RADAPPERTIZATION (RADIATION STERILIZATION) OF FOODS

Irradiated Food Products Group
Radiation Preservation of Food Division

Approved for public release; distribution unlimited.

December 1976

UNITED STATES ARMY
NATICK RESEARCH and DEVELOPMENT COMMAND
NATICK, MASSACHUSETTS 01760

FOOD ENGINEERING LABORATORY
FEL-62
Approved for public release; distribution unlimited.

Citation of trade names in this report does not constitute an official indorsement or approval of the use of such items.

Destroy this report when no longer needed. Do not return it to the originator.
This report is a bibliography of technical publications and papers on radappertized (radiation sterilized) foods written by scientific personnel of the U.S. Army Natick Research and Development Command and other scientists working in or responsible for the part of the National Radiation Preservation of Food Program dealing with radiation-sterilization processing of prepackaged, shelf-stable foods, mainly red meats, poultry, and selected seafoods. The report includes 230 documents published within the

**Key Words**

- Radappertization
- Shelf Life
- Technical Publications
- Sterilization
- High Dose Radiation
- Bibliographies
- Food Irradiation
- Food Processing
- Documents
- Irradiated Food
- Food Preservation
- Irradiation
20. period March 1962 through December 1976, subdivided into books, technical reports, patents, technical papers (NARADCOM) and articles in scientific and technical journals.

Index of authors with their corresponding entry numbers are included for easy search of the publications by the names of the authors.
Numerous requests from the food industry and academic and research institutions in the United States and abroad about the status and progress made in the field of radappertized (radiation sterilized) shelf-stable foods prompted updating of the bibliography report first published in June 1973 as Technical Report 74-3-FL. This bibliography is a list of technical publications and papers by scientific personnel of the US Army Natick Research and Development Command (NARADCOM) working in or responsible for the part of the National Radiation Preservation of Food Program dealing with high-dose radiation processing of prepackaged, shelf-stable foods.

In addition, the compilation contains contractors' reports and a few selected books which have been either edited by or contain papers contributed by NARADCOM personnel. In the book section are listed five periodic reviews of the food radiation program by the Joint Committee on Atomic Energy, Congress of the United States, which continuously encourages and supports the food irradiation program under the "Atoms for Peace" program.

We have also included a listing of selected papers pertaining to food processing by irradiation that have been published in the Journal of Food Science and not listed elsewhere in this bibliography.

The period covered by this bibliography is March 1962 through December 1976. The bibliography, subdivided into six groups, is arranged chronologically by the date of publication. We have also included an indexing system to allow for easier and more frequent updating of the bibliography and to make it easier to use for reference.

During that period this installation was renamed from US Army Natick Laboratories to US Army Natick Development Center, and finally to US Army Natick Research and Development Command (NARADCOM).
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preface</td>
<td>1</td>
</tr>
<tr>
<td>Table of Contents</td>
<td>3</td>
</tr>
<tr>
<td>Books</td>
<td>5</td>
</tr>
<tr>
<td>Technical Reports</td>
<td>8</td>
</tr>
<tr>
<td>Patents</td>
<td>11</td>
</tr>
<tr>
<td>Technical Papers, NARADCOM (Presented at Special Conferences)</td>
<td>12</td>
</tr>
<tr>
<td>Technical Papers</td>
<td>14</td>
</tr>
<tr>
<td>Titles of Papers Printed in Journal of Food Science</td>
<td>28</td>
</tr>
<tr>
<td>Technical Papers for Management</td>
<td>34</td>
</tr>
<tr>
<td>Explanation of Indexing</td>
<td>36</td>
</tr>
<tr>
<td>Authors Index</td>
<td>37</td>
</tr>
</tbody>
</table>
RADAPPERTIZATION OF FOODS

I. BOOKS

B-1-T REVIEW OF AEC AND ARMY FOOD IRRADIATION PROGRAMS.
Hearings before the Subcommittee on Research, Development and
Radiation of the Joint Committee on Atomic Energy, Congress
of the United States (JCAE), Eighty-Seventh Congress, Second
Sessions, March 6 and 7, 1962. Superintendent of Documents,
Price $3.00

B-2-T REVIEW OF THE ARMY FOOD IRRADIATION PROGRAM.
Hearing, JCAE, Eighty-Eighth Congress, First Session, 13 May
Office, Washington, DC 20402
Price $1.50

B-3-T RADIATION PROCESSING OF FOODS.
Hearings, JCAE, Eighty-Ninth Congress, First Sessions, 9 and 10
Printing Office, Washington, DC 20402
Price $2.50

B-4-T REVIEW OF THE FOOD IRRADIATION PROGRAM.
Hearing, JCAE, Eighty-Ninth Congress, Second Session, 12
Printing Office, Washington, DC 20402
Price $1.00

B-5-T STATUS OF THE FOOD IRRADIATION PROGRAM.
Hearings, JCAE, Ninetieth Congress, Second Sessions, 18 and 20
Printing Office, Washington, DC 20402
Price $3.00

B-6-T THE TECHNICAL BASIS FOR LEGISLATION ON IRRADIATED FOOD.
April 1964. FAO, Atomic Energy Series No. 6, Food and Agricul-

B-7-E CURRENT STATUS AND COMMERCIAL PROSPECTS FOR RADIATION
PRESERVATION OF FOOD.
H. W. Ketchum, J. W. Osburn, Jr., and J. Deitch. TID-21431, BDSA
(174 pages, 185 references).
RADAPPERTIZATION OF FOODS

B-8-T RADIATION PRESERVATION OF FOODS.
Price $9.00

B-9-T FOOD IRRADIATION.
Price $20.00

B-10-T CHEMICAL AND FOOD APPLICATIONS OF RADIATION.

B-11-T RADIATION PRESERVATION OF FOODS.
A symposium co-sponsored by the Division of Agricultural and Food Chemistry and the Division of Nuclear Chemistry and Technology at the 150th Meeting of the American Chemical Society, Atlantic City, NJ, 16–17 September 1965. Advances in Chemistry Series 65, American Chemical Society, Washington, DC, 1967 (15 papers, 184 pages).
Price $7.00

B-13-E THE COMMERCIAL PROSPECTS FOR SELECTED IRRADIATED FOODS.
Price $ .50

B-14-T RADIATION PROCESSING OF FOOD PRODUCTS.
Price $3.00

B-15-M ELIMINATION OF HARMFUL ORGANISMS FROM FOOD AND FEED BY IRRADIATION.
RADAPPERTIZATION OF FOODS


RADAPPERTIZATION OF FOODS

B-24-T ASPECTS OF THE INTRODUCTION OF FOOD IRRADIATION IN DEVELOPING COUNTRIES.

