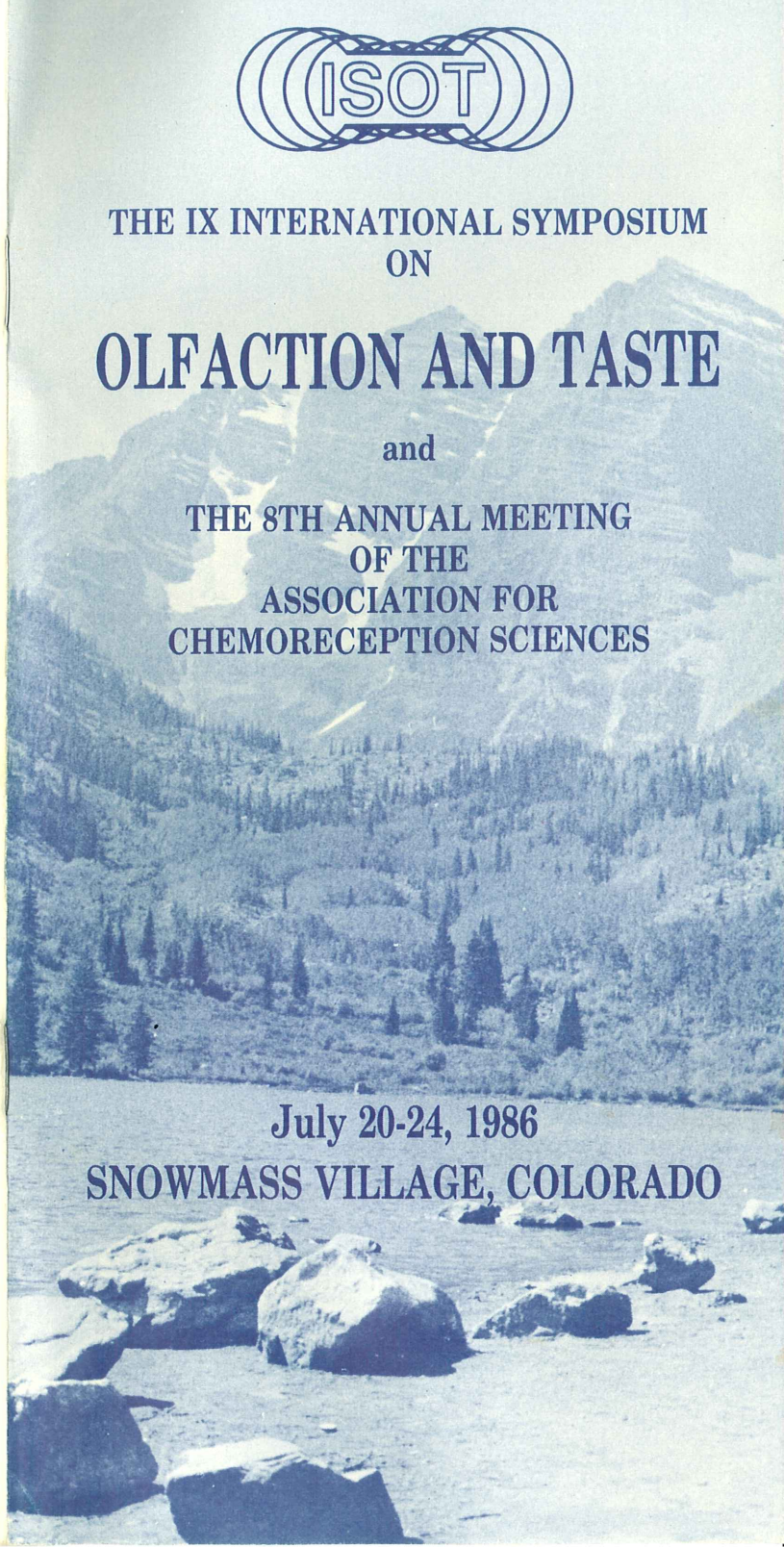

THE IX INTERNATIONAL SYMPOSIUM ON

OLFACTION AND TASTE

and

THE 8TH ANNUAL MEETING OF THE ASSOCIATION FOR CHEMORECEPTION SCIENCES

July 20-24, 1986

SNOWMASS VILLAGE, COLORADO

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CONTINUING MEDICAL EDUCATION – (USPS 440-080)
Vol. XXI No. 17, Denver, Colorado March 10 1986
Published by the Office of Postgraduate Medical Education: two issues per month except January, February, March and September when three are issued; not issued August and December. Send all inquiries to Office of Postgraduate Medical Education, University of Colorado School of Medicine.

THE IX INTERNATIONAL SYMPOSIUM ON OLFACTION AND TASTE (ISOT) AND THE 8th ANNUAL MEETING OF THE ASSOCIATION FOR CHEMORECEPTION SCIENCES

July 20-24, 1986

Snowmass Village, Colorado

SUNDAY **July 20, 1986**

4:00 p.m. to 8:00 p.m.	REGISTRATION – Snowmass Conference Center Lobby
5:00 p.m.	Refreshments on Roof Garden Barbecue Buffet
8:00 p.m.	GIVAUDAN LECTURE – Hoaglund Room "Molecular Mechanisms of Olfactory Receptors" Dr. Solomon Snyder Johns Hopkins School of Medicine, USA Introduction by Dr. David V. Smith Executive Chairman, Association for Chemoreception Sciences

MONDAY **July 21, 1986**

7:30 a.m.	Continental Breakfast – Snowmass Conference Center Lobby
8:30 a.m.	SYMPOSIUM: **"Where Do The Molecular Events of Chemosensory Transduction Take Place?** – Anderson Room Chaired by Dr. D. Lancet, Weizmann Institute EVOLUTIONARY PATTERNS IN SENSORY RECEPTORS: AN EXERCISE IN ULTRASTRUCTURAL PALAOENTOLOGY Dr. David Moran University of Colorado School of Medicine, USA SENSORY TRANSDUCTION IN FLAGELLATE BACTERIA Dr. Judith Armitage University of Oxford, England EUKARYOTIC UNICELLS: HOW USEFUL IN STUDYING CHEMORECEPTION? Dr. J. Van Houten University of Vermont, USA Coffee, Tea Break IONIC MECHANISM OF GENERATION OF RECEPTOR POTENTIAL IN FROG TASTE CELLS Dr. Toshihide Sato Nagasake University, Japan TOWARDS A COMPREHENSIVE ANALYSIS OF OLFACTORY TRANSDUCTION Dr. Doron Lancet Weizmann Institute of Science, Israel DISCUSSION
12:00 noon	Lunch Break Box lunches are available to those who have pre-registered (see Course Application)
12:00 noon to 2:00 p.m.	Executive Committee Meeting, Association for Chemoreception Sciences – (Lunch included)
12:30 p.m.	FLY-FISHING DEMONSTRATION AND INSTRUCTIONS (See General Information and Course Application)
3:00 p.m.	Volunteer Papers, Session IA – Kearns Room Volunteer Papers, Session IB – Anderson Room Volunteer Papers, Session IC – Max Park Room, Hotel Wildwood
6:30 p.m.	Dinner Break.
8:30 p.m.	Poster Session I – Hoaglund Room

