

A black and white photograph of Independence Hall in Philadelphia. The building is a large, multi-story brick structure with a prominent clock tower on the left side. The clock tower has a circular clock face and is topped with a dome and a spire. In the foreground, there is a large, dark statue of a man in a long coat and hat, standing on a high, tiered pedestal. The statue is positioned to the right of the building. The scene is surrounded by trees and a few people can be seen walking in the foreground. The text is overlaid on the upper right portion of the image.

Technical program  
AOCS Fall Meeting  
Sept. 29-Oct. 2, 1974  
Philadelphia

**MONDAY MORNING—SEPTEMBER 30**

10:30 A.M.—Suburban

**SESSION IA—SYMPOSIUM: I. INDUSTRIAL APPLICATION OF SURFACTANTS**Chairman: W.M. Linfield, USDA, ERRC, Philadelphia, Pa.10:30 1. 5,5-DIMETHYLHYDANTOIN DERIVATIVES I. FATTY ACID ESTERS OF HYDANTOIN GLYCOLS—A NEW SERIES OF SURFACTANTS  
D.E. MacFadyen, Glyco Chemicals, Inc.11:00 2. SILICONE SURFACTANTS IN INDUSTRIAL AND INSTITUTIONAL APPLICATIONS  
A.J. Sabia, Union Carbide Corp.11:30 3. COPOLYMERIZABLE SURFACTANTS IN EMULSION POLYMERIZATION  
F. Robinson, Alcolac Inc.**MONDAY MORNING—SEPTEMBER 30**

10:30 A.M.—Hall of Flags

**SESSION IB—SYMPOSIUM: I. OILSEED PLANT BREEDING**Chairman: W.H. Tallent, USDA, NRRC, Peoria, Ill.10:30 4. OVERVIEW OF OILSEED PLANT BREEDING—IMPORTANCE OF CHEMISTRY IN IT  
D.M. Yermamos, University of California, Riverside11:00 5. RECENT RESEARCH ON SAFFLOWER, SUNFLOWER, AND COTTON  
P.F. Knowles, University of California, Davis11:30 6. BREEDING FOR LIPID COMPOSITION IN CORN  
E.J. Weber, USDA, and D.E. Alexander, University of Illinois, Urbana-Champaign**MONDAY MORNING—SEPTEMBER 30**

10:30 A.M.—East Pennsylvania

**SESSION IE—BIOCHEMISTRY—GENERAL I.**Chairman: G.A. Jacobson, Campbell Soup Co., Camden, N.J.10:30 7. BIOLOGICAL IMPORTANCE OF THE POSITION OF DOUBLE BONDS IN FATTY ACIDS  
R.T. Holman, The Hormel Institute10:50 8. UTILIZATION OF ACYL-SN-GLYCEROL CYCLIC PHOSPHODIESTERS IN GLYCEROLIPID SYNTHESIS (HONORED STUDENT PRESENTATION)  
P.J.A. O'Doherty, A. Kuksis, and D. Buchnea, University of Toronto11:00 9. UNSATURATED BILE ACIDS AS ARTIFACTS OF GAS LIQUID CHROMATOGRAPHY  
L. Marsi, J.J. Myher, and A. Kuksis, University of Toronto11:30 10. CHOLESTERYL ESTER FATTY ACIDS IN HUMAN TWINS  
K.W. Kang, H.C. Benson, F.P. Harmath, and J.C. Christlan, Indiana University School of Medicine11:50 11. LIPID AND LIPOPROTEIN MEASUREMENTS IN A NORMAL ADULT AMERICAN POPULATION  
F.T. Lindgren, G.L. Adamson, and L.C. Jensen, University of California, Berkeley, and P.D. Wood, Stanford University Medical Center**MONDAY MORNING—SEPTEMBER 30**

10:30 A.M.—West Pennsylvania

**SESSION IF—SYMPOSIUM: STEROLS. I. BIOSYNTHESIS**Chairman: H.W. Kircher, University of Arizona, Tucson, Ariz.10:30 12. ASPECTS OF THE BIOSYNTHESIS OF POLYPRENOIDS  
E. Caspi, Worcester Foundation for Experimental Biology11:00 13. INVESTIGATION OF MICROSOMAL ENZYMES OF CHOLESTEROL BIOSYNTHESIS  
J.L. Gaylor, Cornell University11:30 14. ROLE OF A CARRIER PROTEIN IN STEROL SYNTHESIS AND METABOLISM  
M.E. Dempsey, University of Minnesota**MONDAY MORNING—SEPTEMBER 30**

10:30 A.M.—Constitution

**SESSION IG—SYMPOSIUM: I. PALM OIL**Chairman: V.K. Babayan, Stokely-Van Camp, Inc., Indianapolis, Ind.10:30 15. PALM OIL IN THE WORLD'S FATS AND OILS ECONOMY  
G.W. Kromer, USDA, ERS11:00 16. PALM OIL—RAW MATERIAL OF COMMERCE  
R. Ohlson, A.B. Karlsham Oljefabriker, and M. Loncin, Congopalm Coop. Soc.11:30 17. FRACTIONATION OF PALM OIL  
R. Kassabian, Anadik, Inc.**MONDAY MORNING—SEPTEMBER 30**

10:30 A.M.—Independence

**SESSION IH—SYMPOSIUM: THERMAL METHODS FOR THE STUDY OF LIPIDS**Chairman: H.L. Rothbart, USDA, ERRC, Philadelphia, Pa.10:30 18. MODERN THERMAL ANALYSIS APPLIED TO LIPIDS AND RELATED MATERIALS: A PERSPECTIVE  
J.W. Hampson, Eastern Regional Research Center, USDA, ARS11:00 19. ENTHALPIMETRIC ANALYSIS: A SURVEY OF NEW THERMOCHEMICAL METHODS REL- EVANT TO THE STUDY OF LIPIDS  
J. Jordan, Pennsylvania State University11:30 20. DILATOMETRIC EXAMINATION OF FATS  
R.O. Feuge, and N.V. Lovegren, Southern Regional Research Center, USDA, ARS**MONDAY AFTERNOON—SEPTEMBER 30**

2:00 P.M.—Suburban

**SESSION IIA—SYMPOSIUM: II. INDUSTRIAL APPLICATION OF SURFACTANTS**Chairman: W.M. Linfield, USDA, ERRC, Philadelphia, Pa.2:00 21. SURFACTANTS IN NONDAIRY TOPPINGS  
R.J. Sims, General Foods Corp.2:30 22. INSTITUTIONAL MACHINE DISHWASHING DETERGENT EVALUATION  
D.W. Groth, and A.W. Leipnitz, Economics Laboratory, Inc.3:00 23. USE OF SURFACTANTS IN POROUS MEMBRANE APPLICATIONS  
T.H. Meltzer, Filterite Corp.3:30 24. FRICTION OF HEAT-STABLE LUBRICANTS, ANTISTATS, AND EMULSIFIERS ON FIBERS  
M.J. Schick, Diamond Shamrock Chemical Co.

