

**SOCIETY  
OF  
TOXICOLOGY**

INCORPORATED



**EIGHTH ANNUAL MEETING**

**PROGRAM**

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**Williamsburg Lodge  
Williamsburg, Va.  
March 10-12, 1969**

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# INFORMATION

## REGISTRATION

### Pre-registration Forms Obtainable from Secretary:

Dr. Joseph F. Borzelleca  
Department of Pharmacology  
Medical College of Virginia  
Richmond, Virginia 23219 (A.C. 703/770-4676)

### Registration Desk—Williamsburg Lodge

Sunday, 9 March 1969	2:00 P.M.- 5:00 P.M. 7:30 P.M.-10:00 P.M.
Monday, 10 March 1969	8:30 A.M.- 5:00 P.M.
Tuesday, 11 March 1969	8:30 A.M.- 5:00 P.M.
Wednesday, 12 March 1969	8:30 A.M.-12:00 Noon

### Fees—

Society of Toxicology, Inc., members	..... \$10.00
Non-members	..... 15.00
Pre-doctoral full-time students	..... 2.00

### Abstracts—

Distributed without charge to all members of the Society of Toxicology and to all who register for the Meeting.

## MEETINGS

### Scientific Sessions—Locations

Theater  
Tidewater Room  
AB Room

### Annual Business Meeting

Theater  
Monday, 10 March 1969—4:00 P.M.

## SOCIAL EVENTS

### Monday, 10 March 1969

Social Hour—6:30 P.M.—N&E Gallery

### Tuesday, 11 March 1969

Banquet—7:00 P.M.—Virginia Room  
Tickets available at Registration Desk

### Ladies Hospitality Room

East Lounge  
8:00 A.M.—Noon  
Monday, Tuesday, Wednesday, 10, 11, 12 March  
1969

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The Society of Toxicology, Inc., extends appreciation to contributing independent laboratories for their aid toward the social events of this meeting.

## OFFICERS

CARROL S. WEIL ..... *President*  
TED A. LOOMIS ..... *President-Elect*  
JOSEPH F. BORZELLECA ..... *Secretary*  
ROBERT L. ROUDABUSH ..... *Treasurer*  
JOHN A. ZAPP, JR. .... *Past President*

## COUNCIL

(Consists of officers and 4 elected members)

SEYMOUR L. FRIESS (1967-69)  
CHARLES J. KENSLER (1967-69)  
VICTOR A. DRILL (1968-70)  
WAYLAND J. HAYES, JR. (1968-70)

## ELECTED COMMITTEES

### Membership Committee

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*Chairman*  
FREDRIC RIEDERS (1968-70)  
JOSEPH F. TREON (1968-71)

### Educational Committee

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DON D. IRISH (1968-70)  
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## APPOINTED COMMITTEES

### Program Committee

TED A. LOOMIS, *Chairman*  
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JACK E. GRAY                GABRIEL L. PLAA

### Board of Publications

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### Representative to Division of Chemistry and Chemical Technology

National Research Council, National Academy of Sciences

VERALD K. ROWE            (1968-71)

### ad hoc Committees

#### *Panel on Toxicology Terminology*

HENRY F. SMYTH, JR.      FREDERIC RIEDERS  
GABRIEL L. PLAA

### ad hoc Placement

ANTHONY M. AMBROSE

### ad hoc International Union Committee

WILLIAM B. DEICHMANN      SEYMOUR L. FRIESS  
FRANK R. BLOOD            PAUL S. LARSON

### ad hoc USASI Project on Epoxy Resins, K68 Committee

W. E. RINEHART            RICHARD L. HOLLINGSWORTH

March 10, 1969

**MONDAY MORNING—TIDEWATER ROOM**

*Chairman:* DAVID P. RALL

National Cancer Institute

Bethesda, Maryland

- 9:00 1. Rapid Induction of Carcinoma in the Rodent by Polynuclear Hydrocarbons.** B. N. Banerjee and D. J. Howard, Woodard Research Corp., Herndon, Virginia (Sponsor: G. Woodard).
- 9:20 2. Azathioprine and Liver Tumor Induction by N-Hydroxy-N-2-Fluorenylacetamide.** H. H. Frankel, R. S. Yamamoto, and J. H. Weisburger, Biology Branch, National Cancer Institute, Bethesda, Maryland.
- 9:40 3. A Carcinogenic Assay Involving 130 Pesticides and Industrial Chemicals.** J. R. M. Innes, A. J. Pallotta, B. Ulland, M. Valerio, E. R. Hart, L. Fishbein, L. Petrucelli, J. Switzer, H. Falk, R. Bates and M. Klein, Bionetics Research Laboratories, Bethesda, Maryland, and the National Cancer Institute, Bethesda, Maryland.
- 10:00 4. Carcinogenicity Testing of Food Additives, Pesticides and Drugs Following Parenteral Administration in Infant Mice.** K. Fujii and S. S. Epstein, Laboratories of Environmental Pathology and Carcinogenesis, Children's Cancer Research Foundation, Inc., and Department of Pathology, Harvard Medical School, Boston, Massachusetts.
- 10:20 5. Toxic Effects of the Intravenous Administration of Neocarzinostatin (NSC-69856) Lot 67 L 1038 and 67 L 1048 in Dogs.** U. Schaeppi, M. M. Mason, A. Bogden, P. S. Schein and R. D. Davis, Mason Research Institute, Worcester, Massachusetts, and National Cancer Institute, Bethesda, Maryland (Sponsor: D. P. Rall).
- 10:40 6. The Toxicity of Escherichia coli L-Asparaginase.** N. Rakieten, P. S. Schein, B. M. Gordon, R. D. Davis, D. A. Cooney and D. P. Rall. South Shore Analytical and Research Laboratory, Inc., Islip, New York, and Laboratory of Chemical Pharmacology, National Cancer Institute, Bethesda, Maryland
- 11:00 7. Whole-Body Radioautographic Localization and Semiquantitative Determination of Chemotherapeutic Agents in Normal and Tumor-Bearing Rodents.** R. H. Liss, F. A. Cotton and C. J. Kensler, Arthur D. Little, Inc., Cambridge, Massachusetts.
- 11:20 8. Effects of Phenobarbital and Dexamethasone on the Adrenocortical Response of Rats to Toxic Chemicals and Other Stress.** R. J. Szot and S. D. Murphy, Department of Physiology, Harvard School of Public Health, Boston, Massachusetts.
- 11:40 9. The Toxicology of Modified Polyacrylamide Resin.** E. E. Christofano, J. P. Frawley, O. E. Fancher and M. L. Keplinger, Hercules Incorporated, Wilmington, Delaware, and Industrial Bio-Test Laboratories, Inc., Northbrook, Illinois.