TUESDAY **July 22, 1986**

7:15 a.m.	BREAKFAST WORKSHOPS (Separate registration

is required – see Course Application)
IA: ROUNDTABLE DISCUSSION – Kearns Room
A follow-up on the preceding day's symposium.
Panelists:
*Dr. Doron Lancet, Weizmann Institute of Science
Dr. David Moran, University of Colorado
Dr. Judith Armitage, University of Oxford
Dr. Judith Van Houten, University of Vermont
Dr. Toshihide Sato, Nagasake University
IB: OVERVIEW OF TRIGEMINAL CHEMORECEPTION – Plaza
Panelists:
*Dr. Daniel Kurtz, R. J. Reynolds Tobacco Company
Dr. William Cain, John B. Pierce Foundation
Dr. Herbert Stone, Tragon Corporation
Dr. Yves Alarie, University of Pittsburg
IC: TEMPORAL ASPECTS OF CHEMICAL STIMULI: NATURAL STIMULUS DISTRIBUTIONS, RECEPTOR CELL ADAPTATION AND BEHAVIORAL FUNCTION – Roof Garden
*Dr. Jelle Atema, Marine Biological Laboratory
Dr. Karl-Ernst Kaissling, Max-Planck Institut für Verhaltensphysiologie
Dr. Robert Frank, University of Cincinnati
*Chairpersons

or,

7:30 a.m. Continental Breakfast – Conference Center Lobby

8:30 a.m. SYMPOSIUM: **"How is Peripheral Input Processed in the Central Nervous System?"** – Anderson Room
Chaired by Dr. T. Finger, Univ. of Colorado
COMPUTATIONAL MAPS IN THE NERVOUS SYSTEM
Dr. Eric Knudsen
Stanford University, USA
FROM RECEPTOR ACTIVITY TO DESCENDING OUTPUT – A SEARCH FOR THE NEURAL CODE UNDERLYING ODOR-GUIDED BEHAVIOUR
Dr. Jürgen Boeckh
University of Regensburg, FRG
Coffee, Tea Break
ORGANIZATION OF OLFACTORY BULB OUTPUT CELLS AND THEIR LOCAL CURCUIT RELATIONSHIPS
Dr. John Scott
Emory University, USA
CORTICAL ORGANIZATION IN GUSTATORY PERCEPTION
Dr. Takashi Yamamoto
Osaka University Dental School, Japan
DISCUSSION

12:00 noon Lunch Break
Box lunches are available to those who have pre-registered (see Course Application)
BUS TRIP TO MAROON BELLS
(see General Information and Course Application)

2:00 p.m. Association for Chemoreception Sciences – General Business Meeting

3:00 p.m. Volunteer Papers, Session IIA – Kearns Room
Volunteer Papers, Session IIB – Anderson Room
Volunteer Papers, Session IIC – Max Park Room, Hotel Wildwood

6:30 p.m. Dinner Break

8:30 p.m. Poster Session II – Hoaglund Room

WEDNESDAY **July 23, 1986**

7:15 a.m. BREAKFAST WORKSHOPS (Separate registration is required – see Course Application)
IIA: ROUNDTABLE DISCUSSION – Plaza
A follow-up on the preceding day's symposium.
Panelists:
*Dr. John Scott, Emory University
Dr. Eric Knudsen, Stanford University
Dr. Jurgen Boeckh, University of Regensburg
Dr. Takashi Yamamoto, Osaka University
IIB: SINGLE CHANNELS: WHAT ARE THEY AND HOW ARE THEY INVOLVED IN CHEMOSENSORY TRANSDUCTION? – Roof Garden
Panelists:
*Dr. Vincent Dionne, University of California
Dr. Sue Kinnamon, Colorado State University
Dr. Steven Kleene, University of Cincinnati
IIC: SALT APPETITE: INTAKE AND PREFERENCE FOR SALT IN MAN AND ANIMALS – Kearns Room
Panelists:
*Dr. Mary Bertino, Monell Chemical Senses Center
Dr. Susan S. Schiffman, Duke University
Dr. David Hill, University of Toledo
Dr. Alastair R. Michell, University of London
*Chairpersons

or,

7:30 a.m. Continental Breakfast – Conference Center Lobby

8:30 a.m. SYMPOSIUM: **"Do Responses to Mixtures of Chemical Stimuli Differ Fundamentally From Responses to Pure Stimuli?"** – Anderson Room
Chaired by Dr. D. Hornung, St. Lawrence University
EFFECTS OF ODORANT MIXTURES ON OLFACTORY RECEPTOR CELLS
Dr. Steven Price
Virginia Commonwealth University, USA
CODING OF CHEMOSENSORY STIMULUS MIXTURES
Dr. David G. Laing
CSIRO Division of Food Research, Australia
MIXTURES OF TASTANTS AND MIXTURES OF ODORANTS
Dr. Jan E. R. Frijters
Agricultural University, The Netherlands
Coffee, Tea Break
ELECTROPHYSIOLOGICAL RESPONSES OF INSECT OLFACTORY RECEPTOR NEURONS TO STIMULATION WITH MIXTURES OF INDIVIDUAL PHEROMONE COMPONENTS
Dr. Robert J. O'Connell
Worcester Foundation, USA
ODOR/TASTE MIXTURES
Dr. David E. Hornung
St. Lawrence University, USA
SUMMARY AND PERSPECTIVES
Dr. Maxwell M. Mozell
Upstate Medical Center, USA
DISCUSSION

12:00 noon Lunch Break.
HORSEBACK RIDE (See General Information and Course Application)

3:00 p.m. Volunteer Papers, Session IIIA – Kearns Room
Volunteer Papers, Session IIIB – Anderson Room
Volunteer Papers, Session IIIC –Max Park Room, Hotel Wildwood

6:30 p.m. BANQUET – Cocktails on the Roof Garden
Banquet in the Anderson Room
AFTER DINNER COMMENTS AND

INTRODUCTIONS
Dr. Maxwell M. Mozell, Chairman
International Commission on Olfaction and Taste

8:30 p.m. Poster Session III – Hoaglund Room

THURSDAY **July 24, 1986**

7:15 a.m. BREAKFAST WORKSHOPS (Separate registration is required – see Course Application)
IIIA: ROUNDTABLE DISCUSSION – Roof Garden
A follow-up on the preceding day's symposium
*Dr. David Hornung, St. Lawrence University
Dr. Steven Price, Medical College of Virginia
Dr. Robert J. O'Connell, Worcester Foundation
Dr. Jan E. R. Frijters, Agricultural University
Dr. David Laing, CSIRO
Dr. Maxwell M. Mozell, Upstate Medical Center
IIIB: RECENT TRENDS IN CLINICAL MEASUREMENT OF TASTE AND SMELL – Kearns Room
Panelists:
*Dr. Janneane F. Gent, University of Connecticut
Dr. Gregg Settle, University of Pennsylvania
Dr. Hiroshi Tomita, Nihon University
A movie by Dr. Hiroshi Tomita on taste abnormalities and their diagnosis will be shown.
IIIC: SENSORY PROCESSING AND THE CHEMICAL SENSES: COGNITIVE APPROACHES – Plaza
Panelists:
*Dr. Bruce Halpern, Cornell University
Dr. James Kuznicki, The Procter and Gamble Company
Dr. Harry Lawless, S. C. Johnson and Son, Inc.
Dr. Claire Murphy, San Diego State University
*Chairpersons