B-25-T IMPROVEMENT OF FOOD QUALITY BY IRRADIATION.

II. TECHNICAL REPORTS

R-1-P EXTRACTIVES AND FUNCTIONAL PERFORMANCE OF FLEXIBLE PACKAGING MATERIALS FOR USE IN RADIATION STERILIZATION OF PREPACKAGED FOODS.

R-2-C INDUCED RADIOACTIVITY IN FOOD AND ELECTRON STERILIZATION.
R. A. Meyer. (US Army Natick Laboratories). FD-6, April 1965 (AD 613 950).

R-3-T INVESTIGATION OF THE USE OF VERY HIGH DOSE RATES FOR THE RADIATION PRESERVATION OF PROTEIN FOOD.

R-4-S CALCULATED INTERNATIONAL RADIATION DOSE FROM INGESTION OF MEAT STERILIZED BY ELECTRON IRRADIATION.

R-5-P STUDY OF EXTRACTABLE SUBSTANCES AND MICROBIAL PENETRATION OF POLYMERIC PACKAGING MATERIALS TO DEVELOP FLEXIBLE PLASTIC CONTAINERS FOR RADIATION STERILIZED FOODS.

R-6-T EFFECT OF LOW TEMPERATURE IRRADIATION ON CHEMICAL AND SENSORY CHARACTERISTICS OF BEEF STEAKS.
RADAPPERTIZATION OF FOODS

R-7-T DEVELOPMENT OF RADIATION-Sterilized Fish Products.

R-8-M MODE OF RADIATION RESISTANCE OF CLOSTRIDIIUM BOTOULIUM SPORES.

R-9-N EFFECT OF IRRADIATION DOSE AND TEMPERATURE ON THE THIAMINE CONTENT OF HAM.

R-10-T STORAGE STABILITY STUDIES ON RADIATION STERILIZED FISH ITEMS.

R-11-T DEVELOPMENT OF COOKING PROCEDURES AND RECIPES FOR USING IRRADIATION STERILIZED MEATS.

R-12-T IRRADIATION STUDIES ON MEAT.

R-13-P EFFECT OF IONIZING RADIATION ON PHYSICAL AND CHEMICAL PROPERTIES OF FIBERBOARD AND PAPERBOARD.
J. J. Killoran, S. Agarwal, and P. T. Burke. 74-6-GP, October 1972 (AD 755 510).

R-14-T DEVELOPMENT OF RADIATION STERILIZED FISH ITEMS.

R-15-C IRRADIATION INDUCED HEADSPACE GASES IN PACKAGED RADIATION STERILIZED FOOD.

R-16-S ACCELERATOR RADIATION PROTECTION.
RADAPPERTIZATION OF FOODS


RADAPPERTIZATION OF FOODS

R-27-T EFFECTS OF NaCl AND TPP ON THE TEXTURE, ORGANIC VOLATILES AND SENSORY CHARACTERISTICS OF IRRADIATED AND NONIRRADIATED PORK ROLLS.

R-28-T EFFECTS OF NaCl, PHOSPHATES AND OTHER CURING INGREDIENTS ON THE WATER-HOLDING CAPACITY OF LEAN PORK MEAT AND THE QUALITY OF HAM.

R-29-C RADIATION-INACTIVATION OF MEAT PROTEASES AS DETERMINED BY A 14C LABELLED HEMOGLOBIN METHOD.

R-30-M RADIATION RESISTANCE OF ASPERGEOUS BACTERIA IN FROZEN BEEF.

R-31-S RESULTS OF ASSAY OF RADIATION STERILIZED BEEF FOR INDUCED ACTIVITY.

R-32-T EFFECT OF COMBINED IRRADIATION AND THERMAL PROCESSING ON CANNED BEEF.

R-33-T RADURIZATION OF FRESH POULTRY.

R-34-T THE EFFECTS OF RADURIZATION ON THE pH, FREE WATER, MEAT SWELLING AND VOLATILE ORGANIC COMPOUND CONCENTRATIONS OF STORED CHICKEN MEAT.

III. PATENTS

P-1-T IRRADIATION STABILIZATION OF PARTIALLY DEHYDRATED MEAT.

P-2-T PROCESS FOR INACTIVATING ENZYMES IN MEAT TO BE STABILIZED BY IRRADIATION.
RADAPPERTIZATION OF FOODS

P-3-T PROCESS FOR RADIATION STERILIZING A PACKAGED PRECOOKED MEAT AND GRAVY PRODUCT.

P-4-T PROCESS FOR PREPARING STERILIZED COMMINUTED BEEF PRODUCTS.

P-5-T PROCESS FOR STABILIZING STRUCTURE OF GROUND MEAT.

P-6-P METHOD FOR PACKAGING FLEXIBLE PACKAGES IN CYLINDRICAL CONTAINERS.

P-7-T METHOD FOR PRODUCING CORNED BEEF.

IV. TECHNICAL PAPERS, NARADCOM

T-1-T RADIATION STERILIZATION OF FOOD IN THE U.S.A.
E. S. Josephson (Eighth Conference on Radioisotopes - Tokyo, Japan (13-16 November 1967).

T-2-M RESISTANCE OF CLOSTRIDIUM BOTULINUM SPORES TO IONIZING RADIATION AS RELATED TO RADAPPERTIZATION OF FOODS.

T-3-T ADVANTAGES, PROBLEMS AND EXPERIENCES OF IRRADIATED FOODS.

T-4-T NUCLEAR APPLICATIONS IN THE FOOD INDUSTRY.

T-5-T STATUS OF THE US ARMY PROGRAM IN FOOD IRRADIATION.
RADAPPERTIZATION OF FOOD

T-6-T HIGH DOSE RADIATION PROCESSING OF MEAT, POULTRY AND SEAFOOD PRODUCTS.
E. Wierbicki, A. Anellis, J. J. Killoran, E. L. Johnson, M. H. Thomas, and E. S. Josephson (The Third International Congress of Food Science and Technology (SOS/70), Washington, DC (9-14 August 1970).

