sacher, R. E. 83, 88, 110  
 Salyer, I. O. 61  
 Santoro, L. 250  
 Saravis, C. A. 371  
 Sayers, D. 65  
 Schmidt, T. R. 284, 285, 286, 287  
 Schneider, N. S. 72, 73, 93, 94, 111,  
                   112, 113, 14  
 Scribano, F. 67  
 Scroggs, R. W. 167  
 Sebring, R. E. 321  
 Segars, R. A. 380, 390  
 Seligsberger, L. 89  
 Shahane, S. D. 44  
 Sharon, D. 146  
 Shaw, A. I. 58  
 Shaw, D. B. 341  
 Shea, K. G. 318  
 Shibata, Y. 409  
 Shults, G. W. 288, 289

- Shurtleff, S. J. 114  
 Sieling, D. H. 18, 19, 20, 21, 22, 23  
 Simon, M. 312  
 Simmons, E. G. 410  
 Singh, V. 44  
 Sinnhuber, R. O. 312  
 Smith, H. P. 63  
 Snyder, A. P. 42  
 Snyder, O. P. 313  
 Spano, L. A. 72, 73, 113, 115  
 Stamm, O. H. 383  
 Stapler, J. T. 85  
 Stein, R. S. 82, 90  
 Stewart, O. J. 68  
 Stoew sand, G. S. 184, 185, 201, 224  
     290  
 Strain, T. C. 334  
 Strasser, J. 202, 201  
 Strom, E. T. 475  
 Stroschein, L. 139, 147, 148  
 Swain, D. 48  
 Swift, J. 203  
 Swift, S. M. 201, 250  
  
 Tandon, J. P. 68  
 Tannenholtz, S. D. 411  
 Tannenbaum, S. R. 164  
 Tarrant, P. 68  
 Texas Instruments, Inc. 162  
 Therriault, D. G. 201  
 Thibodeau, H. W. 337  
 Thomas, E. B. 328  
 Thompson, W. F. 140  
 Tollenaar, D. 204  
 Tompkin, R. B. 170, 186  
 Traskas, R. 111, 112  
 Travis, B. V. 125, 126  
 Trottier, C. H. 472  
 Trueblood, L. W. 149, 150, 160  
 Turowski, R. F. 334  
 Tuomy, J. M. 292, 293  
  
 Umina, A. P. 210, 294  
 Urbanek, J. P. 116  
  
 Vega, M. 75  
 Venetos, M. A. 359, 361
- Windsberg, S. B. 331, 332  
 Vitois, R. 396  
 Vondel, R. M. 314  
 Votta, F. r. 72  
 Vourros, P. 418  
  
 Wadsworth, C. K. 187, 305  
 Waldron, E. T. 51  
 Walker, J. E. 205, 244  
 Walsh, J. T. 412, 52, 467  
 Walwood, J. T. 56  
 Wasserman, P. 314  
 Weiner, L. I. 44, 45  
 Weinstein, J. 475  
 Wells, F. E. 174  
 Wells, R. D. 117, 118  
 Westcott, D. E. 210, 295, 296, 297  
 Westwood, J. H. 413  
 Wexler, R. L. 151  
 Wharton, D. R. A. 414, 415  
 Wharton, M. L. 414, 415  
 Wheeler, J. F. 324  
 White, V. M. 298, 299, 300, 301  
 Whitnev, W. 69  
 Whitehair, L. A. 302  
 Widmer, D. N. 190  
 Wiericki, E. 233, 242, 245, 246, 249,  
     288, 289, 303, 304, 305,  
     320, 355  
 Wilde, A. F. 119, 120  
 Wiley, S. J. 372  
 Williams L. 128, 152, 161  
 Wilson, A. 91, 121, 122  
 Wilson, H. S. 61  
 Witte, V. C. 165  
 Wittrock, E. P. 70  
 Wolf, M. 244  
 Wollaston, S. H. 130, 154  
 Woodroof, J. G. 330  
 Wright, A. 68  
 Wright, A. C. 68  
  
 Yelland, W. E. C. 85, 123  
 Yu, T. C. 312
- Zagieboyo, W. 459  
 Zoukis, M. 104

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author) US Army Natick Laboratories Natick, Massachusetts 01760		2a. REPORT SECURITY CLASSIFICATION Unclassified	2b. GROUP
3. REPORT TITLE <b>BIBLIOGRAPHY OF TECHNICAL PUBLICATIONS AND PAPERS</b>			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates) July 1966 - June 1967			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE July 1967	7a. TOTAL NO. OF PAGES 55	7b. NO. OF REFS	
8. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(s) 38-1		
9. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned (e.g. report)		
c.			
d.			
10. DISTRIBUTION STATEMENT This document has been approved for public release and sale; its distribution is unlimited.			
11. SUPPLEMENTARY NOTES	12. SPONSORING MILITARY ACTIVITY U. S. Army Natick Laboratories Natick, Massachusetts 01760		
13. ABSTRACT <p>A bibliographic listing of technical publications and papers by the personnel of the U. S. Army Natick Laboratories and its contractors for the period July 1966 through June 1967.</p>			

DD FORM 1 NOV 64 1473

REPLACES DD FORM 1-73, 1 JAN 64, WHICH IS  
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Inclassified

Security Classification

KEY WORDS	LINK A		LINK B		LINK C	
	ROLE	WT	ROLE	WT	ROLE	WT
Research						
Reports						
Publications						
Development						
Army Natick Laboratories						
Bibliographies						

Classification

Security Classification