- 4:00 25. **HYDROPHILE-LIPOPHELE BALANCE SYSTEMS AND FORMULATIONS OF EMULSIFIABLE CONCENTRATES AND EMULSIONS**  
P. Lindner, Witco Chemical Corp.
- 4:30 26. **WETTING, PENETRATION, AND MOVEMENT IN PLANTS OF SYSTEMIC BIOCIDES IN FOLIAR APPLICATION WITH SURFACTANTS**  
P. Lindner, Witco Chemical Corp.

**MONDAY AFTERNOON—SEPTEMBER 30**

2:00 P.M.—Hall of Flags

**SESSION IIB—SYMPOSIUM: II. OILSEED PLANT BREEDING**

Chairman: W.H. Tallent, USDA, NRRC, Peoria, Ill.

- 2:00 27. **GENETICS, CHARACTERISTICS, AND UTILIZATION OF OIL IN CARYOPSES OF OAT SPECIES**  
K.J. Frey, and E.G. Hammond, Iowa State University
- 2:30 28. **CARBON-13 NMR ANALYSIS OF INTACT OILSEEDS**  
J. Schaefer, and E.O. Stejskal, Monsanto Co.
- 3:00 29. **INHERITANCE OF PROTEIN AND OIL QUALITY AND CONTENT IN PEANUTS (ARACHIS HYPOGAEA L.)**  
Y.P. Tai, and C.T. Young, Georgia Experiment Station
- 3:30 30. **VARIATION IN GRAMBE, GRAMBE ABYSINICA HOCHST**  
K.J. Lessman, Purdue University
- 4:00 31. **DEVELOPMENT OF A LOW GLUCOSINOLATE, HIGH ERUCIC ACID RAPESEED BREEDING PROGRAM**  
D.L. Stamp, and J.M. Crane, Oregon State University
- 4:30 32. **NATURAL TOXICANTS IN FOOD PLANTS AND THE IMPACT OF FOOD AND DRUG ADMINISTRATION GUIDELINES IN DEVELOPMENT OF NEW VARIETIES**  
H.W. Hays, National Program Staff, USDA, ARS

**MONDAY AFTERNOON—SEPTEMBER 30**

2:00 P.M.—East Pennsylvania

**SESSION IIE—SYMPOSIUM: I. LIPIDS OF MARINE ANIMALS**

Chairman: C. Litchfield, Rutgers University, New Brunswick, N.J.

- 2:00 33. **IDENTIFICATION OF A NEW  $\omega_3$  FATTY ACID IN CULTURED, MARINE DINOFAGELLATES**  
J.D. Joseph, Marine Resources Research Institute
- 2:20 34. **GLYCERYL ETHER LIPIDS OF A MARINE CRYPTOMONAD FLAGELLATE, CRYPTO-MONAS SP.**  
D.H. Beach, and G.G. Holz, Jr., State University of New York Upstate Medical Center

- 2:40 35. **UNUSUAL TRIGLYCERIDES AND WAX ESTERS IN THE HEAD FATS OF THE PACIFIC BEAKED WHALE, BERARDIUS BAIRDI**

C. Litchfield, and A.J. Greenberg, Rutgers University, and R.G. Ackman and C.A. Eaton, Halifax Laboratory

- 3:00 36. **FATTY ACIDS OF VARIOUS LIPIDS IN THE DOLPHIN**

H. Morii, Nagasaki University

- 3:20 37. **SPECIFICITY OF BRAIN GREY MATTER FATTY ACIDS IN LAND AND MARINE MAMMALS**  
M.A. Crawford, A.J. Sinclair, and P. Stevens, Zoological Society of London

- 3:40 38. **ROLE OF LIPIDS IN THE ACOUSTICAL FUNCTION OF THE DOLPHIN MELON**

C. Litchfield, R. Karol, and A.J. Greenberg, Rutgers University

- 4:00 39. **CAN A FOOD CHAIN BE DETECTED WITH FATTY ACIDS? CONSIDERATION OF THE DEPOT AND CERTAIN ORGAN FATS OF WHALES, SEALS, AND TURTLES**

R.G. Ackman, S.N. Hooper, C.A. Eaton, and J.C. Sipes, Halifax Laboratory, and W. Frair, The King's College

- 4:20 40. **PHYLOGENETIC POSITION AND ECOLOGICAL RELATIONSHIP BASED UPON MULTIVARIATE ANALYSIS OF FATTY ACID PATTERNS IN VARIOUS MARINE AND FRESHWATER ORGANISMS**

H.P. Jeffries and W. Johnson, University of Rhode Island

- 4:40 41. **LIPIDS OF LEECHES, NEPHELOPSIS OBSCURA**  
M. Yurkowski, Environment Canada Fisheries and Marine Service, and J.L. Tabachek and H.R. Boese, Freshwater Institute

- 5:00 42. **MOLLUSCAN SPHINGOLIPIDS**

T. Hori and M. Sugita, Shiga University

**MONDAY AFTERNOON—SEPTEMBER 30**

2:00 P.M.—West Pennsylvania

**SESSION IIF—SYMPOSIUM: STEROLS. II. BIOSYNTHESIS**

Chairman: J.L. Gaylord, Cornell University, Ithaca, N.Y.

- 2:00 43. **STUDIES IN STEROL SYNTHESIS**  
G.J. Schroepfer, Jr., F.F. Knapp, Jr., R. Shaw, S. Trowbridge, J. Chan, T. Spike, Y.-C. Lu, R. Shapiro, D. Raulston, P. Chang, and H. Emery, Rice University

- 2:30 44. **ROLES OF THREE SPECIFIC STEROL CARRIER PROTEINS IN CHOLESTEROL BIOSYNTHESIS**

T.J. Scallen, B. Seetharam, M.V. Srikanthiah, and E. Hansbury, University of New Mexico School of Medicine

- 3:00 45. **INFLUENCE OF LIGHT ON THE PHYTOSTEROL BIOSYNTHESIS**

C. Grunwald, University of Kentucky

- 3:30 46. **BIOSYNTHESIS OF STEROLS IN CHLORELLA**

G.W. Patterson, L.B. Tsai, and J.H. Adler, University of Maryland

- 4:00 47. **STEROL BIOSYNTHESIS AND THE DEVELOPMENT OF RESISTANCE IN YEAST TO POLYENE MACROLIDE ANTIBIOTICS**

M. Fryberg, A.C. Oehlschlager, and A.M. Unrau, Simon Fraser University

- 4:30 48. **STEROLS AND EVOLUTION**

W.R. Nes, Drexel University

**MONDAY AFTERNOON—SEPTEMBER 30**

2:00 P.M.—Constitution

**SESSION IIG—SYMPOSIUM: II. PALM OIL**

Chairman: V.K. Babayan, Stokely-Van Camp, Inc., Indianapolis, Ind.