T-7-E FACTORS INFLUENCING ECONOMIC EVALUATION OF IRRADIATION PROCESSING.
A. Brynjolfsson (Panel on Radiation Processing Techniques of Special Interest to Developing Countries, Seoul, Korea, 28 September - 2 October 1970).

T-8-T THE OBJECTIVES AND PRESENT STATUS OF IRRADIATION OF MEAT AND MEAT PRODUCTS.
E. S. Josephson (Study Group Meeting on Food Irradiation for the South East and East Asian Countries, Bangkok, Thailand, 13-17 December 1971).

T-9-W DEFINITION AND CONTROL OF PROCESSING PARAMETERS FOR RADAPPERTIZATION OF BEEF FOR WHOLENESS STUDIES IN THE UNITED STATES.

T-10-T RADAPPERTIZATION OF MEAT, MEAT PRODUCTS, AND POULTRY.

T-11-E FACTORS INFLUENCING THE ECONOMICAL APPLICATION OF FOOD IRRADIATION.

T-12-D MEASUREMENT OF DOSE DISTRIBUTION IN VARIOUS MATERIALS IRRADIATED BY 10 MEV ELECTRONS.
RADAPPERTIZATION OF FOODS

T-13-C CHEMICAL EFFECT OF IRRADIATING FROZEN, HYDRATED MUSCLE PROTEINS: MYOSIN AND ACTOMYOSIN.

V. TECHNICAL PAPERS

S-1-M COMPARATIVE RESISTANCE OF STRAINS OF CLOSTRIDIUM BOTULINUM TO GAMMA RAYS.

S-2-D DOSIMETRY IN FOOD PRESERVATION BY IONIZING RADIATION.

S-3-T STORAGE STABILITY OF IRRADIATED MEATS.

S-4-T PRESERVATION OF MEATS BY STERILIZING DOSES OF IONIZING RADIATION.

S-5-T ACCEPTANCE OF IRRADIATED FOODS.

S-6-T PACKAGING ASPECTS OF IRRADIATION.

S-7-T CRYOGENICS IN FOOD IRRADIATION.

S-8-T RADIATION STERILIZATION OF BACON FOR MILITARY FEEDING.

S-9-M SURVIVAL OF CLOSTRIDIUM BOTULINUM SPORES.

S-10-M PRINCIPLES OF MICROBIOLOGICAL SAFETY AND STABILITY OF RADIATION STERILIZED FOODS.
RADAPPERTIZATION OF FOODS

S-11-D AN EVALUATION OF DOSIMETRY PROCEDURES APPLICABLE FOR USE IN FOOD IRRADIATION.

S-12-M EFFECT OF TEMPERATURE OF LIQUID NITROGEN ON RADIATION RESISTANCE OF SPORES OF CLOSTRODIUM BOTULINUM.

S-13-T LOW TEMPERATURE IRRADIATION OF MEAT.

S-14-T WHOLESOMENESS OF IRRADIATED FOODS.

S-15-T PACKAGING FOR RADIATION-STERILIZED FOODS: PRESENT STATUS.

S-16-M INCIDENCE OF MESAPHILIC CLOSTRIDIUM SPORES IN RAW PORK, BEEF AND CHICKEN IN PROCESSING PLANTS IN THE UNITED STATES AND CANADA.

S-17-C IRRADIATION DAMAGE IN LIPIDS.

S-18-P DEVELOPMENT OF FLEXIBLE CONTAINERS FOR IRRADIATED FOODS.
I. Screening of Commercially Available Plastic Laminates.

S-19-M RADIATION STERILIZATION OF PROTOTYPE MILITARY FOODS.

S-20-C IRRADIATION INDUCED GAS IN PACKAGED FOODS.
RADAPPERTIZATION OF FOODS

S-21-C VOLATILE COMPOUNDS INDUCED BY IRRADIATION IN BASIC FOOD SUBSTANCES.

S-22-D RADIATION DOSIMETRY IN RELATION TO HIGH INTENSITY RADIATION SOURCES.

S-23-O US ARMY RADIATION LABORATORY.

S-24-T DEVELOPMENT OF RADIATION-SterILIZED CHECKEN.

S-25-P PACKAGING OF IRRADIATED FOODS.

S-26-P PACKAGING MATERIALS FOR USE DURING THE IRRADIATION OF PREPACKAGED FOODS.
Federal Register, 121, 2543; p. 309, July 1967.

S-27-M DETOXIFICATION OF SALMONELLA TYPHIMURIUM LIPOPOLYSACCHARIDE BY IONIZING RADIATION.

S-28-M SALMONELLOSIS - THE PROBLEM AND A POTENTIAL REMEDY.

S-29-M ESTIMATION OF RADIATION RESISTANCE VALUES OF MICROORGANISMS IN FOOD PRODUCTS.

S-30-E ENGINEERING AND ECONOMICS OF FOOD IRRADIATION.

S-31-T RADIATION STERILIZATION OF PREFRIED AND HALIBUT PATTIES.
RADAPPERTIZATION OF FOODS

S-32-M RESISTANCE OF CLOSTRIDIUM BOTULINUM SPORES TO IONIZING RADIATION AS RELATED TO RADAPPERTIZATION OF FOODS.

S-33-C MACHINE IRRADIATION SOURCES AND IRRADIATION TECHNOLOGY.

S-34-T STATUS OF THE US ARMY PROGRAM IN FOOD IRRADIATION.
E. S. Josephson and E. Wierlicki. Chemical and Food Applications of Radiation Chemical Engineering Progress Symposium Series, Vol. 64, No. 51: 87-95 (1968).

S-35-W WHOLESOMENESS TESTING OF IRRADIATED FOODS.
N. Raica, Jr., Chemical and Food Applications of Radiation, Chemical Engineering Progress Symposium Series, Vol 64, No. 82: 66-79 (1968).

S-36-D A SIGNIFICANT CORRECTION FACTOR IN GAMMA RAY DOSIMETRY.

S-37-T PROCESS CRITERIA FOR PRODUCING RADIATION STERILIZED FISH PRODUCTS.

S-38-C ADDITION TO HYDROGEN ATOMS TO GLUTATHIONE DISULFIDE IN AQUEOUS SOLUTION.

S-39-C SELECTIVITY IN THE REACTIONS OF $\text{e}_{aq}^-$ AND OH RADICALS WITH SIMPLE PEPTIDES IN AQUEOUS SOLUTION.