or,

7:30 a.m. Continental Breakfast – Conference Center Lobby

8:30 a.m. SYMPOSIUM **"From Reception to Perception: Summary and Synthesis"** – Anderson Room
Chaired by Dr. Stephen Roper, Colorado State University
HOW MOTILE BACTERIA SENSE AND RESPOND TO CHEMICALS
Dr. Julius Adler
University of Wisconsin, USA
ORGANIZING PRINCIPLES FOR MOLECULAR INFORMATION PROCESSING IN OLFACTORY SYSTEMS
Dr. Gordon Shepherd
Yale University Medical School, USA
ADAPTATION PROCESSES IN INSECT OLFACTORY RECEPTORS: THEIR RELATION TO TRANSDUCTION AND ORIENTATION
Dr. Karl-Ernst Kaissling
Max-Planck Institut für Verhaltensphysiologie, FRG
Coffee, Tea Break
STANDARDIZED OLFACTOMETER IN JAPAN – A REVIEW OVER TEN YEARS
Dr. Sadayuki F. Takagi
Gunma University School of Medicine, Japan
VISUAL APPROACH TO FRAGRANCE DESCRIPTION
Dr. Maurice Thiboud
L. Givaudan & Cie SA, Switzerland

12:00 noon Symposium Adjourns.

12:30 p.m. RIVER RAFTING TRIP (See Course Application)

SLIDE PRESENTATIONS

MONDAY, July 21, 1986

BIOCHEMISTRY, TRANSDUCTION, RECEPTOR MODELS

Session IA: Kearns Room
Chaired By: Joseph G. Brand

3:00 - S. 1. KENZO KURIHARA, MAKOTO NAKAMURA and MAKOTO KASHIWAYANAGI. (Faculty of Pharmaceutical Sciences, Hokkaido University, Sapporo, Japan.) *Dynamic Conformational Changes of Receptor Domains in Gustatory and Olfactory Cell Membranes.*

3:15 - S. 2. HARRY WMS. HARPER. (Eastern Research Center, Stauffer Chemical Co., Dobbs Ferry, NY 10522.) *A Diffusion Potential Model of Salt Taste Receptors.*

3:30 - S. 3. WILLIAM JAKINOVICH, JR. and VASILIKI VLAHOPOULOS. (Dept. of Biological Sciences, Herbert H. Lehman College, CUNY, Bronx, NY 10468.) *Comparison of Efficacy of Stimulators and Inhibitors of the Gerbil's Sugar Taste Response.*

3:45 - S. 4. JOSEPH G. BRAND[1, 2], BRUCE P. BRYANT[1], ROBERT H. CAGAN[3] and D. LYNN KALINOSKI[1]. ([1]Monell Chemical Senses Center and [2]Veterans Administration Medical Center, Unviersity of Pennsylvania, Philadelphia, PA 19104 and [3]Colgate-Palmolive Co., Research and Development, Piscataway, NJ 08854.) *Enantiomeric Specificity of Alanine Taste Receptor Sites in Catfish.*

4:00 - S. 5. D. LYNN KALINOSKI[1], BRUCE P. BRYANT[1], GADI SHAULSKY[1], and JOSEPH G. BRAND[1, 2]. ([1]Monell Chemical Senses Center, and [2]Veterans Administration Medical Center, University of Pennsylvania, Philadelphia, PA 19104.) *Specific L-Arginine Taste Receptor Sites: Biochemical and Neurophysiological Studies.*

4:15 - S. 6. RICHARD C. BRUCH and TAUFIQUL HUQUE. (Monell Chemical Senses Center, 3500 Market Street, Philadelphia, PA 19104.) *Odorant- and Guanine Nucleotide-Stimulated Phosphoinositide Turnover in Olfactory Cilia.*

4:30 - Coffee Break

Chaired By: William Jakinovich, Jr.

4:45 - S. 7. STEVEN PRICE and AMY WILLEY. (Dept. of Physiology and Biophysics, Medical College of Virginia, Virginia Commonwealth University, Richmond, VA 23298.) *Benzaldehyde Binding Protein from Dog Olfactory Epithelium.*

5:00 - S. 8. ROBERT R.H. ANHOLT[1], SUZANNE M. MUMBY[2], DORIS A. STOFFERS[1], PEGGY R. GIRARD[3], J.F. KUO[3], ALFRED G. GILMAN[2] and SOLOMON H. SNYDER[1]. ([1]The Department

of Neuroscience, The Johns Hopkins University School of Medicine, Baltimore, MD 21205, [2]The Department of Pharmacology, University of Texas Health Science Center at Dallas, Dallas, Texas 75235, and [3]Department of Pharmacology, Emory University School of Medicine, Atlanta, Georgia 30322.) *Transductory Proteins of Olfactory Receptor Cells: Identification of Guanosine Nucleotide Binding Proteins and Protein Kinase C.*

5:15 - S. 9. PAMELA B. SKLAR, ROBERT R.H. ANHOLDT and SOLOMON H. SNYDER. (The Department of Neuroscience, The Johns Hopkins University School of Medicine, Baltimore, MD 21205.) *The Odorant-Sensitive Adenylate Cyclase of Olfactory Receptor Cells: Differential Stimulation by Distinct Classes of Odorants.*

5:30 - S. 10. JONATHAN PEVSNER, PAMELA B. SKLAR and SOLOMON H. SNYDER. (Depts. of Neuroscience, Pharmacology and Experimental Therapeutics, Psychiatry and Behavioral Sciences, Johns Hopkins University School of Medicine, Baltimore, MD 21205,) *Localization of Odorant Binding Protein (OBP) to Nasal Glands and Secretions.*

5:45 - S. 11. JAMES E. SCHWOB and DAVID I. GOTTLIEB. (Dept. of Anatomy and Neurobiology, Washington University School of Medicine, St. Louis, MO 63110.) *MAB RB-8 That Distinguishes Chemically Distinct Zones in Primary Olfactory Projection Recognizes 125 KDA Membrane-Associated Protein.*

6:00 – S. 12. THOMAS A. KEIL. (Max-Planck-Institut fur Verhaltensphysiologie, Gruppe Kaissling, D-8131 Seewiesen, West Germany.) *Lectin Binding Sites in Olfactory Sensilla of the Silkmoth,* ***Antheraea polyphemus.***

OLFACTORY BULB: ANATOMY AND DEVELOPMENT

Session IB: Anderson Room
Chaired By: Michael Leon

3:00 - S. 13. CELESTE R. WIRSIG and THOMAS V. GETCHELL. (Dept. of Anatomy and Cell Biology, Wayne State University, Detroit, MI 48201.) *Identification of the Terminal Nerve in Two Amphibians Shown by the Localization of LHRH-Like Immunoreactive Material and AChE.*