March 10, 1969

**MONDAY MORNING—AB ROOM**

*Chairman:* HARRY A. KORNBERG  
Battelle Northwest  
Richland, Washington

- 9:00 10. Tobacco Smoke; Comparison of Chambers and Face Mask Exposure Systems in Guinea Pigs.** R. E. Goldhamer, S. Carson and E. E. Vogin, Food and Drug Research Laboratories, Inc., Maspeth, New York.
- 9:20 11. The Recovery of Particle Transport Activity and Cellular Replacement After Mechanical Abrasion of the Trachea of Intact Chickens.** S. P. Battista, E. P. Denine and C. J. Kensler, Arthur D. Little, Inc., Cambridge, Massachusetts.
- 9:40 12. Comparative Cytopathologic Alterations Induced by Alkylnitrosamines in Nasal Epithellum of the Syrian Hamster.** M. Greenblatt, Eppley Institute for Research in Cancer, University of Nebraska College of Medicine, Omaha, Nebraska. (Sponsor: P. Shubik.)
- 10:00 13. Psychopharmacology of Carbon Monoxide Under Ambient and Altitude Conditions.** K. C. Back and A. M. Dominguez, Toxicology Branch (MRBTT), 6570th Aerospace Medical Research Laboratories, Wright-Patterson Air Force Base, Ohio, and Toxicology Branch, Armed Forces Institute of Pathology, Washington, D. C.
- 10:20 14. The 'In Vitro' Effect of Some Commonly Prescribed Drugs on Routine Laboratory Tests.** A. S. Tegeris, J. C. Cottrell and E. A. Cruz, Group Health Association, Washington, D. C.
- 10:40 15. A Gas Chromatographic Assay for Ethylene-glycol Monomethyl Ether.** E. Z. Dajani and J. H. Mennear, Department of Pharmacology and Toxicology, Purdue University, Lafayette, Indiana.
- 11:00 16. Isoenzyme Profiles and Specific Organ Damage.** H. H. Cornish, M. L. Barth and V. N. Dodson, Department of Industrial Health, School of Public Health, University of Michigan, Ann Arbor, Michigan.
- 11:20 17. Vaginal Cytology in the Rhesus Monkey.** J. Mauro, A. Stein and P. Somsin, Institute of Toxicology and Experimental Pathology, Albany Medical College, and Microscopy for Biological Research, Albany, New York.
- 11:40 18. Isolation of Nalorphine Ethereal Sulfate and Nalorphine Glucuronide.** J. M. Fujimoto and W. M. Watrous, Department of Pharmacology, Marquette School of Medicine, Milwaukee, Wisconsin.

March 10, 1969

**MONDAY MORNING—THEATER**

*Chairman:* KEITH H. JACOBSON  
Food and Drug Administration  
Washington, D. C.

- 9:00 19. Toxicity and Anticholinesterase Action of O-Ethyl O-2, 4, 5-Trichlorophenyl Ethylphosphonothioate.** M. Root, F. K. Kinoshita, M. Flynn, and K. P. DuBois, Toxicity Laboratory, University of Chicago, Chicago, Illinois.
- 9:20 20. Relationship Between Blood Concentration and Signs of Acute Poisoning by DDT in the Dog.** M. C. Braude, R. Braunberg and S. Krop, Food and Drug Administration, DHEW, Washington, D. C.
- 9:40 21. Biochemical Effects in the Rabbit of Repeated Administration of DDT, Carbaryl and Parathion.** A. Hassan and C. Cueto, Jr., Pharmacology Section, Pesticides Research Laboratory, Pesticides Program, Food and Drug Administration, DHEW, Perrine, Florida.
- 10:00 22. Lack of Correspondence at High Acute Doses of DDT Between the Levels Found in Blood and Brain.** J. Santolucito, C. Cueto, Jr., E. Whitcomb and J. Owens, Pharmacology Section, Pesticides Research Laboratory, Pesticides Program, Food and Drug Administration, DHEW, Perrine, Florida.
- 10:20 23. Effects of Organochlorine Pesticides on Avoidance Behavior in the Rat.** L. R. Weiss and R. Brodie, Division of Pharmacology and Toxicology, Food and Drug Administration, DHEW, Washington, D. C.
- 10:40 24. Changes in LD<sub>50</sub>s of Parathion and Heptachlor Following Turpentine Pretreatment.** F. Sperling and H. Ewinike, Department of Pharmacology, Howard University Medical School, Washington, D. C.
- 11:00 25. Binding of Paraoxon by Plasma of Aldrin Treated Mice.** A. J. Triolo and J. M. Coon, Department of Pharmacology, Jefferson Medical College, Philadelphia, Pennsylvania.
- 11:20 26. Effects of Acute Administration of Carbaryl on Cholinesterase Levels in the Central Nervous System of Swine.** E. Miller, J. Reinwall, J. Brouwer, F. L. Earl and E. J. Van Loon, Special Pharmacological Animal Laboratory, Division of Pharmacology and Toxicology, Food and Drug Administration, DHEW, Washington, D. C.
- 11:40 27. Cholinesterase Inhibition in *Macaca mulatta* and the Effect of 2-PAM.** D. M. Serrone, A. Stein and F. Coulston, Institute of Experimental Pathology and Toxicology, Albany Medical College, Albany, New York.