S-40-C PULSE RADIOLYSIS OF ALIPHATIC ACIDS IN AQUEOUS SOLUTIONS.
RADAPPERTIZATION OF FOODS

S-41-T US ARMY FOOD IRRADIATION PROGRAM.

S-42-N RADIATION PRESERVATION OF FOODS AND ITS EFFECT ON NUTRIENTS.

S-43-M CONDITIONS AFFECTING GERMINATION OF CLOSTRIDIUM BOTULINUM 6A SPORES IN A CHEMICALLY DEFINED MEDIUM.

S-44-C REDUCTIVE DEAMINATION OF OLIGOPEPTIDES BY SOLVATED ELECTRONS IN AQUEOUS SOLUTIONS.
M. Simic and E. Hayon, Radiation Research, 48, 244 (1971).

S-45-C RADICAL REACTIONS OF N-ETHYL MALEIMIDE IN RADIATION SENSITIZATION.

S-46-C PULSE RADIOLYSIS STUDY OF CYCLIC PEPTIDES IN AQUEOUS SOLUTIONS.

S-47-C OPTICAL ABSORPTION SPECTRUM OF HALF-REDUCED UBIQUINONE.

S-48-C FREE RADICAL INTERMEDIATES PRODUCED IN THE PULSE RADIOLYSIS OF SIMPLE PEPTIDES IN AQUEOUS SOLUTIONS.

S-49-T A METHOD OF CALCULATING AVERAGE STERILIZING VALUE IN CYLINDRICAL CONTAINERS.

S-50-T NUCLEAR PRESERVATION OF FOOD.

S-51-C ASSAY OF PROTEOLYTIC ENZYME ACTIVITY USING A 14N-LABELED HEMOGLOBIN.
RADAPPERTIZATION OF FOODS

S-52-M EFFECT OF IRRADIATION TEMPERATURE IN THE RANGE -196 to -95 C ON THE RESISTANCE OF SPORES OF CLOSTRIDIUM BOTULINUM 33A IN COOKED BEEF.

S-53-S BREMSSTRAHLUNG PRODUCTION AND SHIELDING OF STATIC AND LINEAR ELECTRON ACCELERATORS BELOW 50 MEV. TOXIC GAS PRODUCTION, REQUIRED EXHAUST RATES, AND RADIATION PROTECTION INSTRUMENTATION.

S-54-M ESTIMATION OF AN EQUIVALENT "12D" PROGRESS BY THE NORMAL DISTRIBUTION METHOD.

S-55-M INACTIVATION OF THIRTY VIRUSES BY GAMMA RADIATION.

S-56-C A MODEL OF RADIATION SENSITIZATION BY QUINONES.

S-57-C ON THE pKa OF THE H3NCHCOOH RADICAL.

S-58-T DEVELOPMENT OF IRRADIATION STERILIZED CODFISH CAKE.

S-59-T COMPARISON OF PRE-COOKED IRRADIATED CHICKEN AND LAMB WITH AND WITHOUT PARTIAL DEHYDRATION.

S-60-T EFFECT OF CONDENSED PHOSPHATES ON pH, SWELLING AND WATER­HOLDING CAPACITY OF BEEF.

S-61-M PRODUCTION OF TYPES A AND B SPORES OF CLOSTRIDIUM BOTULINUM BY THE BIPHASIC METHOD: EFFECT ON SPORE POPULATION, RADIATION RESISTANCE, AND TOXIGENICITY.
RADAPPERTIZATION OF FOODS

S-62-T RADIATION STERILIZATION OF PROTOTYPE MILITARY FOODS: LOW-TEMPERATURE IRRADIATION OF CODFISH CAKE, CORNED BEEF, AND PORK SAUSAGE.

S-63-C QUALITATIVE AND QUANTITATIVE ASPECTS OF TRACE VOLATILE COMPONENTS IN IRRADIATED FOODS AND FOOD SUBSTANCES.

S-64-P CHEMICAL AND PHYSICAL CHANGES IN FOOD PACKAGING MATERIALS EXPOSED TO IONIZING RADIATION.

S-65-N THE NUTRITIONAL QUALITY OF IRRADIATED FOODS.

S-66-C THE EFFECT OF GAMMA IRRADIATION AND HEATING ON THE PROTEOLYTIC ACTIVITY OF MEAT SAMPLES.

S-67-T NEW ADVANCES IN IRRADIATED FOODS.

S-68-T RADIATION PRESERVATION OF FOOD: PAST, PRESENT AND FUTURE.

S-69-T PROGRESS AND FUTURE TASKS IN FOOD IRRADIATION.

S-70-T STORING MEAT PRODUCTS (WITHOUT REFRIGERATION) FOR SEVERAL YEARS.

S-71-M COMPARATIVE RESISTANCE OF NONSPOROGENIC BACTERIA TO LOW-TEMPERATURE GAMMA IRRADIATION.

S-72-M GAMMA RADIATION INACTIVATION OF COXSACKIEVIRUS, B-2.
RADAPPERTIZATION OF FOODS


RADAPPERTIZATION OF FOODS

S-82-T CURED MEATS WITH REDUCED NITRITE PRESERVED BY RADIATION.

S-83-M EVALUATION OF MEDIA, TIME AND TEMPERATURE OF INCUBATION, AND METHOD OF ENUMERATION OF SEVERAL STRAINS OF CLOSTRIDIUM PERFRINGENS SPORES.

S-84-M STATISTICAL ESTIMATION OF 12D FOR RADAPPERTIZED FOODS.

S-85-C ACID-BASE PROPERTIES OF FREE RADICALS IN SOLUTIONS.

S-86-C FORMATION AND DECAY OF HYDROXY RADICALS OF SOME PYRIMIDINE DERIVATIVES IN WATER

S-87-C PULSE RADIOLYSIS STUDY OF IMIDAZOLE AND HISTIDINE IN WATER.

S-88-C FREE RADICAL REDUCTION OF HEMIN-C.

S-89-T THE USE OF IONIZING RADIATION FOR PRESERVATION OF FOOD AND FEED PRODUCTS.

S-90-S SHIELDING MATERIALS, CHAPTER 9, VOLUME II, ENGINEERING COMpendium ON RADIATION SHIELDING.

S-91-O COBALT-60 IRRADIACTOR DESIGNS.
RADAPPERTIZATION OF FOODS

S-92-C CHEMISTRY OF PEROXY RADICALS AND ITS IMPLICATION TO RADIATION BIOLOGY.