3:15 - S. 14. A. I. FARBMAN, J. I. MORGAN and J. L. HEMPSTEAD. (Dept. of Neurobiology and Physiology, Northwestern University, Evanston, IL 60201 and Roche Institute of Molecular Biology, Nutley, NJ 07110.) *Immunofluorescent Studies of the Development of Rat Olfactory Epithelium.*

3:30 - S. 15. ESMAIL MEISAMI, JANICE LEU, ROBYN HUDSON[1] and HANS DISTEL[2]. ([1]Dept. of Physiology-Anatomy, University of California, Berkeley, CA 94720, and [2]Inst. Med. Psychol., Univ. Munich, D-8000 Munchen 2, FRG.) *Marked Postnatal Increase in the Total Number of Olfactory Neurons and Surface Area of the Mucosa in the Rabbit.*

3:45 - S. 16. G. D. ADAMEK, W. T. NICKELL and M. T. SHIPLEY. (Dept. of Anatomy and Cell Biology, University of Cincinnati Medical Center, Cincinnati, OH 45267.) *Evidence for Diffuse and Focal Projections from the Olfactory Epithelium to the Bulb.*

4:00 - S. 17. P. E. PEDERSEN, G. M. SHEPHERD and C. A. GREER. (Sec. Neuroanatomy and Neurosurgery, Yale University School of Medicine, New Haven, CT 06510.) *Cytochrome Oxidase Staining in the Olfactory Epithelium and Bulb of Normal and Odor-Deprived Neonatal Rats.*

4:15 - S. 18. H. PANHUBER, D. G. LAING and A. MACKAY-SIM[1]. (CSIRO Division of Food Research, North Ryde, Australia 2113, [1]Dept. Physiol. Univ. Adelaide, Adelaide, Australia 5000.) *The Size of Mitral Cells Depends on the Age at Which Continuous Odour Exposure Commences.*

4:30 - Coffee Break

Chaired By: Celeste R. Wirsig

4:45 - S. 19. GRAHAM A. BELL, DAVID G. LAING and HELMUT PANHUBER. (CSIRO Division of Food Research, North Ryde, Australia, 2113.) *Early-Stage Processing of Odor Mixtures.*

5:00 - S. 20. MICHAEL LEON, ROBERT COOPERSMITH, REGINA SULLIVAN, DONALD WILSON and CYNTHIA WOO. (Dept. of Psychobiology, University of California, Irvine, CA 92717.) *Early Olfactory Learning: Characteristics and Mechanisms.*

5:15 - S. 21. RAIMUND APFELBACH and ELKE WEILER. (Dept. Biology, Univ. Tubingen, 7400 Tubingen, FRG.) *A Quantitative Golgi Analysis of Granule Cell Development in the Ferret Olfactory Bulb under Normal and Experimental Conditions.*

5:30 - S. 22. HARRIET BAKER. (Dept. of Neurology, Cornell University Medical College, New York, NY 10021.) *Dopamine and Substance P are Contained in Different Populations of Tufted Cells in the Syrian and Chinese Hamster Main Olfactory Bulb.*

5:45 - S. 23. CHARLES A. GREER. (Sections of Neurosurgery and Neuroanatomy, Yale University School of Medicine, New Haven, CT 06510.) *Conjugate Internalization of Apposed Dendritic Membranes During Synaptic Reorganization in the Olfactory Bulbs of Adult PCD Mice.*

6:00 - S. 24. P. P. C. GRAZIADEI, J. A. HECKROTH and G. A. MONTI GRAZIADEI. (Dept. Biological Science, Florida State University, Tallahassee, FL 32306.) *Ultrastructural Observations of Olfactory Glomeruli Without a Target.*

BEHAVIOR: PHEROMONES, FOOD AND MIXTURES

Session IC: Max Park Room
Chaired By: Jelle Atema

3:00 - S. 25. R. PREISS and E. KRAMER. (Max-Planck-Institut für Verhaltensphysiologie, D-8131 Seewiesen, West Germany. *Mechanism of Pheromone Orientation in Flying Moths.*

3:15 - S. 26. L. HANDRICH and J. ATEMA. (Boston University Marine Program, Marine Biological Laboratory, Woods Hole, MA 02543.) *Chemical Signal to Noise Ratios Determine Lobsters' Behavioral and Physiological Responses to Food Mixtures.*

3:30 - S. 27. MARION E. FRANK and THOMAS P. HETTINGER. (Dept. of Oral Biology, University of Connecticut Health Center, Farmington, CT 06032.) *Analysis of Taste Mixtures by Hamsters.*

3:45 - S. 28. CARL PFAFFMANN and M. SCOTT HERNESS. (Laboratory of Neurobiology and Behavior, The Rockefeller University, New York, NY 10021.) *Multiple Bitter Receptor Sites in Hamsters.*

4:00 - S. 29. THOMAS HELLMAN MORTON[1] and J. RUSSELL MASON[2]. ([1]Dept. of Chemistry, University of California, Riverside, CA 92521 and [2]Monell Chemical Senses Center, 3500 Market Street, Philadelphia, PA 19104.) *Olfactory Detection of Ketones and Aldehydes by Tiger Salamanders.*

4:15 - S. 30 SHEENAN HARPAZ[1] and JACOB E. STEINER[2]. ([1]Dept. of Zoology, Life Sciences Institution and [2]Dept. of Oral Biology, Hadassah Faculty of Dental Medicine, The Hebrew University of Jerusalem, Israel.) *Behavior-Stereotypes of Feeding and Those Displayed in Rejection of Aversive-Tasting Food by the Freshwater Prawn:* ***Macrobrachium rosenbergii.***

4:30 - Coffee Break

Chaired By: Charles J. Wysocki

4:45 - S. 31. RICHARD K. ZIMMER-FAUST. (Marine Science Institute, University of California, Santa Barbara, CA 93106.) *Are Feeding Responses by Crustacea Tuned to the Relative Energy and Nutrient Qualities of Odor?*

5:00 - S. 32. KUNIO TORII, KAZUNORI MAWATARI and YASUMI YUGARI. (Central Research Laboratories, Ajinomoto Co., Inc., 214, Maeda-cho, Totsuka-ku, Yokohama, Japan 244.) *Effect of Dietary Protein on the Taste Preference for Amino Acids and Sodium Chloride in Rats.*

5:15 - S. 33. MARK I. FRIEDMAN and MICHAEL G. TORDOFF. (Monell Chemical Senses Center, 3500 Market Street, Philadelphia, PA 19104.) *Role for the Liver in the Formation of Food Flavor Preferences.*

5:30 - S. 34. WILLIAM C. MICHEL. (Dept. of Biology, University of California, Los Angeles, CA 90024.) *Contact Chemoreception and Mate Recognition by an Antarctic Crustacean.*

5:45 - S. 35. ROBERT T. MASON, JOHN W. CHINN[1] and DAVID CREWS. (Departments of Zoology and [1]Chemistry, University of Texas, Austin, TX 78712.) *Seasonal and Sex Differences in Garter Snake Chemical Cues.*

6:00 - S. 36. JOHN J. LEPRI and CHARLES J. WYSOCKI. (Monell Chemical Senses Center, 3500 Market Street, Philadelphia, PA 19104.) *Vomeronasal Chemoreception May Activate Reproduction in Reflex-Ovulating Prairie Voles.*