March 10, 1968

**MONDAY AFTERNOON—THEATER**

**Symposium on:  
Evaluation of Safety of Food Additives and  
Chemical Residues**

**1:30 Introduction.** Ted A. Loomis, Professor of Pharmacology and State Toxicologist, University of Washington School of Medicine, Seattle, Washington.

**1:40 The Role of the Laboratory Animal Study of Intermediate Duration for Evaluation of Safety.** Leo Friedman, Professor of Nutrition and Food Safety, Massachusetts Institute of Technology, Cambridge, Massachusetts.

**2:10 The Role of the Chronic Study in the Laboratory Animal for Evaluation of Safety.** Philippe Shubik, Director, Eppley Institute for Research in Cancer, University of Nebraska College of Medicine, Omaha, Nebraska.

**2:40 Public Opinions and Attitudes Regarding Food Additives and Chemical Residues.** Irving Ladimer, Vice President, Health and Safety Division, National Better Business Bureau, New York, New York.

**3:10 Panel Discussion of Questions.**

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**4:00 Annual Business Meeting.** Theater.

**6:30 Social Hour.** N&E Gallery.



March 11, 1969

TUESDAY MORNING—THEATER

Chairman: JULIUS M. COON  
Jefferson Medical College  
Philadelphia, Pennsylvania

- 9:00 28. Interaction of Lindane and Phenobarbital on the Induction of Microsomal Enzymes in Dogs.** E. J. Smith, F. L. Earl and E. J. Van Loon, Special Pharmacological Animal Laboratory, Division of Pharmacology and Toxicology, Food and Drug Administration, DHEW, Washington, D. C.
- 9:20 29. Paradoxical Stimulation of Hepatic Tyrosine Aminotransferase (TAT) of Rat Liver by CCl<sub>4</sub>.** R. D. Magus, Center for Research in Pharmacology and Toxicology, University of North Carolina School of Medicine, Chapel Hill, North Carolina. (Sponsor: H. E. Christensen.)
- 9:40 30. Modification of Microsomal Enzyme Activity by Methylenedioxyphenyl Insecticidal Synergists and Related Compounds.** H. Jaffe, K. Fujii and S. S. Epstein, Laboratories of Environmental Pathology and Carcinogenesis, Children's Cancer Research Foundation, Inc., and Department of Pathology, Harvard Medical School, Boston, Massachusetts.
- 10:00 31. Stimulation of Hepatic Drug-Metabolizing Enzymes of Chlorophenothane (DDT) and Its Relationship to Liver Enlargement and Hepatotoxicity in the Rat.** D. G. Hoffman, H. M. Worth, J. L. Emmerson and R. C. Anderson, Lilly Toxicology Laboratories, Eli Lilly and Company, Greenfield, Indiana.
- 10:20 32. Enhancement of Hepatic Drug Metabolism in Rats After Methylchloroform (MC) Inhalation.** H. Lal, A. Olshan, S. Puri, H. C. Shah and G. C. Fuller, Department of Pharmacology, University of Rhode Island, Kingston, Rhode Island.
- 10:40 33. Some Aspects of the Interaction of Mitochondrial and Microsomal Fractions of Liver from Several Species.** E. Bachmann, L. Golberg and P. Digiacomo, Institute of Experimental Pathology and Toxicology, Albany Medical College, Albany, New York.
- 11:00 34. Too Much Protein, Too Slow Shaking, or Using Air Instead of Oxygen Can Minimize Amount of Hepatic Microsomal Drug-Metabolizing Enzyme Induction Measured 'In Vitro.'** J. R. Fouts and L. R. Waters, Oakdale Toxicology Center, Department of Pharmacology, University of Iowa College of Medicine, Iowa City, Iowa.
- 11:20 35. The Effect of Simultaneous Application of Chlorinated Hydrocarbon and Antioxidant on Enzyme Induction. A Biochemical and Electron Microscopic Investigation.** K. L. Stemmer and R. D. Greenland, Kettering Laboratory, University of Cincinnati College of Medicine, Cincinnati, Ohio (Sponsor: M. Eisler).
- 11:40 36. Some Biochemical Effects in Squirrel Monkeys on Repeated Administration of p,p'-DDT.** M. F. Cranmer and A. Peoples, Pesticides Program, Food and Drug Administration, DHEW, Perrine, Florida (Sponsor: C. Cueto, Jr.).