- 2:00 49. **PALM OIL AS A RAW MATERIAL**

P. Kalustjian, Peter Kalustjian Associates, Inc.

- 2:30 50. **PALM OIL STEAM REFINING AND USE IN POTATO CHIP FRYING**

F. Sullivan, Frank Sullivan Co., Inc.

- 3:00 51. **PALM OIL: UTILIZATION AND FORMULATION IN PRODUCTS FOR THE U.S. MARKET**

L.H. Wiedermann and W.M. Cochran, Swift & Co., and R.C. Edmondson, Swift Edible Oil Co.

- 3:30 52. **EFFECT OF PRETREATMENT PRACTICES IN PALM OIL PROCESSING**

V.C. Witte, V.W. Trost, and L.H. Wiedermann, Swift & Co.

4:00 53. TERTIARY BUTYLHYDROQUINONE AS AN ANTIOXIDANT FOR CRUDE AND REFINED PALM OILS  
V.C. Witte, V.W. Trost, and L.H. Wiedermann, Swift & Co.

#### MONDAY AFTERNOON—SEPTEMBER 30

2:00 P.M.—Independence

#### SESSION I IH—SYMPOSIUM: THERMAL METHODS FOR THE STUDY OF LIPIDS

Chairman: J. Hampson, USDA, ERRC, Philadelphia, Pa.

2:00 54. LIQUID CRYSTALLINE BEHAVIOR OF STEROID ESTERS STRUCTURALLY RELATED TO CHOLESTEROL  
R.J. Krzewki and R.S. Porter, University of Massachusetts

2:30 55. DIFFERENTIAL SCANNING CALORIMETRY IN THE STUDY OF LONG SIDE CHAIN POLYMERS  
E.F. Jordan, Jr., Eastern Regional Research Center, USDA, ARS

3:00 56. EXAMINATION OF PALM KERNEL PRODUCTS BY DIFFERENTIAL SCANNING CALORIMETRY  
J.B. Rossell, Loders Cocos Butters, Ltd.

3:30 57. THERMAL BEHAVIOR OF ISOMERIC SINGLE-ACID TRIGLYCERIDES BY DSC  
J.W. Hagemann, Northern Regional Research Center, ARS, USDA, and F.D. Gunstone, University of St. Andrews

3:50 58. POLYMORPHISM OF SOME SATURATED 1,3-DIPALMITO AND 1,3-DISTEARO TRIGLYCERIDES  
N.V. Lovegren and M.S. Gray, Southern Regional Research Center, USDA, ARS

#### TUESDAY MORNING—OCTOBER 1

9:00 A.M.—Suburban

#### SESSION IIIA—SURFACTANTS—GENERAL

Chairman: J.K. Weil, USDA, ERRC, Philadelphia, Pa.

9:00 59. RELATIONSHIP OF STRUCTURE TO PROPERTIES IN SURFACTANTS II. EFFICIENCY IN SURFACE OR INTERFACIAL TENSION REDUCTION  
M.J. Rosen, Brooklyn College

9:20 60. SOAP-BASED DETERGENT FORMULATIONS XI.

ALTERNATE SYNTHESIS OF SODIUM METHYL ALKYL BENZOYL SULFOPROPIONATES  
W.N. Marmer, Fats and Proteins Research Foundation, and W.M. Linfield, Eastern Regional Research Center, USDA, ARS

9:40 61. SOAP-BASED DETERGENT FORMULATIONS XII. ALTERNATE SYNTHESIS OF SURFACE-ACTIVE SULFOBETAINES  
N. Parris, J.K. Weil, and W.M. Linfield, Eastern Regional Research Center, USDA, ARS

10:00 62. SOAP-BASED DETERGENT FORMULATIONS XIII. FORMULATIONS WITH ALPHA-OLEFIN SULFONATES AS LIME SOAP DISPERSANTS  
W.R. Noble and W.M. Linfield, Eastern Regional Research Center, USDA, ARS

10:20 63. SOAP-BASED DETERGENT FORMULATIONS XIV. AMPHOTERIC SURFACTANTS FROM ALKYL BENZENESULFONAMIDES  
R.G. Bistline, Jr., W.R. Noble, and W.M. Linfield, Eastern Regional Research Center, USDA, ARS

10:40 64. SOAP-BASED DETERGENT FORMULATIONS XV. AMINO ESTERS OF  $\alpha$ -SULFO FATTY ACIDS  
F.D. Smith, M.K. Sucharski, and W.M. Linfield, Eastern Regional Research Center, USDA, ARS

#### TUESDAY MORNING—OCTOBER 1

9:00 A.M.—Hall of Flags

#### SESSION IIIB—SYMPOSIUM: I. BIOLOGICAL EFFECTS OF FATS

Chairman: H. Kaunitz, Columbia, University, New York, N.Y.  
Co-chairman: K. Lang, University of Mainz, Mainz, West Germany

9:00 65. DIFFERENTIAL HYPERCHOLESTEROLEMIC EFFECT OF DIETARY MEDIUM CHAIN TRIGLYCERIDES AND CORN OIL WHEN FED WITH DIFFERENT LEVELS OF CHOLESTEROL  
J. Kenney and H. Fisher, Rutgers University

9:30 66. MEDIUM CHAIN TRIGLYCERIDES AND SOME RAMIFICATIONS  
V.K. Babayan, Stokely-Van Camp, Inc.