6:15 - S. 37. A. N. CLANCY, F. H. BRONSON, A. G. SINGER, W. C. AGOSTA and F. MACRIDES. (Worcester Foundation for Experimental Biology, Shrewsbury, MA 01545, University of Texas, Austin, TX 78712 and the Rockefeller University, New York, NY 10021.) *Experiential and Endocrine Dependence of Gonadotropin Responses in Male Mice to Conspecific Urine.*

POSTER SESSION I

MONDAY, July 21, 1986

Hoaglund Room

MOLECULAR ASPECTS OF CHEMOSENSORY TRANSDUCTION

P. 1. KAZUMITSU HANAI, MASAHIKO SAKAGUCHI, SACHIKO MATSUHASHI[1], KATSUJI HORI[1] and HIROMICHI MORITA. (Dept. of Biology, Faculty of Science, Kyushu University 33, Fukuoka 812, Japan and [1]Dept. of Biochemistry, Saga Medical School, Saga 840-01, Japan.) *Multiple Receptors Mediating the Feeding Response of Hydra and Monoclonal Antibodies Against One of the Receptors.*

P. 2. STEPHANIE SCHULZ and JUDITH VAN HOUTEN. (Dept. of Zoology, University of Vermont, Burlington, VT 05405.) *Progress on the Identification of the Folate Chemoreceptor of Paramecium.*

P. 3. ICHIRO SHIMADA, YUJI MAKI[1] and HIROSHI SUGIYAMA[2]. (Dept. of Biological Science, Tohoku University, Kawauchi, Sendai 980, [1]Dept. of Chemistry, Faculty of Science, Yamagata University, Yamagata 990 and [2]Chemical Research Institute of Non-aqueous Solution, Tohoku University, Katahira, Sendai 980.) *Stereospecificity of the Alkyl Site for Optical Isomers of Dipeptides in the Labellar Sugar Receptor of the Fleshfly.*

P. 4. MAKOTO KASHIWAYANAGI, KIMIE SAI and KENZO KURIHARA. (Faculty of Pharmaceut. Science, Hokkaido University, Sapporo 060, Japan.) *Changes in Membrane Potential and Membrane Fluidity in Response to Various Odorants in Cell Preparations Isolated from Porcine Olfactory Mucosa.*

P. 5. HENRY G. TRAPIDO-ROSENTHAL, WILLIAM E. S. CARR, SCOTT M. LAMBERT and MARSHA L. MILSTEAD. (C. V. Whitney Laboratory and Dept. of Zoology, University of Florida.) *The Biochemistry of Olfactory Purinergic System.*

P. 6. RICHARD SEFECKA[1] and LINDA M. KENNEDY[2]. ([1]IBM Instruments, Inc., Danbury, CT 06810, [2]Dept. of Biology, Clark University, Worcester, MA 01610.) *Chemical Analyses of Hodulcin, the Sweetness-suppressing Principle from* ***Hovenia dulcis*** *Leaves.*

PHEROMONES

P. 7. RICHARD G. VOGT. (Department of Chemistry, SUNY, Stony Brook, NY 11794.) *Variation in Olfactory Proteins: A Conceptual Poster on the Evolution of Behavior.*

P. 8. WITHDRAWN

P. 9. MICHAEL A. ADAMS, JOHN H. TEETER, YAIR KATZ and PETER B. JOHNSEN. (Monell Chemical Senses Center, University of Pennsylvania, 3500 Market Street, Philadelphia, PA 19104.) *Sex Pheromones of the Sea Lamprey* ***(Petromyzon Marinus):*** *Steroid Studies.*

P. 10. M. S. MAYER and R. W. MANKIN. (USDA, ARS; Insect Attractants, Behavior, and Basic Biology Research Laboratory, P.O. Box 14565, Gainesville, FL 32604.) *A Linkage Between Coding of Quantity and Quality of Pheromone Gland Components by Receptor Cells of* ***Trichoplusia NI.***

P. 11. JEFFREY HALPERN, NANCY SCHULMAN and MIMI HALPERN. (Dept. of Anatomy and Cell Biology, Downstate Medical Center, Brooklyn, NY 11203.) *Earthworm Alarm Pheromone is a Garter Snake Chemoattractant.*

P. 12. KUNIO YAMAZAKI[1], GARY K. BEAUCHAMP[1], OSAMU MATSUZAKI[1], DONNA KUPNIEWSKI[1], JUDY BARD[2], LEWIS THOMAS[2] and EDWARD A. BOYSE[2]. ([1]Monell Chemical Senses Center, Philadelphia, PA 19104 and [2]Memorial Sloan-Kettering Cancer Center, New York, NY 10021.) *Influence of a Single Mutation on the Incidence of Pregnancy Block in Mice.*

P. 13. SERGEJ N. NOVIKOV. (I.P. Pavlov Institute of Physiology, Academy of Sciences of the USSR, Leningrad 199164, USSR.) *Evidence for Volatile Nature of Active Substance(s) Naturally Occurring in the Urine of Adult Laboratory Mice and Suppressing the Spermatogenesis in Juveniles.*

OLFACTORY ELECTROPHYSIOLOGY

P. 14. K. E. KAISSLING, C. ZACK-STRAUSFELD and E. RUMBO[1]. (Max-Planck-Institut fur Verhaltensphysiologie, 8131 Seewiesen, FRG. [1]CSIRO, P.O. Box 1700, Canberra, Australia. *Adaptation Processes in Insect Olfactory Receptors: Their Relation to Transduction and Orientation.*

P. 15. CHARLES D. DERBY[1], WILLIAM E. S. CARR[2] and BARRY W. ACHE[2] ([1]Dept. of Biology, Georgia State University, Atlanta, GA 30303.) ([2]C. V. Whitney Lab, University of Florida, Rt. 1, Box 121, St. Augustine, FL 32086.) *AMP Receptors of the Spiny Lobster: External Receptors on the Olfactory Organs and Internal Receptors in the Brain.*

P. 16. BRUCE D. WINEGAR and ROLLIE SCHAFER. (Dept. of Biological Sciences, North Texas State University, Denton, TX 76203-5218.) *Evidence for Participation by Calcium and Cyclic AMP in Olfactory Transduction.*

P. 17. BRUCE R. JOHNSON, CARL L. MERRILL, ROY C. OGLE and JELLE ATEMA. (Boston University Marine Program, Marine Biological Laboratory, Woods Hole, MA 02543.) *Tuning of Olfactory Neurons Sensitive to Hydroxy-L-Proline in the American Lobster.*

P. 18. T. A. HARRISON and J. W. SCOTT. (Dept. of Anatomy and Cell Biology, Emory University School of Medicine, Atlanta, GA 30322.) *Analysis of Olfactory Neural Responses by a Method of Spike Train Matching.*

P. 19. LLOYD HASTINGS and TRUE-JENN SUN. (Dept. of Environmental Health, University of Cincinnati, College of Medicine, Cincinnati, OH 45267-0056.) *Effects of Cadmium on Rat Olfactory System.*

P. 20. MARIE C. CLUGNET and J. L. PRICE. (Dept. of Anatomy and Neurobiology, Washington University School of Medicine, St. Louis, MO 63110.) *Olfactory Input to Prefrontal Cortex in the Rat.*