March 11, 1969

**TUESDAY MORNING—TIDEWATER ROOM**

*Chairman:* ERNEST C. HAGAN  
Food and Drug Administration  
Washington, D. C.

- 9:00 37. **Toxicology of Triphenyltin Hydroxide (Van-  
cide KS).** M. J. Marks, C. L. Winek and S. P.  
Shanor, Department of Pharmacology and Toxi-  
cology, Duquesne University School of Pharmacy,  
Pittsburgh, Pennsylvania.
- 9:20 38. **Changes in Tissue Distribution of Beryllium  
Induced by Metopirone.** J. J. Clary, C. R. Hopper  
and H. E. Stokinger, Bureau of Occupational Safety  
and Health, Consumer Protection and Environ-  
mental Health Service, DHEW, Cincinnati, Ohio.
- 9:40 39. **Effects of Cadmium on the Minute Blood Ves-  
sels.** E. J. Youkilis, R. C. Martz, P. D. Harris, P.  
A. Nicoll and R. B. Forney, Department of Toxi-  
cology and Pharmacology and Department of Physi-  
ology, Indiana University School of Medicine, In-  
dianapolis, Indiana.
- 10:00 40. **Effect of EDTA and EGTA on Bladder Stone  
Formation in Rats.** B. van't Riet, C. E. O'Rear,  
J. E. Wynn and J. F. Borzelleca, Departments of  
Pharmaceutical Chemistry and Pharmacology, Medi-  
cal College of Virginia, Richmond, Virginia.
- 10:20 41. **Treatment of Drug Poisonings with the Capil-  
lary Artificial Kidney.** R. D. Stewart, E. D. Baretta,  
E. A. Bachand and R. T. Bachand, Jr., Department  
of Environmental Medicine, Marquette School of  
Medicine, Milwaukee, Wisconsin.
- 10:40 42. **Cobalt Salts: Effects in Cyanide and Sulfide  
Poisoning and on Methemoglobinemia.** R. P. Smith,  
Department of Pharmacology and Toxicology, Dart-  
mouth Medical School, Hanover, New Hampshire.
- 11:00 43. **Oral Toxicity of 3-Tritylthio-L-Alanine in  
Mice and Dogs.** P. E. Palm and M. S. Nick, Life  
Sciences Division, Arthur D. Little, Inc., Cambridge,  
Massachusetts.
- 11:20 44. **Species Differences in the Disposition of  
Cyclo-leucine.** G. Owen, H. W. Ruelius, F. Janssen  
and J. J. Pollock, Wyeth Laboratories, Inc., Radnor,  
Pennsylvania (Sponsor: H. P. K. Agersborg, Jr.).
- 11:40 45. **Investigation of the Acute Toxicity and  
Mechanism of Action of 1,2-bis-(difluoramino) Iso-  
butane and Related NF Compounds.** F. W. Weir and  
F. H. Meyers, Department of Pharmacology and  
Experimental Therapeutics, School of Medicine,  
University of California, San Francisco Medical  
Center, San Francisco, California (Sponsor: C. H.  
Hine).

March 11, 1969

**TUESDAY MORNING—AB ROOM**

*Chairman:* PAUL S. LARSON  
Medical College of Virginia  
Richmond, Virginia

- 9:00 46. B-Glucuronidase Activity in Serum and Liver of Rats Treated with Parathion.** C. H. Williams, Division of Pharmacology and Toxicology, Food and Drug Administration, Consumer Protection and Environmental Health Service, Washington, D. C.
- 9:20 47. Behavioral Indices of Dieldrin Toxicity in Sheep.** B. E. Sandler, G. A. Van Gelder, W. B. Buck, J. Maland and G. G. Karas, Psychotoxicology Laboratory, Iowa State University, Ames, Iowa.
- 9:40 48. The Oral Toxicity of Mirex in Adult and Suckling Rats.** T. B. Gaines and R. D. Kimbrough, Toxicology Laboratory, Pesticides Program, Consumer Protection and Environmental Health Service, Food and Drug Administration, DHEW, Atlanta, Georgia (Sponsor: William F. Durham).
- 10:00 49. Comparison of Biochemical Effects of Various Halogenated Hydrocarbons.** C. D. Klaassen and G. L. Plaa, Oakdale Toxicology Center, Department of Pharmacology, College of Medicine, University of Iowa, Iowa City, Iowa.
- 10:20 50. Studies on the Toxicity and Mode of Action of Morestan.** G. P. Carlson, and K. P. DuBois, Toxicity Laboratory, University of Chicago, Chicago, Illinois.
- 10:40 51. Oral Toxicity of Ethylene Chlorohydrin, A Potential Reaction Product of Ethylene Oxide Fumigation.** S. Carson and B. L. Oser, Food and Drug Research Laboratories, Inc., Maspeth, New York.
- 11:00 52. Relationship Between Sulfhydryl Reactivity and Inhibition of 'In Vitro' Oxygen Uptake of Multioscidal Nitrostyrene Derivatives.** G. C. Fuller and R. T. Louis-Ferdinand, Department of Pharmacology, University of Rhode Island, Kingston, Rhode Island (Sponsor: H. Lal).
- 11:20 53. The Effects of Ethylene Glycol on the Formation of Urine by the Cat.** J. H. Wills, J. M. Cholakis and F. Coulston, Institute of Experimental Pathology and Toxicology of Albany Medical College and New York State Department of Health, Albany, New York.