S-93-C FREE RADICAL REDUCTION OF FERRICYTOCHROME-C.

S-94-C CHEMICAL CHANGES ASSOCIATED WITH FLAVOR IN IRRADIATED MEATS.

S-95-M RADIATION RESISTANCE OF SPORES OF SOME CLOSTRIDIUM PERFRINGES STRAINS.

S-96-T PRESERVATION OF MEATS BY IONIZING RADIATION - AN UPDATE.

S-97-M LOW-TEMPERATURE IRRADIATION OF BEEF AND METHODS FOR EVALUATION OF A RADAPPERTIZATION PROCESS.

S-98-M INFLUENCE OF POSTIRRADIATION INCUBATION TEMPERATURE ON RECOVERY OF RADIATION-INJURED CLOSTRIDIUM BOTULINUM 62A SPORES.

S-99-T EFFECTS OF SALT AND TPP ON TEXTURE, ORGANIC VOLATILES AND SENSORY CHARACTERISTICS OF IRRADIATED OR NONIRRADIATED PORK.

S-100-T EFFECTS OF NaCl, PHOSPHATES AND CURING INGREDIENTS OF SHRINKAGE OF LEAN PORK MEAT AND THE QUALITY OF SMOKED HAM.
RADAPPERTIZATION OF FOODS

S-101-T VARIABLES AFFECTING THE ACCEPTABILITY OF IRRADIATED STERILIZED GROUND BEEF.

S-102-W IRRADIATED FOOD VALIDITY OF EXTRAPOLATING WHOLESOMENESS DATA.

S-103-T EFFECTS OF SODIUM NITRATE AND SODIUM NITRITE ADDITIONS AND IRRADIATION PROCESSING ON CORNED BEEF.

S-104-T EFFECTS OF FAT LEVEL AND RADAPPERTIZATION DOSE LEVEL ON THE QUALITY OF PORK.

S-105-T FLAVOR AND TEXTURAL CHANGES IN RADAPPERTIZED CHICKEN AS AFFECTED BY IRRADIATION TEMPERATURE, NaCl AND TPP ADDITIONS.

S-106-T FOOD IRRADIATION IN THE UNITED STATES – CURRENT STATUS AND FUTURE PLANS.

S-107-T LOW DOSE FOOD IRRADIATION AT "NATICK."

S-108-C RADIATION CHEMISTRY OF AMINO ACIDS AND PEPTIDES IN AQUEOUS SOLUTIONS.
RADAPPERTIZATION OF FOODS

S-109-C ELECTRON REACTIONS WITH CYTOCHROME-C IN ETHYLENE GLYCOL-WATER GLASSES AT -196°C.

S-110-C INTERMEDIATES IN THE RADIOLYSIS OF AMINO ACIDS AND PEPTIDES.
M. G. Simic, to be published in *Journal of Food Science*.

S-111-C CHEMICAL ASPECTS OF IRRADIATING FROZEN AQUEOUS SYSTEMS.
I. A. Taub and R. A. Kaprielian, to be published in *Journal of Food Science*.

S-112-C PULSE RADIOLYSIS AND ESR STUDIES OF NITROAROMATIC RADICAL ANIONS: OPTICAL ABSORPTION SPECTRA, KINETICS, AND ONE-ELECTRON REDOX POTENTIALS.
P. Neta, M. G. Simic, M. Z. Hoffman. *Journal of Physical Chemistry*

S-113-T THE NATIONAL FOOD IRRADIATION PROGRAM CONDUCTED BY THE DEPARTMENT OF THE ARMY.
A. Brynjolfsson. Presented at the Symposium, Institute of Food Technologists, Anaheim, CA, 6-9 June 1976.

S-114-T IRRADIATION AS A CONCEIVABLE WAY OF REDUCING NITRITES AND NITRATES IN CURED MEATS.
S-115-T DEVELOPMENTS IN RADIATION PROCESSING OF FOOD IN THE NETHERLANDS.
J. V. Kooij and D. de Zeeuw.

S-116-W INDUSTRIAL PRODUCTIONS AND QUALITY OF WHOLE CARCASS BEEF ROLLS USED IN THE WHOLESOMENESS TESTING OF RADAPPERTIZED BEEF.
F. Heiligman, E. Wierbicki, J. S. Cohen, and V. C. Mason.

S-117-T RADAPPERTIZED BEEF PRODUCTS, THEIR TECHNOLOGY AND QUALITY.

S-118-T TECHNOLOGY AND QUALITY IMPROVEMENTS OF RADAPPERTIZED MEAT PRODUCTS BY THE USE OF SMALL ADDITIONS OF SODIUM CHLORIDE AND CONDENSED PHOSPHATE.
E. Wierbicki, G. W. Shults, J. J. Hawker, and V. C. Mason.

S-119-O EXPERIENCES IN THE OPERATION OF FOOD IRRADIATION FACILITIES.
T. Grunewald and D. Ehlermann.

S-120-O FOOD IRRADIATION FACILITIES.

S-121-O GAMMA RAY STERILIZATION OF MEAT PRODUCTS.
B. A. MacDonald.

S-122-O ELECTRON IRRADIATION IN THE STERILIZATION OF MEAT.
C. W. Rees and J. M. Casperson.

S-123-C INFLUENCE OF HYDROGEN DONORS AND ACCEPTORS ON THE RADIATION STABILITY OF FREE FATTY ACIDS, FATTY ACIDS ESTERS, ALK AND ALKENES.

S-124-C INFLUENCE OF PHASE AND TEMPERATURE ON THE CHEMISTRY OF IRRADIATED FOOD.
I. A. Taub and R. A. Kaprielian.

S-125-C FORMATION AND LIFETIMES OF FREE RADICALS IN IRRADIATED BEEF MUSCLE PROTEIN.
J. W. Halliday, J. E. Walker, and I. A. Taub.

S-126-C RADIOLYTIC OXIDATION AND REDUCTION OF IRON-CONTAINING COMPOUNDS RELEVANT TO MEAT.
M. G. Simic and I. A. Taub.
S-127-P  RELIABILITY OF TINPLATE CAN FOR PACKAGING OF RADAPPERTIZED BEEF UNDER PRODUCTION CONDITIONS.
J. J. Killoran, J. J. Howker, and E. Wierbicki.

S-128-P  RELIABILITY OF FLEXIBLE PACKAGING OF RADAPPERTIZED BEEF UNDER PRODUCTION CONDITIONS.
J. J. Killoran, J. S. Cohen, and E. Wiericki.