P. 21. EDMUND A. ARBAS, CAROL J. HUMPHREYS and BARRY W. ACHE. (C. V. Whitney Lab., Univ. of Florida, St. Augustine, FL 32086.) *Morphological and Physiological Characterization of Interneurons in the Olfactory Midbrain of the Crayfish.*

P. 22. MICHAEL MEREDITH. (Dept. of Biological Science, Florida State University, Tallahassee, FL 32306.) *Temporal and Spatial Patterns of Response to Odor in the Hamster Olfactory Bulb: Single Unit Recordings and Computer Simulation.*

P. 23. D. SCHILD and H. P. ZIPPEL. (Physiologisches Institut, Humboldtallee 23, Universitat D-3400 Gottingen, FRG.) *Information Processing in the Olfactory Bulb: Changes in Single Neurone Responses During Repetitive Stimulation.*

OLFACTION: BEHAVIOR

P. 24. RICHARD E. BROWN[1], PRIM B. SINGH[2] and BRUCE J. ROSER[2]. ([1]Subdepartment of Animal Behaviour, Madingley and [2]Institute of Animal Physiology, Babraham, Cambridge, England.) *Olfactory Recognition of Congenic Strains of Rats.*

P. 25. LARRY CLARK[1] and J. RUSSELL MASON[1, 2]. (Monell Chemical Senses Center, 3500 Market Street, Philadelphia, PA 19104, and [2]Dept. of Biology, University of Pennsylvania, Philadelphia, PA 19104.) *Olfactory Discrimination of Plant Volatiles by the European Starling.*

P. 26. KIMBERLY MAY, LAWRENCE MYERS and DONALD BUXTON. (Dept. of Physiology and

Pharmacology, Auburn University, AL 36849.) *The Association Between Anosmia and Anorexia in the Feline Species.*

P. 27. JACQUELINE FINE and CHARLES D. DERBY. (Dept. of Biology, Georgia State University, Atlanta, GA 30303.) *Olfactory Discrimination: Behaviorial Abilities of the Spiny Lobster.*

P. 28. LEE ANNE MARTINEZ. (Dept. of Entomology, Cornell University, Ithaca, NY 14853.) *Morphological and Behavioral Evidence for Chemoreception by Predaceous Stonefly Nymphs and Their Mayfly Prey.*

OLFACTION: CENTRAL NERVOUS SYSTEM

P. 29. M. T. SHIPLEY, W. T. NICKELL and J. McLEAN. (Dept. of Anatomy and Cell Biology, Univ. of Cincinnati College of Medicine, Cincinnati, OH 45267.) *Organization of Afferents from the Nucleus of the Diagonal Band to the Olfactory Bulb.*

P. 30. M. L. GETCHELL, B. ZIELINSKI and T. V. GETCHELL. (Dept. of Anatomy and Cell Biology, Wayne State University School of Medicine, Detroit, MI 48201.) *Evidence for Cholinergic Involvement in the Secretory Response of Olfactory Glands of the Salamander to Pyrazine.*

P. 31. BERNICE M. WENZEL and ESMAIL MEISAMI. (Dept. Physiology, University of California, Los Angeles, CA 90024 and Dept. Physiology-Anatomy, University of California, Berkeley, CA 94720.) *Number, Size and Density of Mitral Cells in the Olfactory Bulbs of the Northern Fulmar and Rock Dove.*

P. 32. KAZUYOSHI UENO, YUTAKA HANAMURE, JEUNG GWEON LEE and MASARU OHYAMA. (Dept. of Otolaryngology, Faculty of Medicine, Kagoshima Univ., Kagoshima 890 Japan.) *Functional Morphology of the Olfactory Epithelium.*

P. 33. SHUNTARO SHIGIHARA[1], JUNKO YASUKATA[1], HIROSHI TOMITA[1] and MASAOMI OKANO[2]. ([1]Dept. of Otorhinolaryngology, Nihon University, School of Medicine; [2]Dept. of Veterinary Anatomy, College of Agriculture and Veterinary Medicine, Nihon University, Tokyo, Japan.) *Electron Microscopy of Olfactory Epithelium in Zinc Deficiency Rats.*

P. 34. JOE E. SPRINGER, SOOKYONG KOH, MARK W. TAYRIEN and REBEKAH LOY. (Dept. of Neurobiology and Anatomy, University of Rochester Medical Center, Rochester, New York 14642,) *Immunocytochemical Localization of Nerve Growth Factor (NGF) and NGF Receptor in the Rat Olfactory Bulb.*

P. 35. JAY B. LABOV[1], [2], YAIR KATZ[1], CHARLES J. WYSOCKI[1], GARY K. BEAUCHAMP[1] and LINDA M. WYSOCKI[1]. ([1]Monell Chemical Senses Center, Philadelphia, PA 19104, and [2]Dept. of Biology, Colby College, Waterville, ME 04901.) *Elevated Levels of Immunoreactive Beta-Endorphin in Rostral and Caudal Sections of Olfactory Bulbs from Male Guinea Pigs Exposed to Odors of Conspecific Females.*

P. 36. J. L. PRICE and T. A. FULLER. (Dept. of Anatomy and Neurobiology, Washington University School of Medicine, St. Louis, MO 63110.) *Putative Glutamergic and Aspartergic Cells in the Olfactory Bulb of the Rat.*

SLIDE PRESENTATIONS

TUESDAY, July 22, 1986

MEMBRANE CHANNELS AND INTRACELLULAR RECORDING

Session IIA: Kearns Room
Chaired By: John H. Teeter

3:00 - S. 38. S. C. KINNAMON and S. D. ROPER. (Rocky Mountain Taste and Smell Center, University of Colorado Health Sciences Center, Denver, CO 80262 and Dept. of Anatomy, Colorado State University, Fort Collins, CO 80523.) *Outward Currents in Isolated Taste Receptor Cells of the Mudpuppy.*

3:15 - S. 39. JOHN TEETER. (Monell Chemical Senses Center and Dept. of Physiology, University of Pennsylvania School of Medicine, Philadelphia, PA 19104.) *Quasi-Regenerative Responses to Chemical Stimuli in* ***in vivo*** *Taste Cells of the Mudpuppy.*

3:30 - S. 40. THOMAS P. HETTINGER and MARION E. FRANK. (Dept. of Oral Biology, University of Connecticut Health Center, Farmington, CT 06032.) *Amiloride Produces Acute Inhibition and Chronic Sensitization of Neural Taste Responses to Sodium Chloride.*

3:45 - S. 41. M. SCOTT HERNESS. (Laboratory of Neurobiology and Behavior, The Rockefeller University, New York, NY 10021.) *Effect of Amiloride on Iontophoretic and Chemical Stimulation in Hamster and Frog - Neural and Intracellular Evidence.*

4:00 - S. 42. KEIICHI TONOSAKI and MASAYA FUNAKOSHI. (Dept. of Oral Physiology, School of Dentistry, Asahi University, Gifu 501-02, Japan.) *Effect of Injection of Calcium, EGTA and Cyclic Nucleotides into the Taste Cell of Mouse.*

4:15 - S. 43. THOMAS E. FINGER[1], HEMA SRIDHAR[1], MARY WOMBLE[1], VAR L. ST. JEOR[2] and JOHN C. KINNAMON[2]. ([1]Dept. of Anatomy, Univ. of Colorado Medical School, Denver, CO 80262 and Dept. of MCD Biology, University of Colorado, Boulder, CO 80309.) *Immunoreactivity to Neuronal Growth-Dependent Membrane Glycoprotein Occurs in a Subset of Taste Receptor Cells in Rat Taste Buds.*

4:30 - Coffee Break

Chaired By: Marion E. Frank

4:45 - S. 44. STUART FIRESTEIN and FRANK WERBLIN, Neurobiology Group, University of California, Berkeley, CA 94720.) *The Interaction of*

Generator Current and Voltage Gated Currents in the Olfactory Receptor Response.