March 11, 1969

**TUESDAY AFTERNOON—AB ROOM**

*Chairman:* PAUL A. MATTIS  
Merck Institute for Therapeutic Research  
West Point, Pennsylvania

- 1:30 54. Changes in the Lens of Aging Rats.** T. Balazs, S. Ohtake and J. F. Noble. Toxicology Research Section, Lederle Laboratories, American Cyanamid Company, Pearl River, New York.
- 1:50 55. The Cataractogenic Activity of 2, 4-Dinitrophenol in Ducks and Rabbits.** P. J. Gehring, Dow Chemical Company, Midland, Michigan (Sponsor: V. K. Rowe).
- 2:10 56. Cataracts and Other Lesions in Rats Receiving a Synthetic Progestin-Estrogen.** J. A. Ray and A. L. Schut, Pathology and Toxicology Research Unit, The Upjohn Company, Kalamazoo, Michigan, and 401 Bronson Medical Center, Kalamazoo, Michigan (Sponsor: J. E. Gray).
- 2:30 57. Toxicologic Evaluation of Oral and Dermal Treatment of Primates with DMSO.** E. E. Vogin, S. Carson, G. Cannon, C. R. Linegar and L. F. Rubin, Food and Drug Research Laboratories, Inc., Masspeth, New York, Squibb Institute for Medical Research, New Brunswick, New Jersey, and University of Pennsylvania School of Veterinary Medicine, Philadelphia, Pennsylvania.
- 2:50 58. On the Time Dependence of the LD<sub>50</sub>.** M. M. Luckens, College of Pharmacy, University of Kentucky Medical Center, Lexington, Kentucky (Sponsor: J. F. Borzelleca).
- 3:10 59. Mechanisms of Chloroquine and Phenothiazine Retinopathies.** H. Reinert and D. A. Ratty, Pharmacology and Toxicology Group, Therapeutics Research Division, Pfizer, Ltd., Sandwich, Kent, England.
- 3:30 60. Toxicosis in Miniature Swine Induced by Corn Cultures of *Penicillium Viridicatum*.** W. W. Carlton and J. Tuite, Department of Veterinary Physiology and Pharmacology, and Department of Botany and Plant Pathology, Purdue University, Lafayette, Indiana.
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- 7:00 Society of Toxicology Banquet.** Virginia Room. Speaker: Edward M. Riley, Ph.D., Director of Research, Colonial Williamsburg. "Food Additives in the Eighteenth Century."

March 11, 1969

**TUESDAY AFTERNOON—TIDEWATER ROOM**

*Chairman:* **FREDERICK SPERLING**  
Howard University Medical School  
Washington, D. C.

- 1:30 61. Rate of Pulmonary Excretion of Paraldehyde in Man.** H. H. Borgstedt and D. W. Lang, Department of Pharmacology, University of Rochester School of Medicine and Dentistry, Rochester, New York (Sponsor: H. C. Hodge).
- 1:50 62. Factors Influencing the Removal of Inhaled  $^{239}\text{PuO}_2$  Particles by Pulmonary Washing.** C. L. Sanders, Biology Department, Battelle Memorial Institute, Pacific Northwest Laboratory, Richland, Washington (Sponsor: H. A. Kornberg).
- 2:10 63. Detection of Unchanged Piperonyl Butoxide in the Lung of Rats Following I.V. and Oral Administration.** L. Fishbein, H. L. Falk, J. Fawkes, S. Jordan and B. Corbett, National Environmental Health Sciences Center, Research Triangle Park, North Carolina.
- 2:30 64. The Use of an Automated Image Analyser in the Quantitative Histological Evaluation of Toxicological Material, With Particular Reference to the Respiratory Tract.** L. E. Mawdesley-Thomas and P. Healey, Department of Experimental Pathology, Huntingdon Research Centre, Huntingdon, England (Sponsor: A. N. Worden).
- 2:50 65. Toxic Effects of High Concentrations of Bromobenzyl nitrile Vapor in Various Animal Species.** F. W. Oberst, J. W. Crook, S. F. Swain, F. P. Ward, W. S. Koon and N. P. Musselman, Toxicology Department, Medical Research Laboratory, Edgewood Arsenal, Maryland.
- 3:10 66. A Spontaneous Pulmonary Disease in Purebred Beagle Dogs Used in Toxicity Studies.** R. S. Hirth and G. H. Hottendorf, Toxicology Department, Bristol Laboratories, Syracuse, New York (Sponsor: M. H. Pindell).
- 3:30 67. Residual Lesions of Spontaneous Disease Observed in Dogs Utilized in Drug Safety Evaluations.** G. H. Hottendorf and R. S. Hirth, Toxicology Department, Bristol Laboratories, Syracuse, New York (Sponsor: M. H. Pindell).
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**7:00 Society of Toxicology Banquet.** Virginia Room. Speaker: Edward M. Riley, Ph.D., Director of Research, Colonial Williamsburg. "Food Additives in the Eighteenth Century."