S-129-M  BIOPHYSICAL ASPECTS OF RECOVERY FROM RADIATION INJURY OF BACTERIAL SPORES.
N. Grecz, C. Rhee, C. L. Wiatr, and J. Farkas.

S-130-M  MICROBIOLOGICAL SAFETY OF IRRADIATED BEEF.
A. Anellis and D. B. Rowley.

S-131-D  DOSIMETRY IN SUPPORT OF WHOLESOMENESS STUDIES.
R. D. Jarrett and J. Halliday.

S-132-S  HEALTH PHYSICS IN FOOD IRRADIATION FACILITIES.
T. G. Martin, III.

S-133-W  WHOLESOMENESS TESTING OF IRRADIATED FOODS AND AUTHORIZATION PROCEDURE IN THE NETHERLANDS.
J. V. Kooij and D. de Zeeuw.

S-134-T  THE STATUS OF FOOD IRRADIATION WORK IN BRAZIL.
M. Dias Filho.

S-135-C  FACTORS AFFECTING THE FORMATION OF RADIOLYSIS PRODUCTS.
C. Merritt, Jr.

S-136-N  NUTRITIONAL ASPECTS OF IRRADIATED FOODS - AN OVERVIEW.
TITLES OF PAPERS PRINTED IN
JOURNAL OF FOOD SCIENCE

1961 Vol 26

Changes in Amino Nitrogen, Total Soluble Nitrogen and TCA Soluble Nitrogen Content of Beef as Influenced by Pre-Irradiation Heating, Irradiation Level and Storage at 34°F.

The Effect of Added Enzymes Upon the Free Amino Groups and Organoleptic Ratings of Irradiated Beef During Storage.
R. G. West, A. M. Pearson, and F. J. McArdle, p. 79.

The Chemical Composition of Beef Protein Fractions Before and After Irradiation.

Proteolytic Enzyme Activity During Storage of Radiation Stabilized Raw Beef and its Significance to Flavor.
M. P. Drake, G. D. Gerson, Jr., and F. J. Kraus. p. 156.

Effects of Gamma Irradiation on the Chemical Properties of Actin and Actomyosin of Meats.

Survival of Bacillus Stearothermophilus Spores as a Means of Measuring Effective Electron-Beam Dosage.
J. E. Postweiler, and E. F. Caldwell. p. 204.

Production of Irradiation Odors From Beef Protein Fractions and Their Derivatives.

The Application of Radiation Distillation to the Production and Isolation of Components of Beef Irradiation Flavor.

Radioresistance of Five Strains of Clostridium Botulinum in Selected Food Products.

Effect of Pre-Irradiation Heating Temperatures, Irradiation Level and Storage Time at 34°F on the Free Amino Acid Composition of Beef.

Influence of Irradiation Bacon Lipids on Body Growth, Incidence of Cancer and Other Pathologic Changes in Mice.
1962 Vol 27

Radiation Resistance of Spores of Type E Clostridium as Related to Extension of the Refrigerated Storage Life of Foods.

Effect of Radiation Environment on the Thermal Resistance of Irradiated Spores of Clostridium Sporogenes, P. A. 3679.

Studies on the Kinetics of Lipoxidase Inactivation Using Thermal and Ionizing Energy.
D. F. Farkas, and S. A. Goldblith. p. 262.

Radiation Survival Curves of Clostridium Botulinum Spores.

1965 Vol 30

Post Irradiation Survival of Staphylococcus Aureus in Sea Foods.
B. M. Slabyj, A. M. Dollar, and J. Liston. p. 344.

Physiological Changes Induced by Gamma Irradiation of Bacteria from Shrimp.

Effect of Irradiation Temperature on the Radiosensitizing Activity of Vitamin K5.

1967 Vol. 32

Radiation Induced Off-Flavor Development in Whole Egg Magma.

Lipids in Flour from Gamma Irradiated Wheat.

Response of the Phenomena of Extract-Release Volume and Water Holding Capacity to Irradiated Beef.

Effects of Radiation, Heating and Storage on Volatile Carbonyl Compounds in Clam Meats.

Effect of Ionizing Radiation on Resting Conidia of Aspergillus Flavus.
Irradiation Effects on the Ripening of Kent Mangoes.  

1968 Vol 33

Ionizing Radiation Effects on Starch as Shown by Staudinger Index and Differential Thermal Analysis.  

Gamma Radiation Effects on the Pectic Substances in Citrus Fruits.  

Growth of Salmonella on Irradiated and Non-Irradiated Seafoods.  

Gamma Irradiation and Enriched CO2 Atmosphere Storage Effects on the Light Induced Greening of Potatoes.  

Gamma Irradiation Influence on the Storage and Nutritional Quality of Mushrooms.  

Photoxidation of Cholesterol in Spray-Dried Egg Yolk Upon Irradiation.  

1969 Vol 34

Some Properties of Mitochondria from Irradiated Tomato Fruit.  

The Volatile Components of Irradiated Beef and Pork Fats.  

Pectin Changes in the Ripening of Irradiated and Stored Strawberries.  

An Automatic Sampling System for Respiratory Gases and Respiratory Response of Irradiated Citrus Fruits.  

Effect of Preirradiation Quality of Eviscerated Haddock on Postirradiation Shelflife of Fillets.  
V. G. Ampola and L. J. Ronsivalli.  p. 27.

1970 Vol 35

Pasteurization of Pacific Oysters by Radiation, Post-Mortem Changes in Nucleotides During Storage at 0-2°C.  
E. J. Guardia and A. M. Dollar.  p. 22.
Radiation Pasteurization of Fresh and Blanched Tropical Shrimps.

Chemical and Physical Changes in Irradiated and Frozen Bombay Duck.

Cytological Effects of Juice or Puree from Irradiated Strawberries.

Recovery of Salmonellae from Irradiated and Unirradiated Foods.

Susceptibility to Amylolysis of Gamma-Irradiated Wheat.

Effect of Gamma Radiation on Wheat Starch and its Components.

Rheology of Fresh, Aged and Gamma-Irradiated Eggwhite.

1971 Vol 36

Effect of Gamma Irradiation on the Postharvest Physiology of Five Banana Varieties Grown in India.

Storage Temperature Effects on the Proteolytic Activity of Radiation-Surviving Bacteria in Oysters.