5:00 - S. 45. VINCENT E. DIONNE. (Division of Pharmacology, Department of Medicine, University of California, San Diego, CA 92093.) *Membrane Conductance Mechanisms in Dissociated Cells from the Necturus Olfactory Epithelium.*

5:15 - S. 46. NORIYO SUZUKI. (Zoological Institute, Faculty of Science, Hokkaido University, Sapporo 060, Japan.) *Voltage-Dependent Ionic Currents in Isolated Olfactory Receptor Cells.*

5:30 - S. 47. LEONA MASUKAWA, BRITTA HEDLUND and GORDON SHEPHERD. (Section of Neuroanatomy, Yale University School of Medicine, New Haven, CT 06510.) *Changes in Excitable Properties of Olfactory Receptor Neurons Associated with Nerve Regeneration.*

5:45 - S. 48. VITALY VODYANOY and IGOR VODYANOY. (Dept. of Physiology & Biophysics, University of California, Irvine, CA 92717.) *Cyclic-AMP Modulates the Electrical Properties of Olfactory Receptor Sites Functionally Reconstituted into Bimolecular Lipid Membrance (BLM).*

OLFACTORY BULB: PHYSIOLOGY

Session IIB: Anderson Room
Chaired By: John G. Hildebrand

3:00 - S. 49. THOMAS A. CHRISTENSEN and JOHN G. HILDEBRAND. (Arizona Research Laboratories, Div. of Neurobiology, University of Arizona, Tucson, AZ 85721.) *The Coding of Pheromonal Information by "Output" Neurons of the Antennal Lobes of the Sphinx Moth* ***Manduca Sexta.***

3:15 - S. 50. J. S. KAUER and K. A. HAMILTON. (Depts. of Neurosurgery, Anatomy and Cell Biology, Tufts-N.E.M.C., Boston, MA 02111.) *Odor Information Processing in the Olfactory Bulb: Evidence from Intracellular Recording and 2-Deoxyglucose (2DG) Autoradiography.*

3:30 - S. 51. K. A. HAMILTON and J. S. KAUER. (Depts. of Neurosurgery, Anatomy and Cell Biology, Tufts-New England Med. Center, Boston, MA 02111.) *Latencies of Synaptic Potentials in Odor Responses of Salamander Mitral/Tufted Cells.*

3:45 - S. 52. TAO JIANG and ANDRE HOLLEY. (Lab. Physiol. Neurosensorielle, Universite Claude-Bernard, 69622 Villeurbanne cedex, France.) *Responses of Olfactory Bulb Neurons to Spatially-Patterned Electrical Stimulation of the Nasal Mucosa.*

4:00 - S. 53. W. T. NICKELL and M. T. SHIPLEY. (Dept. of Anatomy and Cell Biology, Univ. of Cincinnati College of Medicine, Cincinnati, OH 45267.) *Stimulating the Diagonal Band for 10 Seconds at 10 HZ Causes the Olfactory Bulb to Go Crazy.*

4:15 - S. 54. WALTER J. FREEMAN. (Department of Physiology-Anatomy, University of California, Berkeley, CA 94720.) *How the Olfactory System Generates Its Intrinsic Background "Spontaneous" EEG and Unit Activity.*

4:30 - Coffee Break

Chaired By: Thomas R. Scott

4:45 - S. 55. GARY LICHT and MICHAEL MEREDITH. (Dept. of Biological Sciences, Florida State University, Tallahassee, FL 32306.) *Convergence of Olfactory and Vomeronasal Pathways in the PMCN of the Hamster Amygdala.*

TASTE: PHYSIOLOGY (Session IIB, cont.)

5:00 - S. 56. MARTHA McPHEETERS and MARION E. FRANK. (Dept. of Oral Biology, University of Connecticut Health Center, Farmington, CT 06032.) *Gustatory Stimulus Processing in the Solitary Nucleus of the Hamster.*

5:15 - S. 57. THOMAS R. SCOTT and BARBARA K. GIZA, (Dept. of Psychology and Institute of Neuroscience, University of Delaware, Newark, DE 19716.) *A Synopsis of the Influence of Satiety Factors on Taste Activity.*

5:30 - S. 58. GREGORY P. MARK and THOMAS R. SCOTT. (Dept. of Psychology and Institute of Neuroscience, University of Delaware, Newark, DE 19716.) *Gustatory Activity in the NTS of Chronic Decerebrate Rats.*

5:45 - S. 59. PATRICIA M. DiLORENZO. (Dept. of Psychology, SUNY at Binghamton, Binghamton, NY 13901.) *Off Responses to Gustatory Stimuli in the Parabrachial Pons of Decerebrate Rats.*

6:00 - S. 60. SUSAN P. TRAVERS and RALPH NORGREN. (Dept. of Behavioral Science, Pennsylvania State University, Hershey, PA 17033.) *Responses of Neurons in the Nucleus of the Solitary Tract to Lingual and Palatal Stimulation with Preferred Chemicals.*

6:15 - S. 61. THOMAS C. PRITCHARD, ROBERT B. HAMILTON and RALPH NORGREN. (Dept. of Behavioral Science, The Milton S. Hershey Medical Center, Hershey, PA 17033.) *Neural Coding of Gustatory Information in the Thalamus of an Awake Primate.*

PSYCHOPHYSICS: TIME, SPACE AND MODELS

Session IIC: Max Park Room
Chaired By: Linda Bartoshuk

3:00 - S. 62. TERESA PANTZER[1], [2], BRUCE P. HALPERN[1], [3] and STEVEN T. KELLING[1], [4]. ([1]Dept. of Psychology, [2]Dept. of Chemistry, [3]Section of Neurobiology and Behavior, [4]Field of Physiology, Cornell University, Ithaca, NY 14853.) *Taste Intensity and Reaction Time: Cued Versus Uncued Magnitude Estimates.*

3:15 - S. 63. BARRY G. GREEN. (Monell Chemical Senses Center, 3500 Market Street, Philadelphia, PA 19104.) *The Sensitivity of the Tongue to Ethanol.*

3:30 - S. 64. LAURA MARKS[1], MARGARET O'BRIEN[1], ([1]John B. Pierce Foundation, New Haven, CT 06519), FRANK CATALANOTTO[2], ([2]University of Texas, San Antonio, TX 78284), JANNEANE GENT[3], DORI WILLIAMS[3] and KAREN M. OSTRUM[3], ([3]UCONN Health Center, Farmington, CT 06032.) *Tasting on Localized Areas.*