March 11, 1969

**TUESDAY AFTERNOON—THEATER**

*Chairman:* KENNETH H. HARPER  
Huntingdon Research Centre  
Huntingdon, England

- 1:30 68. Teratogenicity in Mice of Some Degradation Products of Cyclophosphamide.** J. E. Gibson and B. A. Becker, Oakdale Toxicology Center, Department of Pharmacology, University of Iowa College of Medicine, Iowa City, Iowa.
- 1:50 69. Phenobarbital and SKF 525-A Alteration of Diphenylhydantoin Teratogenicity in Mice.** R. D. Harbison and B. A. Becker, Department of Pharmacology, College of Medicine, University of Iowa, Iowa City, Iowa.
- 2:10 70. Teratogenic Effects in Hypervitaminosis A in the Hamster and the Guinea Pig.** J. F. Robens, Division of Pharmacology and Toxicology, Food and Drug Administration, DHEW, Washington, D. C. (Sponsor: K. H. Jacobson).
- 2:30 71. Fetal Rabbit Ductus Arteriosus Assessed in a Teratological Study on Isoproterenol and Metaproterenol.** R. L. Hollingsworth, W. J. Scott, M. W. Woodard and G. Woodard, Woodard Research Corporation, Herndon, Virginia.
- 2:50 72. Teratology Studies in Rabbits with Captan, Folpet, and Thalidomide.** J. McLaughlin, Jr., E. F. Reynaldo, J. K. Lamar and J. P. Marliac, Division of Pharmacology and Toxicology and Bureau of Medicine, Food and Drug Administration, DHEW, Washington, D. C.
- 3:10 73. Reproduction Studies in Guinea Pigs and Rabbits Following Clothiapine Administration.** F. E. Kohn, D. L. Kay, H. Cervenka, J. H. Kay and F. H. Schultz, Jr., Lifestream Laboratories, Libertyville, Illinois, and Dorsey Laboratories, Lincoln, Nebraska
- 3:30 74. Reproduction Toxicity Studies of SK&F 14336-D in Rats and Mice.** K. T. Szabo, H. A. Birkhead, A. M. DeGiorgis and M. C. Florek, Pathology and Toxicology, Smith, Kline & French Laboratories, Philadelphia, Pennsylvania (Sponsor: R. L. Steelman).

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**7:00 Society of Toxicology Banquet.** Virginia Room. Speaker: Edward M. Riley, Ph.D., Director of Research, Colonial Williamsburg. "Food Additives in the Eighteenth Century."

March 12, 1969

**WEDNESDAY MORNING—TIDEWATER ROOM**

*Chairman:* TOM S. MIYA  
Purdue University School of Pharmacy  
Lafayette, Indiana

- 9:00 75. Effect of Nutrient Intake on CCl<sub>4</sub> Toxicity.** E. M. Blendermann and L. Friedman, Division of Nutrition, Food and Drug Administration, DHEW, Washington, D. C. (Sponsor: L. R. Weiss).
- 9:20 76. Ethanol Potentiation of Carbon Tetrachloride Hepatotoxicity.** E. T. Wei and L. C. K. Wong, Department of Pharmacology and Experimental Therapeutics, School of Medicine, University of California, San Francisco Medical Center, San Francisco, California (Sponsor: C. H. Hine).
- 9:40 77. The Hepatic Disposition of Sulfobromophthalein (BSP) and Other Compounds as Influenced by Probenecid.** R. M. McClain and G. L. Plaa, Oakdale Toxicology Center, Department of Pharmacology, College of Medicine, University of Iowa, Iowa City, Iowa.
- 10:00 78. Influence of Dioxin on Liver Function in the Rabbit.** M. L. Keplinger, G. P. Schoenig, O. E. Fancher, E. E. Christofano and J. P. Frawley. Industrial Bio-Test Laboratories, Inc., Northbrook, Illinois, and Hercules Incorporated, Wilmington, Delaware.
- 10:20 79. Malathion Potentiation and Inhibition of Liver Esterases by Triorthotolylphosphate (TOTP) in Mice.** S. D. Cohen and S. D. Murphy, Department of Physiology, Harvard School of Public Health, Boston, Massachusetts.
- 10:40 80. Studies of the Hepatic Effects of Clofibrate (Ethyl Chlorophenoxyisobutyrate) in Rats.** H. A. Hartman, R. E. Bagdon, R. J. Van Ryzin and A. J. Tousimis, Sandoz Pharmaceuticals, Hanover, New Jersey, and Biodynamics Research Corporation, Rockville, Maryland.
- 11:00 81. Effect of Structure on the Metabolism of Dialkylarylphosphorothionates by Rabbit Liver Microsomes.** M. Wolcott and R. A. Neal, Department of Biochemistry, Division of Toxicology, Vanderbilt University, Nashville, Tennessee.
- 11:20 82. The Reduction of Nitro and Azo Compounds by Housefly Microsomes.** L. Shargel, S. Akov and P. Mazel, Department of Pharmacology, George Washington University Medical School, Washington, D. C., and Entomology Research Division, U. S. Department of Agriculture, Beltsville, Maryland.
- 11:40 83. Receptor Kinetics: An Examination of Several Theoretical Models.** R. E. Gosselin, Department of Pharmacology and Toxicology, Dartmouth Medical School, Hanover, New Hampshire.