10:00 67. COMPARATIVE STUDIES ON THE METABOLISM OF DIETARY MEDIUM CHAIN TRIGLYCERIDES AND OF 1,3-BUTANEDIOL  
G.A. Leveille and D.R. Romsos, Michigan State University

10:30 68. BIOLOGICAL ROLE OF LIPIDS  
J.J. Kabara and A. Conley, Michigan State University

11:00 69. DIETARY PROTEIN AND FAT IN NEPHROCALCINOSIS

H. Kaunitz and R.E. Johnson, Columbia University

11:30 70. DETERMINATION OF VOLATILE N-NITROSO COMPOUNDS IN SOYBEAN OIL: EFFECT OF STORAGE PERIOD UPON RECOVERY RATES  
L. Hedler, C. Schurr, and P. Marquardt, Institut für Experimentelle Therapie der Universität Freiburg

#### TUESDAY MORNING—OCTOBER 1

9:00—East Ballroom

#### SESSION IIIC—CHEMICAL DERIVATIVES

Chairman: T.A. Foglia, USDA, ERRC, Philadelphia, Pa.

9:00 71. QUANTITATIVE CONVERSIONS OF LONG CHAIN ALCOHOLS TO ALDEHYDES  
A.J. Valicenti and R.T. Holman, The Hormel Institute

9:20 72. MASS SPECTRA OF ACETYLENIC FATTY ACIDS AND DERIVATIVES

R. Kleiman and M.B. Bohannon, Northern Regional Research Center, USDA, ARS, and F.D. Gunstone, University of St. Andrews

9:40 73. YELLOING OF DRYING OIL FILMS: CHROMOPHORIC GROUPS AND THE CHEMISTRY OF THEIR FORMATION

J.W. Harlan, F.L. Thomas, L.E. Gast, and H.J. Dutton, Northern Regional Research Center, USDA, ARS

10:00 74. ADDITION OF HYDROGEN SULFIDE TO METHYL OLEATE AND LINOLEATE

A.W. Schwab and L.E. Gast, Northern Regional Research Center, USDA, ARS

10:20 75. ESTERS OF SELECTIVELY HYDROGENATED LINED AND SOYBEAN ACIDS: SPERM OIL SUBSTITUTES FOR SPECIAL LUBRICANTS  
E.W. Bell, J.C. Cowan, and L.E. Gast, Northern Regional Research Center, USDA, ARS

10:40 76. SELECTIVE HYDROGENATION OF SOYBEAN OIL VII. CATALYTIC POISONS AND INHIBITORS  
S. Koritala, Northern Regional Research Center, USDA, ARS

11:00 77. RAPID AND SIMPLE METHOD OF GAS LIQUID CHROMATOGRAPHIC ANALYSIS OF TRANS-ISOMERS IN COMMERCIAL SHORTENINGS  
S. Ramachandran and S.L. McKinley, Applied Science Laboratories, Inc.

11:20 78. BROMINE LEVELS IN LIPIDS OF MARINE ORGANISMS  
R.R. Lowry, and J.J. Tinsley, Oregon State University

TUESDAY MORNING—OCTOBER 1

9:00 A.M.—East Pennsylvania

SESSION IIIE—SYMPOSIUM: II.  
LIPIDS OF MARINE ANIMALS

Chairman: R.G. Ackman, Department of Environment, Halifax Laboratory, Halifax, Nova Scotia, Canada

9:00 79. SPHINGOLIPIDS IN MARINE SHELL-FISH  
A. Hayashi, T. Matsubara, and F. Matsuura, Kinki University

9:20 80. FATTY ACID COMPOSITION OF MEMBRANES FROM CALANUS HYPERBOREUS AND CALANUS PACIFICUS  
R.B. Holtz, Ohio State University, R. Lee, University of Georgia, and A.A. Benson, Scripps Institution of Oceanography

9:40 81. SOME DETAILS OF FATTY ACIDS AND ALCOHOLS IN THE LIPIDS OF NORTH ATLANTIC COPEPODS  
R.G. Ackman, B.A. Linke, and J. Hingley, Halifax Laboratory

10:00 82. FISH BONE OIL: COMPOSITION AND TURN-OVER  
C.F. Phleger, San Diego State University, R.F. Lee, Skidaway Institute of Oceanography, and J. Patton, Scripps Institution of Oceanography

10:20 83. ACETYL-CoA CARBOXYLASE AND FATTY ACID SYNTHETASE FROM FISH LIVER: PROPERTIES AND RESPONSE TO DIETARY FATS  
A.W. Warman, and N.R. Boffino, Texas A&M University

10:40 84. EFFECT OF SOURCE OF DIET LIPIDS UPON GROWTH, BODY CHEMISTRY, AND FATTY ACID METABOLISM OF JUVENILE ATLANTIC SALMON (*SALMO SALAR*)  
H.A. Poston, Tunison Laboratory of Fish Nutrition

11:00 85. FAT DIGESTION IN FISH  
J.S. Patton, Scripps Institution of Oceanography, and J.C. Nevenzel, Laboratory of Nuclear Medicine and Radiation Biology

11:20 86. SERUM LIPOPROTEINS OF HAGFISH (*EPTA-TRETUS DEANI*)  
R.F. Lee, Skidaway Institute of Oceanography, and D.L. Puppione, Veterans Hospital

11:40 87. DETECTION OF CERTAIN SEAFOODS SPOIL-AGE PRODUCTS  
A.K. Bose, B. Patel, and R.L. Spraggins, Stevens Institute of Technology

12:00 88. CONTROL OF UNSATURATED FATTY ACID BIOSYNTHESIS IN UNICELLULAR ALGAE BY THE NITROGEN CONTENT OF THE NUTRIENT MEDIUM AND BY THE WAVELENGTH OF LIGHT  
P. Pohl, Institut für Pharmazeutische Biologie

TUESDAY MORNING—OCTOBER 1

9:00 A.M.—West Pennsylvania

SESSION IIIF—SYMPOSIUM: STEROLS.  
III. METABOLISM

Chairman: W.R. Nes, Drexel University, Philadelphia, Pa.

9:00 89. CHOLANOIC ACIDS IN HEPATIC AND NON-HEPATIC TISSUES OF THE RAT  
J. Dupont and S.Y. Oh, Colorado State University

9:30 90. STEROL METABOLISM IN ECHINODERMS  
L.J. Gosadi, J. Gaffney, and R. Goodfellow, University of Liverpool

10:00 91. STEROLS AND STEROL METABOLISM IN PLANT TISSUE CULTURES  
S.J. Stohs, University of Nebraska Medical Center, S. Billefs, University of Mississippi, and H. Rosenberg, University of Nebraska Medical Center

10:30 92. ROLE FOR ERGOSTEROL IN YEAST CELL METABOLISM  
L.W. Parks, E.D. Thompson, and R.B. Bailey, Oregon State University

11:00 93. BIOHYDROGENATION OF  $\Delta^5$ -STEROLS BY *EUBACTERIUM* 21,408  
H. Eysen, and G. Parmentier, University of Leuven

11:30 94. TRANSMETHYL-GLUTACONATE SHUNT OF INTERMEDIATES OF STEROL METABOLISM IN ANIMALS AND MAN  
G. Poplak, University of California School of Medicine, Los Angeles

TUESDAY MORNING—OCTOBER 1

9:30 A.M.—Constitution

SESSION IIIG—SYMPOSIUM: THE FDA  
IN ACTION

Chairman: D. Firestone, Food and Drug Administration, Washington, D.C.