Radiation Destruction of Vibrio Parahaemolyticus.

Effects on the Alkaloid Content of Potatoes Grown from Seeds Subjected to Low Dose Gamma Irradiation.

Low Dose Gamma Irradiation of Bovine Myoglobin.
L. D. Satterlee, M. S. Wilhelm, and H. M. Barnhardt. p. 549.

Computer Evaluation of Irradiation Processes in Cylindrical Containers with Gamma Sources.

Theoretical Evaluation of Combined Irradiation and Thermal Processes in Cylindrical Containers with Gamma Sources.
K. S. Purohit, J. E. Manson, and J. W. Zahradnik. p. 750.
Post Irradiation Inactivation of Horseradish Peroxidase.

Respiration of Gamma-Irradiated Fresh Fruits.

Effect of Gamma-Irradiation on Bovine and Human Milk Lysozymes.

1972 Vol 37


1973 Vol 38

Effect of Gamma Radiation on D-Glucose Present in Apple Juice.
D. Baraldi. p. 108.

Application of Low Dose Irradiation to a Fresh Bread System for Space Flights.

Damaging Stresses to Fresh and Irradiated Citrus Fruits.

A Statistical Approach to the Subjective and Objective Measurements of Odors Induced by Gamma Irradiation of Beef Fat.

Gamma Irradiation of Beef Fat, Effects on Odor Intensity and Rancidity.

Comparative Effects of Ethylene Oxide, Gamma Irradiation and Microwave Treatments on Selected Spices.

Effects of Gamma Irradiation on Myoglobin.

Polyphenol Oxidase Activity and Browning of Mango Fruits Induced by Gamma Irradiation.
Use of Gamma Irradiation to Prevent Aflatoxin Production in Bread.

The Possibility of Recognizing Irradiated and Nonirradiated Potatoes by Their Weight Loss.

1975 Vol 40

Effect of Gamma Radiation on Chicken Liver Catheptic Activity and Release of Lysosomal Cathepsin.
D. M. Ali and J. F. Richards. p. 47.

Evaluation of Protein Quality of Irradiated Food Using Tetrahymena Pyriformis and Rat Assay.

Effect of Low Level Gamma Irradiation on Growth and Patulin Production by Penicillium Patulum.

Physical Changes in Irradiated Trout.

Effect of Gamma Irradiation on Red Gram Proteins.

VI. TECHNICAL PAPERS FOR MANAGEMENT

M-1-W Technology of Next Meats for the Wholesomeness Studies - Chicken and Pork.
G. W. Shults, ABMPS No. 48 Interim Report, April 1974, Natick, MA.

Paper outlines the technological requirements, technical and commercial applications, and quality parameter of two items to be used for wholesomeness testing of radappertized meats. Presented to the NAS - NRC Committee on Food Irradiation.

M-2-T Low Nitrate/Nitrite Ham.
E. Wierbicki, ABMPS No. 48 Interim Report, April 1974, Natick, MA.

The paper outlines research in the reduction of curing additives in cured meats. The objective was to lower the total additive content for radappertized ham. Presented to the NAS - NRC Committee on Food Irradiation.

M-3-T Storage Studies of Irradiated Foods.

The paper described storage stability of six radappertized items. Storage results up to 4 years were reported. Presented to the NAS - NRC Committee on Food Irradiation.

M-4-T Processing Technology of Irradiated Beef, Appendix E.

M-5-T ABMPS Report No. 16 for Committee on Radiation Preservation of Food Appendices F-G.

M-6-T Key Technology Parameters of Radappertized Foods.

M-7-W Key Technology Parameters of Radappertized Meats (Beef, Chicken, Pork, Ham).

M-8-W Beef for the Wholesomeness Studies - Industrial Procurements.
M-9-C Radiation Chemistry of Food and Food Related Systems.

M-10-C Radiolysis of Frozen Aqueous Systems: Polycrystalline Chloroacetic Acid Solutions at -40°C.


M-12-C Electrophoretic Evidence for Aggregation of Irradiated Myosin.

M-13-C Effect of Irradiation on Proteins: Myosin and Actomyosin.

M-14-C Radiolysis of Iron-Containing Food Component System.
EXPLANATION OF INDEXING SYSTEM

Prefixes - (Type of entry)

P - Patents
R - Technical Reports
B - Books
T - Technical Papers (presented at special conferences)
M - Technical Papers for Management
S - Scientific Papers

Suffixes - (General area)

P - Packaging
M - Microbiology
N - Nutrition
E - Economics
D - Dosimetry
O - Operation
T - Technology
W - Wholesomeness
C - Chemistry
S - Safety
<table>
<thead>
<tr>
<th>Author</th>
<th>Indexes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agarwal, S. R.</td>
<td>R-13-P, S-59-T</td>
</tr>
<tr>
<td>Angelini, P.</td>
<td>R-34-T, S-17-C, S-21-C, S-94-C, S-102-W</td>
</tr>
<tr>
<td>Baker, R. W.</td>
<td>T-10-T, S-30-T</td>
</tr>
<tr>
<td>Bazinet, M. L.</td>
<td>S-17-C</td>
</tr>
<tr>
<td>Becker, R. L.</td>
<td>R-31-S</td>
</tr>
<tr>
<td>Beke, H.</td>
<td>S-123-C</td>
</tr>
<tr>
<td>Bladel, B. O.</td>
<td>S-16-M</td>
</tr>
<tr>
<td>Breyer, J. D.</td>
<td>S-18-P</td>
</tr>
<tr>
<td>Brynjolfsson, A.</td>
<td>T-7-E, T-9-W, T-10-T, T-11-E, S-30-E, S-33-O, S-36-D, S-44-T, S-53-S,</td>
</tr>
<tr>
<td></td>
<td>S-89-T, S-91-O, S-96-T, S-106-T, S-113-T</td>
</tr>
<tr>
<td>Burke, P. T.</td>
<td>R-13-P</td>
</tr>
<tr>
<td>Calhoun, W. K.</td>
<td>S-77-N, S-136-N</td>
</tr>
<tr>
<td>Carlin, A. F.</td>
<td>R-11-T</td>
</tr>
<tr>
<td>Casperson, J. M.</td>
<td>S-122-O</td>
</tr>
<tr>
<td>Chang, Y.</td>
<td>S-27-M</td>
</tr>
<tr>
<td>Chappell, J. C.</td>
<td>R-18-D, T-12-D</td>
</tr>
<tr>
<td>Chowdhury, M. S. U.</td>
<td>S-98-M</td>
</tr>
<tr>
<td>Chu, R. D. H.</td>
<td>S-120-0</td>
</tr>
<tr>
<td>Church, B. D.</td>
<td>R-8-M</td>
</tr>
<tr>
<td>Clifford, W. J.</td>
<td>S-83-M, S-95-M</td>
</tr>
</tbody>
</table>