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**WEDNESDAY MORNING—THEATER**

*Chairman:* FRANK R. BLOOD

Vanderbilt University School of Medicine  
Nashville, Tennessee

- 9:00 84. Dietary Protein and Pesticide Toxicity: A Review.** E. M. Boyd, Department of Pharmacology, Queen's University, Kingston, Ontario, Canada.
- 9:20 85. Persistence of Enzyme Induction with Various Dietary Levels of Pesticides and Drugs.** F. K. Kinoshita and K. P. DuBois, Toxicity Laboratory, University of Chicago, Chicago, Illinois.
- 9:40 86. Nitrite Toxicosis in the Ascorbic Acid-Deficient Guinea Pig.** R. J. Kociba and S. D. Sleight, Department of Pathology, Michigan State University, East Lansing, Michigan (Sponsor: T. M. Brody).
- 10:00 87. Hepatic Damage by Diet and Lasiocarpine in Rats.** P. M. Newberne, A. E. Rogers and N. Kula, Department of Nutrition and Food Science, Massachusetts Institute of Technology, Cambridge, Massachusetts.
- 10:20 88. Impairment of Organochlorine Pesticide Induction of Hepatic Detoxifying Enzymes in Ascorbic Acid Deficiency.** D. J. Wagstaff and J. C. Street, Department of Veterinary Science, Utah State University College of Agriculture, Logan, Utah (Sponsor: J. L. Shupe).
- 10:40 89. Experience with Infusions of Various Concentrations of Xylitol in Monkeys and Rabbits.** L. E. Blockus, J. F. Donahoe, T. A. Crowley, J. E. Keating and M. S. Weinberg, Abbott Laboratories, North Chicago, Illinois, and Biological Science Laboratory, Foster D. Snell, Inc., Elizabeth, New Jersey.
- 11:00 90. Strain Dependent Renal Toxicity of a Non-steroid Anti-inflammatory Agent.** D. L. Bokelman, W. J. Bagdon, P. A. Mattis and P. F. Stonier, Merck Institute for Therapeutic Research, West Point, Pennsylvania.
- 11:20 91. Subsensitivity to Cholinergic Drugs Following Treatment of Rats With a Cholinesterase Inhibitor.** J. J. McPhillips, Department of Pharmacology, West Virginia University Medical Center, Morgantown, West Virginia.
- 11:40 92. Long Term Toxicologic and Tumorigenesis Studies on an Oral Contraceptive Agent in Albino Rats.** J. L. Schardein, D. H. Kaump, E. T. Woosley and M. M. Jellema, Pathology and Toxicology Department, Parke, Davis and Co., Ann Arbor, Michigan.



March 12, 1969

WEDNESDAY MORNING—AB ROOM

*Chairman:* ROGER P. SMITH  
Dartmouth Medical School  
Hanover, New Hampshire

- 9:00 93. The Feeding of Aflatoxin to Beagle Dogs.** C. G. Durbin, J. N. Geleta, W. T. Shalkop and B. H. Armbrrecht, Division of Veterinary Research, Food and Drug Administration, DHEW, Beltsville, Maryland
- 9:20 94. The Effects Produced in Brood Sows by Feeding Aflatoxin.** B. H. Armbrrecht, W. T. Shalkop, H. G. Wiseman, J. E. Jackson, and H. E. Zimmerman, Jr., Food and Drug Administration, Agricultural Research Center, Beltsville, Maryland.
- 9:40 95. Toxicologic Significance of UDP-Glucuronyltransferase Deficiency in the Newborn Gunn Rat.** R. A. Yeary and R. H. Grothaus, Department of Veterinary Physiology and Pharmacology, Ohio State University, Columbus, Ohio.
- 10:00 96. Hydrazine and Protein Metabolism.** W. L. Banks, Jr., and N. L. Smith, Department of Biochemistry, Medical College of Virginia, Richmond, Virginia (Sponsor: J. F. Borzelleca).
- 10:20 97. The Hyperglycemic Effect Following Inhalation of Carbon Tetrachloride.** L. C. K. Wong and C. H. Hine, Department of Pharmacology and Experimental Therapeutics, School of Medicine, University of California, San Francisco Medical Center, San Francisco, California.
- 10:40 98. Studies on the Mechanism of the Barbiturate-Ethanol Interaction.** G. S. Wiberg, B. B. Coldwell and H. L. Trenholm, Pathology and Toxicology Section, Research Laboratories, Department of National Health and Welfare, Ottawa, Canada.
- 11:00 99. Effects of Ethionine, Dimethylsulfoxide, and Route of Administration on Methylchloroform-Induced Alteration of Barbiturate-Action.** H. Lal and H. C. Shah, Department of Pharmacology, University of Rhode Island, Kingston, Rhode Island.
- 11:20 100. Effects of Chronic Nicotine, Acute Hypoxia, and their Interactions on Myocardial Enzymes.** D. G. Wenzel and M. H. Richards, Department of Pharmacology and Toxicology, University of Kansas, Lawrence, Kansas.
- 11:40 101. Toxicologic Studies with a Halogenated Salicylamide.** S. M. Kurtz, J. L. Schardein, J. E. Fitzgerald and D. H. Kaump, Department of Pathology and Toxicology, Parke, Davis and Company Research Laboratories, Ann Arbor, Michigan

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**WEDNESDAY AFTERNOON—THEATER**