9:30 95. OVERVIEW OF FDA  
W.L. Pines, Food and Drug Administration

9:50 96. DECISION MAKING IN FDA  
J.R. Wessel, Food and Drug Administration

10:10 97. EVALUATION OF FOOD SAFETY  
C.J. Kokoski, Food and Drug Administration

10:30 98. NUTRITION LABELING  
H.N. Dunning, Food and Drug Administration

10:50 DISCUSSION PERIOD

TUESDAY MORNING—OCTOBER 1

9:00 A.M.—Independence

SESSION IIHH—SYMPOSIUM: I.  
DECOMPOSITION OF LIPIDS

Chairman: W.W. Nawar, University of Massachusetts, Amherst, Mass.  
Co-Chairman: C. Merritt, U.S. Army Natick Laboratories, Natick, Mass.

9:00 99. APPLICATIONS OF PYROLYSIS GAS CHROMATOGRAPHY TO FOOD RESEARCH  
J.A. Kirkpatrick, D.H. Ashton, G.M. Evancho, and G.A. Jacobson, Campbell Institute for Food Research

9:30 100. STUDIES OF THERMAL DEGRADATION OF LIPIDS BY COMBINED PYROLYSIS-GAS CHROMATOGRAPHY-MASS SPECTROMETRY TECHNIQUES  
P. Angelini, C. Di Pietro, and C. Merritt, Jr., U.S. Army Natick Laboratories

10:00 101. COMBINED LASER PYROLYSIS GAS CHROMATOGRAPHIC-MASS SPECTROMETRIC ANALYSIS OF ORGANIC COMPOUNDS II. POLYMERIC MATERIALS—A COMPARISON WITH TUBE PYROLYSIS  
E.G. Perkins and J.C. Means, University of Illinois, Urbana-Champaign

10:30 102. VOLATILE COMPONENTS FROM HEATED TRISTEARIN  
E. Selke, W.K. Rohwedder, and H.J. Dutton, Northern Regional Research Center, USDA, ARS

11:00 103. VOLATILE COMPONENTS FROM HEATED TRIOLEIN  
E. Selke, W.K. Rohwedder, and H.J. Dutton, Northern Regional Research Center, USDA, ARS

11:30 104. IDENTIFICATION OF VOLATILE PRODUCTS FROM AUTOXIDATION OF ISOMERIC PUFA  
A.J. Valicenti, W.H. Heimermann, and R.T. Holman, The Hormel Institute

### TUESDAY AFTERNOON—OCTOBER 1

2:00 P.M.—Suburban

#### SESSION IVA—SYMPOSIUM: PROCESSING

Chairman: K.W. Klein, The De Laval Separator Co., Poughkeepsie, N.Y.

2:00 105. ENGINEERING APPROACH TO PLANNING FOR PLANT EXPANSION  
C.T. Zehnder, Chemetron Corp.

2:30 106. UTILIZATION OF SWEPT SURFACE HEAT EXCHANGERS FOR LOW TEMPERATURE RENDERING OF BEEF FAT  
R.L. Husch, Interstate Foods Corp.

3:00 107. INLINE MIXING AND DISPERSION  
S.J. Chen, Kenics Corp.

3:30 108. ACIDULATION WASTE SLUDGES—A NEW APPROACH  
R.W. Crain, Industrial Filter & Pump Co.

4:00 109. OPERATION AND EVALUATION OF A CONTINUOUS HYDROGENATION SYSTEM  
R.A. Zavada, Blaw-Knox Chemical Plants Division

### TUESDAY AFTERNOON—OCTOBER 1

2:00 P.M.—Hall of Flags

#### SESSION IVB—SYMPOSIUM: II. BIOLOGICAL EFFECTS OF FATS

Chairman: H. Kaunitz, Columbia University, New York, N.Y.  
Co-Chairman: K. Lang, University of Mainz, Mainz, West Germany

2:00 110. EFFECTS OF FEEDING OILS PREVIOUSLY USED FOR DEEP FRYING UPON TWO GENERATIONS OF RATS  
K. Lang, University of Mainz

2:30 111. INFLUENCE OF DIETARY FATS ON BLOOD LIPIDS, BLOOD PRESSURE, AND THROMBOTIC INDICES IN MAN  
J.M. Iacono, M.W. Marshall, and R.M. Dougherty, Nutrition Institute, USDA, ARS, and J.F. Mackin, J.J. Canary, and R.A. Binder, Georgetown University

3:00 112. LIPID DEPOSITION AND PHOSPHOLIPID COMPOSITION IN CARDIAC TISSUE OF RATS FED DOCOSENOIC AND TETRACOSENOIC ACIDS  
J.L. Beare-Rogers, Bureau of Nutritional Sciences, Department of Health and Welfare

3:30 113. NEW ASPECTS OF THE USE OF INTRAVENOUS FAT EMULSIONS  
H. Beisbarth, W. Fekl, W. Fekl, and K. Schultis, J. Pfirmer and Co.

4:00 114. AN ALTERNATIVE PATHWAY FOR ESSENTIAL FATTY ACID METABOLISM  
J.P. Carreau and J. Raulin, C.N.R.S.

4:30 115. EFFECTS OF HEXESTROL DERIVATIVES UPON LIPID METABOLISM  
H. Fukuba, U. Umemura, and A. Kanamori, Research Institute of Food Chemistry

### TUESDAY AFTERNOON—OCTOBER 1

2:00 P.M.—East Pennsylvania

#### SESSION IVE—SYMPOSIUM: NMR ANALYSIS OF LIPIDS

Chairman: P.E. Pfeffer, USDA, ERRC, Philadelphia, Pa.

2:00 116. NMR CHEMICAL SHIFT REAGENTS AS STRUCTURAL PROBES IN LIPID CHEMISTRY  
D. Swern, Temple University, and J.P. Wineburg, E.I. duPont de Nemours and Co., Inc.