Davis, D. S-14-T

Deitch, J. B-7-E, B-20-E

DeZeeuw, D S-116-T, S-133-W

Dias Filhol, M. S-134-T

Dowell, V. R., Jr. S-97-M

Ehlermann, D. S-119-O


Ellermann, G. R-3-T

Farkas, J. S-129-M

Fassolitis, A. C. S-55-M, S-72-M

Feeherry, F. S-43-M

Fourier, W. A. S-78-P

Freeman, L. R. S-76-M

Germaine, G. W. R-8-M

Goff, G. S-88-C

Grecz, N. S-3-T, S-9-M, S-12-M, S-52-M, S-129-M

Greenberg, R. A. S-16-M

Grunewald, T. S-119-C


Hansen, P. E. R-3-T

Harlan, J. W. R-6-T, R-12-T


<table>
<thead>
<tr>
<th>Name</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heinmets, F.</td>
<td>S-109-C</td>
</tr>
<tr>
<td>Hitchler, E. W.</td>
<td>S-78-P</td>
</tr>
<tr>
<td>Hoffman, M. Z.</td>
<td>S-38-C, S-112-C</td>
</tr>
<tr>
<td>Holm, N. W.</td>
<td>S-11-D</td>
</tr>
<tr>
<td>Holmes, L. G.</td>
<td>T-13-C</td>
</tr>
<tr>
<td>Huber, D. A.</td>
<td>S-8-T</td>
</tr>
<tr>
<td>Humphreys, J. C.</td>
<td>R-18-D, T-12-D</td>
</tr>
<tr>
<td>Hurwitz, P. A.</td>
<td>S-93-C, M-14-C</td>
</tr>
<tr>
<td>Jaeger, R. G.</td>
<td>S-90-S</td>
</tr>
<tr>
<td>Jarboe, J.</td>
<td>S-19-M</td>
</tr>
<tr>
<td>Johnson, E. L.</td>
<td>T-6-T</td>
</tr>
<tr>
<td>Johnson, H. C.</td>
<td>S-96-T, S-106-T</td>
</tr>
<tr>
<td>Kahan, R. S.</td>
<td>R-33-T</td>
</tr>
<tr>
<td>Kauffman, F. L.</td>
<td>R-7-T, R-12-T</td>
</tr>
<tr>
<td>Kaprielian, R. A.</td>
<td>S-111-C, S-121-C, M-10-C</td>
</tr>
<tr>
<td>Kamper, D.</td>
<td>S-61-M, S-71-m</td>
</tr>
<tr>
<td>Ketchum, H. W.</td>
<td>B-7-E, B-20-E</td>
</tr>
<tr>
<td>King, F. J.</td>
<td>S-79-T</td>
</tr>
</tbody>
</table>
Kittaka, R. S. S-16-M
Kneeland, L. E. R-15-C, S-20-C
Koch, R. B. S-1-M
Kooij, J. V. S-116-T, S-133-W
Krushchev, V. G. B-14-T
Land, E. S. S-47-C
Landers, M. F. S-31-T
Larkin, E. P. S-55-M, S-72-M
Learson, R. J. S-37-T
Levinson, H. S. S-98-M
Long, F. E. R-5-P
Lusty, T. S-51-C, S-66-C
MacDonald, B. A. S-121-O
Maes, E. S-123-C
Martin, T. G., III R-4-S, R-16-S, R-31-S, S-53-S, S-132-S
Maxcy, R. B. R-20-M
McAdoo, D. J. S-17-C, S-21-C
McLaughlin, W. L. R-18-D, T-12-D
Mehrlich, F. P. S-7-T
Metlitskii, L. V. B-14-T
Meyer, R. A. R-2-C
Nielsen, W. S-65-N
Osburn, J. W., Jr. B-7-E, B-20-E
Payne, G. O., Jr. R-1-P, R-5-P, S-6-T
Pederson, A. J. R-3-T
Peeler, J. T. S-55-M, S-72-M
Phillips, C. E. S-5-T, S-24-T
Powers, E. M. S-59-T
Previte, J. J. S-27-M, S-28-T
Raheja, K. S-14-T
Raica, N., Jr. S-35-W, S-65-N
Rao, B. Y. K. R-19-T
Rao, P. S. S-87-C
Read, R. B., Jr. S-55-M
Reber, E. F. S-14-T
Rees, C. W. S-122-O
Rentmeester, K. R. S-78-P
Rhee, C. S-129-M
Rice, L. J. R-21-T, S-50-T, S-58-T
Robbins, F. M. T-13-C, M-13-C
Rogachev, V. N. B-14-T
Ronsivalli, L. J. R-14-T, S-37-T
Roth, J. S. S-51-C, S-66-C
Russell, D. P. S-60-T
Scarpino, D. P. S-72-M
Schneider, M. D. S-8-T

Scott, J. S-65-N

Shattuck, E. S-97-M

Shauwaert, F. S-123-C


Simon, M. S-4-T, S-8-T, S-31-T

Sinnhuber, R. O. R-10-T, S-31-T

Snyder, O. P. T-2-M, S-7-T, S-12-M

Spiegl, C. H. R-1-P, R-5-P

Spracklin, B. W. S-37-T

Strojan, C. S-62-T

Sullivan, R. S-55-M, S-72-M

Swallow, A. J. S-47-C

Swantak, W. S-62-T


Thompson, M. H. R-7-T

Tobback, F. S-123-C

Tocci, J. S-93-C

Tompkin, R. B. S-16-M

Wadsworth, C. K. S-13-T, S-24-T, S-41-T
Walker, A. A. S-12-M, S-52-M
Walker, J. E. T-13-C, S-125-C, M-12-C
Wall, M. A. S-49-T
Wasserman, A. E. S-32-T, S-114-T
Waters, M. E. R-7-T
Werkowski, S. S-29-M, S-54-M
Whaley, D. N. S-97-M
Wiatre, C. L. S-129-M


Yu, T. C. S-31-T