*Chairman:* ZAREH HADIDIAN  
Strasenburgh Laboratories  
Rochester, New York

- 1:30 102. Toxicity Testing of Chemical Mutagens on Mouse Spermatozoa 'In Vitro.'** S. R. Joshi, K. Fujii and S. S. Epstein, Laboratories of Environmental Pathology and Carcinogenesis, Children's Cancer Research Foundation, Inc., and Department of Pathology, Harvard Medical School, Boston, Massachusetts.
- 1:50 103. A Practical Test for Chemical Mutagens in Mammals.** S. S. Epstein, Laboratories for Environmental Pathology and Carcinogenesis, Children's Cancer Research Foundation, Inc., and Department of Pathology, Harvard Medical School, Boston, Massachusetts.
- 2:10 104. The Effect of Methyl Salicylate on Rat Reproduction.** T. F. X. Collins, W. H. Hansen and H. V. Keeler, Division of Pharmacology and Toxicology, Food and Drug Administration, DHEW, Washington, D. C.
- 2:30 105. Chromosomal Aberrations of Lymphocytes Caused by Diepoxy Butane.** J. Nemenzo and C. H. Hine, Department of Pharmacology and Experimental Therapeutics, School of Medicine, University of California, San Francisco Medical Center, San Francisco, California.
- 2:50 106. Factors Affecting Cyclohexylamine Lethality in Mice.** I. P. Lee and R. L. Dixon, Department of Pharmacology, University of Washington School of Medicine, Seattle, Washington.
- 3:10 107. Cyclamate Degradation in Mammals and 'In Vitro.'** L. Golberg, C. Parekh, A. Patti and K. Soike, Institute of Experimental Pathology and Toxicology, Albany Medical College, Albany, New York.
- 3:30 108. Effects of Cyclamates and Related Chemicals Upon Incorporation of Inorganic <sup>35</sup>S-Sulfate into Proteinpolysaccharides.** B. Wortman, R. K. Locke and J. J. Schrogie, Bureaus of Science and Medicine, Food and Drug Administration, Washington, D. C. (Sponsor: P. L. Harris).

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WEDNESDAY AFTERNOON—AB ROOM

*Chairman:* ROBERT C. ANDERSON

Lilly Toxicology Laboratories

Greenfield, Indiana

- 1:30 109. Distribution of Inspired Air in Cynamolgus Monkeys.** C. M. Banerjee, Y. Alarie, L. Barlett and A. Krumm, Hazleton Laboratories, Inc., Falls Church, Virginia (Sponsor: R. J. Weir).
- 1:50 110. Reproduction Studies in Rats and Rabbits with Cyclohexylamine Sulfate.** G. L. Kennedy, P. G. Sanders, M. S. Weinberg, D. W. Arnold and M. L. Keplinger, Industrial Bio-Test Laboratories, Inc., Northbrook, Illinois, Biological Science Laboratories, Foster D. Snell, Inc., Elizabeth, New Jersey, and Abbott Laboratories, North Chicago, Illinois.
- 2:10 111. Toxicity and Metabolism of 2-Hydroxy-4-methoxybenzophenone.** Y. M. Patel, G. J. Levinskas, and C. B. Shaffer, Environmental Health Laboratory, Central Medical Department, American Cyanamid Company, Princeton, New Jersey.
- 2:30 112. Toxic Manifestations of Cinchophen in the Ferret Stomach.** N. Umeda and C. J. Pfeiffer, Institute of Gastroenterology, Presbyterian-University of Pennsylvania Medical Center, Philadelphia, Pennsylvania.
- 2:50 113. The Toxicology of Terbacil, A. New Substituted Uracil.** H. Sherman, Haskell Laboratory for Toxicology and Industrial Medicine, E. I. du Pont de Nemours and Company, Newark, Delaware.
- 3:10 114. The Toxicity in Guinea Pigs of a Potent Anti-Psychotic Compound (Clothiapine) from the Dibenzothiazepine Group.** F. H. Schultz, Jr., D. L. Kay, H. Cervenka, F. E. Kohn and J. H. Kay, Dorsey Laboratories, Lincoln, Nebraska, and Life-stream Laboratories, Libertyville, Illinois.
- 3:30 115. Fluorine Toxicosis in Livestock.** J. L. Shupe and A. Olson, Utah State University, Logan, Utah.

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**WEDNESDAY AFTERNOON—TIDEWATER ROOM**

*Chairman:* WILLIAM F. DURHAM  
U. S. Public Health Service  
Perrine, Florida

- 1:30 116. Tolerance to Etorphine (M99).** M. W. Williams, C. S. Williams, L. A. Meeks and B. E. Gunning, Veterans Administration Hospital, Tucson, Arizona.
- 1:50 117. Environmental Distribution of Biologically Active Methylenedioxyphenyl Compounds.** R. Csillag, K. Fujii, H. Jaffe and S. S. Epstein, Laboratories of Environmental Pathology and Carcinogenesis, Children's Cancer Research Foundation, Inc., and Department of Pathology, Harvard Medical School, Boston, Massachusetts.
- 2:10 118. Distribution of Oral Zinc Bacitracin-<sup>14</sup>C in Rats and Swine.** J. Donoso, G. O. Craig, and R. S. Baldwin, Woodard Research Corporation, Herndon, Virginia, and Research Department, Commercial Solvents Corporation, Terra Haute, Indiana (Sponsor: M. Woodard).
- 2:30 119. Tissue Reactions of 2-Chloroethanol.** W. I. Guess, Drug Plastic Research and Toxicology Laboratory, College of Pharmacy, University of Texas, Austin, Texas.
- 2:50 120. Percutaneous Absorption of Sodium Pyridimethione-S<sup>35</sup> in Animals.** C. Parekh and L. Goldberg, Institute of Experimental Pathology and Toxicology, Albany Medical College, Albany, New York.
- 3:10 121. Convulsions Induced by 2-Di-n-butylaminoethanol.** R. Hartung, L. B. Pittle, and H. H. Cornish, Department of Industrial Health, School of Public Health, University of Michigan, Ann Arbor, Michigan.

## NOTES