2:30 117. CARBON MAGNETIC RESONANCE AND PROTON MAGNETIC RESONANCE OF LIPIDS USING LANTHANIDE SHIFT REAGENTS  
F.E. Barton, II, D.B. Walters, and D. Burdick, Richard B. Russell Agricultural Research Center, USDA, ARS

3:00 118. POSITIONAL ANALYSIS OF SYNTHETIC AND CETACEAN ISOVALEROYL TRIGLYCERIDES USING NMR WITH EU(FOD)<sub>3</sub> AND PR(FOD)<sub>3</sub> SHIFT REAGENTS  
Y. Wedmid and C. Litchfield, Rutgers University

3:30 119. LANTHANIDE INDUCED NMR CHEMICAL SHIFTS IN TRIGLYCERIDES  
S.-O. Almqvist, Swedish Tobacco Co., and R. Andersson and K. Olsson, Agricultural College

4:00 120. CARBON-13 CHEMICAL SHIFT AS A PROBE FOR THE STRUCTURE AND CONFORMATION OF PHOSPHOLIPIDS  
J.H. Prestegard, Yale University, and J.G. Batchelor, Medical Research Council of England

4:30 121. CARBON-13 NMR SPECTROSCOPY OF FATTY ACID DERIVATIVES  
A.P. Tulloch, National Research Council of Canada

### TUESDAY AFTERNOON—OCTOBER 1

2:00 P.M.—West Pennsylvania

#### SESSION IVF—SYMPOSIUM: STEROLS. IV. INSECTS

Chairman: G.W. Patterson, University of Maryland, College Park, Md.

2:00 122. STEROLS IN XYLEBORUS BEETLE REPRODUCTION AND METAMORPHOSIS  
D.M. Norris, University of Wisconsin

2:30 123. UNUSUAL STEROL CONTENT AND METABOLISM OF THE MEXICAN BEAN BEETLE  
J.A. Svoboda, M.J. Thompson, T.C. Elden, and W.E. Robbins, Beltsville Agricultural Research Center, USDA, ARS

3:00 124. PREPARATION OF 5,7-ERGOSTADIEN-3 $\beta$ -OL AND ITS UTILIZATION BY THREE DROSOPHILA SPECIES  
H.W. Kircher, and F.U. Rosenstein, University of Arizona

3:30 125. DEALKYLATION OF STEROL SIDE CHAIN IN INSECTS  
N. Ikekawa, M. Morisaki, N. Awata, and Y. Fujimoto, Tokyo Institute of Technology

4:00 126. COMPARATIVE INHIBITIVE EFFECTS OF CERTAIN STRUCTURALLY MODIFIED AZASTEROLS AND RELATED NITROGEN CONTAINING STEROLS UPON INSECT GROWTH AND DEVELOPMENT  
M.J. Thompson, N.N. Serban, W.E. Robbins, J.A. Svoboda, T.J. Shortino, and S.R. Dutky, Beltsville Agricultural Research Center, USDA, ARS

4:30 127. STEROL PHOSPHOLIPID INTERACTIONS OF YEAST MEMBRANES  
A.H. Rose, University of Bath

### TUESDAY AFTERNOON—OCTOBER 1

2:00 P.M.—Constitution

#### SESSION IVG—SYMPOSIUM: PROSTAGLANDINS

Chairman: J.B. Smith, Thomas Jefferson University, Philadelphia, Pa.

- 2:00 128. STUDIES ON THE BIOSYNTHESIS AND METABOLISM OF PROSTAGLANDINS BY GUINEA PIG LUNG: EFFECT OF EXPOSURE TO SO<sub>2</sub> AND OXYGEN  
T. Eling, National Institute of Environmental Health Sciences, and D.G. Parkes, Ciba-Geigy Corp.
- 2:30 129. PROPAGATION OF PLATELET SEROTONIN RELEASE BY A FACTOR GENERATED IN RESPONSE TO ARACHIDONIC ACID  
J.B. Smith, C.M. Ingerman, and M.J. Silver, Thomas Jefferson University
- 3:00 130. PROSTAGLANDIN PRODUCTION IN RENAL MEDULLA  
J.C. Frolich, B.J. Sweetman, K. Carr, J.T. Watson, and J.A. Oates, Vanderbilt University Hospital School of Medicine
- 3:30 131. RENAL MEDULLARY PROSTAGLANDIN BIOSYNTHESIS  
K. Comai and J. Paulsrud, Hoffmann-LaRoche, Inc.
- 4:00 132. POSSIBLE ROLE OF SINGLET OXYGEN IN THE BIOSYNTHESIS OF PROSTAGLANDINS  
R.V. Panganamala, H. Sprecher, H.M. Sharma, J.C. Geer, and D.G. Cornwell, Ohio State University
- TUESDAY AFTERNOON—OCTOBER 1**  
2:00 P.M.—Independence
- SESSION IVH—SYMPOSIUM: DECOMPOSITION OF LIPIDS. II.**  
Chairman: W.W. Nawar, University of Massachusetts, Amherst, Mass.  
Co-chairman: C. Merritt, U.S. Army Natick Laboratories, Natick, Mass.
- 2:00 133. THERMAL OXIDATION OF SHORT CHAIN, MONOUNSATURATED FATTY ACIDS  
C.B. Whitlock and W.W. Nawar, University of Massachusetts
- 2:30 134. CHEMICAL AND ORGANOLEPTIC PROPERTIES OF DRIED EMULSIONS  
J.A. Fioriti, H.S. Stahl, J. Cséri, and R.J. Sims, General Foods Corp.
- 3:00 135. IDENTIFICATION OF THE VOLATILE AND NONVOLATILE DECOMPOSITION PRODUCTS PRODUCED DURING DEEP FAT FRYING  
S.S. Chang and A. Hsieh, Rutgers University
- 3:30 136. AUTOXIDATION AND EFFECT OF PRO- AND ANTIOXIDANTS IN DRY MONOLAYER MODEL

SYSTEMS AND LYOPHILIZED RED BLOOD CELL MEMBRANES  
W.L. Porter, A.S. Henick, F.H. Murphy, U.S. Army Natick Laboratories

4:00 137. SOME CONSIDERATIONS ON DECOMPOSITION PRODUCTS DURING PROCESSING OF EDIBLE OILS  
J.P. Helme, Institut des Corps Gras

**WEDNESDAY MORNING—OCTOBER 2**

9:00 A.M.—Hall of Flags

**SESSION VB—SYMPOSIUM: FATS AND OILS IN FEED FORMULATIONS. I.**

Chairman: D.M. Doty, Itasca, Ill.

9:00 138. FATS IN FEED—A REVIEW AND OVERVIEW  
O.H.M. Wilder, consultant

9:30 139. USE OF FATS IN POULTRY FEEDS  
R.D. Bushong, Herder Farms, Inc.

10:00 140. FAT IN FEED FOR BROILERS GROWN AT HIGH ENVIRONMENTAL TEMPERATURES  
H.L. Fuller, University of Georgia

10:30 141. INFLUENCE OF FATS ON METABOLIZABLE ENERGY VALUE OF RATIONS FOR LAYING HENS  
J.L. Sell and R.L. Johnson, North Dakota State University

11:00 142. COMPOSITION OF FEED GRADE ANIMAL FATS  
W.R. Boehme, Fats and Proteins Research Foundation, Inc.

**WEDNESDAY MORNING—OCTOBER 2**

9:00 A.M.—East Pennsylvania

**SESSION VE—SYMPOSIUM: ANALYTICAL TECHNIQUES—LIQUID CHROMATOGRAPHY**

Chairman: E.N. Gerhardt, Emery Industries, Inc., Cincinnati, Ohio

9:00 143. APPLICATIONS OF HIGH PRESSURE LIQUID CHROMATOGRAPHY IN THE FATTY ACIDS AND NITROGEN DERIVATIVES INDUSTRY  
R.J. Jakubiec and L. Yodual, Armak Co.

9:30 144. QUANTITATIVE ANALYSIS OF POLYMERIZED FATTY ACIDS BY PREPARATIVE LIQUID CHROMATOGRAPHY (ADSORPTION MODE)  
S.A. Ali and E.N. Gerhardt, Emery Industries, Inc.

10:00 145. ANALYSIS OF NONPOLAR SERUM LIPIDS BY HIGH SPEED LIQUID CHROMATOGRAPHY  
N.K. Freeman, University of California, Berkeley

10:30 146. HIGH PRESSURE LIQUID CHROMATOGRAPHY OF OPTICAL BRIGHTENERS ON ZIPAX USING A SELECTIVE FLUORESCENCE DETECTOR  
A.C. Savitsky and P. Rodriguez, Procter and Gamble Co.

11:00 147. APPLICATION OF LIQUID CHROMATOGRAPHY TO FOSSIL FUELS, CRUDE, REFINED, SPILLED  
W.A. Dark, R.J. Limpert, and P. Talarico, Waters Associates, Inc.

**WEDNESDAY MORNING—OCTOBER 2**

9:00 A.M.—West Pennsylvania

**SESSION VF—SYMPOSIUM: STEROLS. V. PLANTS, ANIMALS**

Chairman: G.J. Schroepfer, Rice University, Houston, Tex.

9:00 148. STERIOD HORMONES IN PLANTS  
E. Heffmann, Western Regional Research Center, USDA, ARS

9:30 149. CHOLESTEROL PATHWAYS IN HIGHER PLANTS AND RED ALGAE  
M. Barbier, Centre National de la Recherche Scientifique

10:00 150. STEROLS AND SEXUALITY IN FUNGI  
C.G. Elliott and B.A. Knights, University of Glasgow

10:30 151. STERIODS OF THE ADULT AND JUVENILE PHASES OF IVY (HEDERA HELIX L.)  
B.A. Knights, J.R. Hillman, and I.J. Young, University of Glasgow

11:00 152. STEROLS IN MYCOPLASMAS  
P.F. Smith, University of South Dakota

11:30 153. STUDIES IN SCALLOP STEROLS  
D.R. Idler, Memorial University

**WEDNESDAY MORNING—OCTOBER 2**

9:00 A.M.—Constitution

**SESSION VG—SYMPOSIUM: RECENT DEVELOPMENTS IN GLYCOLIPID ISOLATION AND ANALYSIS**

Chairman: L.A. Witting, Texas Woman's University, Denton, Tex.

9:00 154. IMMUNOLOGICAL DETECTION OF GLYCO-LIPIDS

D.A. Zopf and V. Ginsburg, National Institute of Metabolic Diseases and Arthritis

9:30 155. STRUCTURAL ANALYSIS OF BACTERIAL SULFO- AND PHOSPHO-GLYCOLIPIDS

M. Kates, P. Komaratat, and P.W. Deroo, University of Ottawa

10:00 156. BIOSYNTHESIS AND CHARACTERIZATION OF STERYL GLUCOSIDES AND GLYCOSYL DIGLYCERIDES

A.D. Elbein, The University of Texas Health Science Center

10:30 157. GLYCOLIPIDS OF THE ALIMENTARY TRACT

M.I. Horowitz, A. Slomiany, and B. Slomiany, New York Medical College

11:00 158. PHOSPHATIDYL DIGLYCOSYL DIGLYCERIDE: METABOLISM AND FUNCTION AS AN ANCHOR IN BACTERIAL CELL MEMBRANES

R.A. Pieringer and M.W. Ganfield, Temple University School of Medicine

11:30 159. GLYCOSPHINGOLIPIDS AND GLYCOSYL HYDROLASES OF SYNCHRONIZED CELLS: ELUCIDATION OF THE CHEMICAL STRUCTURE OF GLYCOSPHINGOLIPIDS

S. Chatterjee and C.C. Sweeley, Michigan State University

WEDNESDAY MORNING—OCTOBER 2

10:00 A.M.—INDEPENDENCE

SPECIAL LECTURE

10:00 160. OILSEED TECHNOLOGY IN OLD JAPAN: THE SEIYU ROKU WOODBLOCK PRINTS OF 1836

C. Litchfield, Rutgers University

WEDNESDAY AFTERNOON—OCTOBER 2

2:00 P.M.—Hall of Flags

SESSION VIB—SYMPOSIUM: FATS AND OILS IN FEED FORMULATIONS. II.

Chairman: W. Boehme, Fats and Proteins Research Foundation, Des Plaines, Ill.

2:00 161. PROTEIN ENCAPSULATED FAT FOR RUMINANT FEEDING

W.H. Hale, F.D. Dryden, and J.A. Marchello, University of Arizona

2:30 162. EFFECT OF DIETARY FAT UPON LIPID METABOLISM IN THE PIG

D.R. Romso, R. Waterman, E.R. Miller, and G.A. Leveille, Michigan State University

3:00 163. VALUE OF FATS IN SWINE RATIONS

F.A. Kummerow, S.C. Yeh, T. Arima, and B.H.S. Cho, University of Illinois, Urbana-Champaign

3:30 164. NONCALORIC VALUE OF FATS IN FORMULATED FEEDS AND FEED INGREDIENTS

H.B. Pfost, Kansas State University

WEDNESDAY AFTERNOON—OCTOBER 2

2:00 P.M.—East Pennsylvania

SESSION VIE—BIOCHEMISTRY—GENERAL II.

Chairman: D.L. Berner, Campbell Soup Co., Camden, N.J.

2:00 165. DISTRIBUTION OF ISOMERIC MONOENE FATTY ACIDS IN INDIVIDUAL LIPID CLASSES OF NORMAL RAT LIVER, HOST LIVER, AND A MINIMAL DEVIATION HEPATOMA

R. Wood, J. Falch, and R.D. Wiegand, University of Missouri School of Medicine

2:20 166. LIPIDS OF CULTURED HEPATOMA CELLS: DISTRIBUTION OF ISOMERIC MONOENE FATTY ACIDS IN INDIVIDUAL LIPID CLASSES

R. Wood, J. Falch, and R.D. Wiegand, University of Missouri School of Medicine

2:40 167. METABOLIC AND NUTRITIONAL REGULATION OF INOSITOL ENTRY INTO SPECIFIC MONOPHOSPHOSITIDES IN RAT LIVER

B.J. Holub, University of Guelph

3:00 168. EFFECTS OF DDT UPON FATTY ACYL DESATURASE AND CHAIN ELONGATION ACTIVITIES OF RAT LIVER MICROSOMES

J. Darsie and R.T. Holman, The Hormel Institute

3:20 169. EFFECT OF PARATHION UPON THE IN VITRO PROTEIN KINASE ACTIVATION OF RAT ADIPOSE TISSUE LIPASE

R.E. Pitas, R.S. Newton, and R.G. Jensen, University of Connecticut

3:40 170. LIPID COMPOSITION AND METABOLISM OF TESTES OF QUAKING MICE

J.G. Coniglio, W.M. Grogan, Jr., M.L. Fitzhugh, and D.G. Harris, Vanderbilt University

4:00 171. ANALYSIS OF FETAL RABBIT LUNG PHOSPHATIDYLCHOLINE BY GAS LIQUID CHROMATOGRAPHY OF DIGLYCERIDE ACETATES

R. Harlow, L.C. Mims, and J.F. Soodma, W.K. Warren Medical Research Center

4:20 172. MYCELIAL AND SPORANGIAL TRIACYLGLYCEROLS OF PHYCOMYCES BLAKESLEEANUS

R.M. DeBell and R.C. Jack, St. John's University

4:40 173. PHOSPHOLIPASE B IN PARASITIC INFECTIONS

A. Ottolenghi, Duke University Medical Center

WEDNESDAY AFTERNOON—OCTOBER 2

2:00 P.M.—West Pennsylvania

SESSION VIF—SYMPOSIUM: STEROLS. VI. PHYSICAL AND CHEMICAL METHODS

Chairman: T.J. Scallen, University of New Mexico

2:00 174. SYNTHESIS OF C-24 STEROLS

W. Sucrow, M. Slobianka, P.M. Lamy, and M. Plantlikow, Technical University of Berlin

2:30 175. DETERMINATION OF C-24 STEROCHEMISTRY IN PHYTOSTEROLS BY PROTON MAGNETIC RESONANCE

L.J. Mulheim, Shell Research Ltd.

3:00 176. THERMAL DECOMPOSITION PATHWAYS OF STEROLS IN RECENT MARINE SEDIMENT

R. Ikan, University of California, Los Angeles

3:30 177. PHYSICAL METHODS IN THE FIELD OF INSECT STERIODS

K. Nakanishi and E. Lee, Columbia University

WEDNESDAY AFTERNOON—OCTOBER 2

2:00 P.M.—Constitution

SESSION VIG—SYMPOSIUM: ROLE OF FATS IN THE STRUCTURE OF PROCESSED FOODS

Chairman: I.S. Shepherd, Unilever Research Laboratory, The Frythe, Welwyn Herts, England

2:00 178. ROLE OF FAT AND EMULSIFIER IN ICE CREAM STRUCTURE

K.G. Berger, J. Lyons and Co., Ltd.

2:30 179. ROLE OF FATS AND EMULSIFIERS IN CAKE STRUCTURE

I.S. Shepherd and R.W. Yoell, Unilever Research Laboratory



3:00 180. **STUDIES ON MECHANICALLY DEVELOPED DOUGHS: SHORTENING DISTRIBUTION AND CARBON DIOXIDE RELEASE DURING BAKING**  
B.M. Bell, D.G.H. Daniels, and N. Fisher, Flour Milling and Baking Research Association (To be read by I.S. Shepherd)

3:30 181. **ELECTRON MICROSCOPY OF MARGARINE**  
D.W.C. Mouwen, Unilever Research Laboratory

4:00 182. **CRYSTALLINE BEHAVIOR OF LAURIC HARD BUTTER IN CONFECTIONERY COATINGS**  
T. Kawada, Kao Soap Co., Ltd.

### WEDNESDAY AFTERNOON—OCTOBER 2

2:00 P.M.—Independence

### SESSION VIH—SYMPOSIUM: VEGETABLE SEEDS AND OILS

Chairman: L.S. Silbert, USDA, ERRC, Philadelphia, Pa.

2:00 183. **DEGRADATION OF LIPIDS AND GLUCOSINGOLATES IN DEHULLED CRAMBE SEED DURING STORAGE**

E.C. Baker, G.C. Mustakas, and J.E. McGhee, Northern Regional Research Center, USDA, ARS

2:20 184. **SOLVENT WINTERIZATION OF SUNFLOWER SEED OILS**

W.H. Morrison, III, and J.A. Robertson, Richard B. Russell Research Center, USDA, ARS

2:40 185. **CARDUUS NIGRESCENS SEED OIL—A RICH SOURCE OF PENTACYCLIC TRITERPENES**

R.V. Madrigal, C.R. Smith, Jr., and R.D. Plattner, Northern Regional Research Center, USDA, ARS

3:00 186. **QUALITY OF OIL FROM DAMAGED SOY-BEANS**

G.R. List, C.D. Evans, K. Warner, B.K. Boundy, and R.E. Beal, Northern Regional Research Center, USDA, ARS

3:20 187. **ANALYTICAL CONTROL OF EXPERIMENTAL EXTRACTION OF OILSEEDS**

W.H. King, Southern Regional Research Center, USDA, ARS

3:40 188. **SUBSTITUTE SOLVENT FOR HEXANE IN OIL-SEED EXTRACTION INDUSTRY**

N.W. Myers, Consulting Engineer