3:45 - S. 65. MICHAEL O'MAHONY, RIE ISHII and DAVID SHAW. (Dept. Food Science and Technology, University of California, Davis, CA 95616.) *Taste Concepts and Quadranomial Taste Description.*

4:00 - S. 66. PAUL LAFFORT and FRANCOIS PATTE. (Laboratoire de Physiologie de la Chimioreception, C.N.R.S., F.-91190 Gif-sur-Yvette, France.) *Can the Power Law Exponents be Derived from Olfactory Thresholds for Pure Substances?*

4:15 - S. 67. R. KEUNING, E. BACKER, R.P.W. DUIN, H. W. LINCKLAEN WESTENBERG, and S. deJONG. (Unilever Research Lab., Vlaardingen, Netherlands.) *Fuzzy Set Theory Applied to Product Classification by a Sensory Panel.*

4:30 - Coffee Break

Chaired By: Susan S. Schiffman

SALT AND MIXTURES
(Session IIC cont.)

4:45 - S. 68. RICHARD SHEPHERD and CYNTHIA A. FARLEIGH. (AFRC Food Research Institute, Norwich, NR4 7UA, UK.) *Consistency of Preferences for Salt in Different Foods.*

5:00 - S. 69. SUSAN S. SCHIFFMAN, SIDNEY A. SIMON, JAMES M. GILL and TIMOTHY G. BEEKER. (Duke Medical Center, Durham, NC 27710.) *Bretylium Tosylate Enhances Salt Taste.*

5:15 - S. 70. YOSHIE KURIHARA[1], KAZUYOSHI OOKUBO[2] and BRUCE P. HALPERN[3]. ([1]Dept. Chem., Facu. Edu., Yokohama National Univ., Yokohama, [2]Facu. Agri., Tohoku Univ., Sendai, [3]Dept. Psychol., Cornell Univ., Ithaca, NY.) *Purification and Chemical Structure of Taste Modifiers: Taste-Modifying Protein and Ziziphin.*

5:30 - S. 71. SHIZUKO YAMAGUCHI and YASUSHI KOMATA. (Central Research Laboratories, Ajinomoto Co., Inc., 1-1, Suzuki-cho, Kawasaki 210, Japan.) *Independence and Primacy of Umami as Compared with the Four Basic Tastes.*

5:45 - S. 72. MICHAEL NAIM, EMMANUAL DUKAN, LYAT YARON, MARTHA LEVINSON and URI ZEHAVI. (Dept. of Biochemistry and Human Nutrition, Faculty of Agriculture, The Hebrew University of Jerusalem, Rehovot 76100, Israel.) *Effect of the Bitter Taste Stimuli Naringin and Sucrose Octaacetate on Sweet Persistence and Sweet Quality of Neohesperidin Dihydrochalcone.*

6:00 - S. 73. HANS-DIETER BELITZ[1], HARTMUT ROHSE[1], WOLFGANG STEMPFL[1], HERBERT WIESER[1], JOHANN GASTEIGER[2] and CHRISTIAN HILLER[2]. ([1]Institut fur Lebensmittelchemie, Technische Universitat Munchen and Deutsche Forschungsanstalt fur Lebensmittelchemie, D-8046 Garching FR Germany.) ([2]Organisch-chemisches Institut, Technische Universitat Munchen, D-8046 Garching, FR Germany.) *Schematic Sweet and Bitter Receptors.*

POSTER SESSION II

TUESDAY, July 22, 1986

Hoaglund Room

TRIGEMINAL CHEMORECEPTION

P. 37. WAYNE L. SILVER[1], ADAM H. ARZT[2] and J. RUSSELL MASON[2]. ([1]Dept. of Biology, Wake Forest University, Winston-Salem, NC 27109, [2]Monell Center, 3500 Market Street, Philadelphia, PA 19104.) *No trigeminal Discrimination Among Equally Intense Odorants.*

P. 38. JEAN-F. BOUVET, JEAN-C. DELALEU and ANDRE HOLLEY. (Lab. Physiol. Neurosensorielle, Universite *Claude-Bernard, 69622 Villeurbanne cedex, France.) Olfactory Receptor Cell Functioning Affected by Trigeminal Nerve Activity and Substance P.*

P. 39. BEVERLY J. COWART. (Monell Chemical Senses Center, Philadelphia, PA 19104.) *Perceived Burn and Taste Intensity of Physical Mixtures of Capsaicin and Taste Stimuli.*

OTHER CHEMORECEPTORS

P. 40. MANFRED SCHMIDT and WERNER GNATZY. (Gruppe Sinnesphysiologie, Zoolog. Institut., J. W. Goethe-Universitat, Siesmayerstr. 70, 6000 Frankfurt a.M., West Germany.) *Contact Chemoreceptors on the Walking Legs of the Shore Crab,* ***Carcinus Maenas.***

P. 41. JOEL WHITE and MICHAEL MEREDITH. (Dept. of Biological Science, Florida State University, Tallahassee, FL 32306.) *The Nervus Terminalis of the Shark: Influences on Ganglion Cell Activity.*

P. 42. E. LEE COATES, TINA M. CATON and GARY O. BALLAM. (Bioengineering Research Division, Lovelace Medical Foundation and Department of Physiology, University of New Mexico, Albuquerque, NM 87108.) *Upper Airway (Nasal?) Chemoreceptors in a Boid Snake: Ventilatory Response to O_2 and CO_2.*

VOMERONASAL ORGAN

P. 43. NANCY SCHULMAN, EVELYN ERICHSEN and MIMI HALPERN. (Dept. of Anatomy and Cell Biology, Downstate Medical Center, Brooklyn, NY 11203.) *Garter Snake Response to the Chemoattractant in*

Earthworm Alarm Pheromone is Mediated by the Vomeronasal System.

P. 44. N. JAY BEAN[1] and CHARLES J. WYSOCKI[2]. ([1]Dept. of Psychology, Vassar College, Poughkeepsie, NY 12601 and Monell Chemical Senses Center, 3500 Market Street, Philadephia, PA 19104, [2]Monell Chemical Senses Center.) *Effects of Vomeronasal Organ Removal in Lactating Female Mice: Dissociation of Maternal and Agonistic Behaviors.*

CLINICAL

P. 45. JOHN E. AMOORE and ROBERT S. O'NEILL. (Olfacto-Labs, 1414 4th Street, Berkeley, CA 94710.) *Clinical Olfactometry: Improved Convenience in Squeeze-bottle Kits; and a Portable Olfactometer.*

P. 46. RICHARD M. COSTANZO, PETER G. HEYWOOD, JOHN D. WARD and HAROLD F. YOUNG. (Depts. of Physiology and Biophysics and Division of Neurosurgery, Medical College of Virginia, Richmond, VA 23298.) *Neurosurgical Applications of Clinical Olfactory Assessment.*

P. 47. H. N. WRIGHT[1], R. S. WEINSTOCK[2], A. M. SPIEGEL[3], M. A. LEVINE[4] and A. M. MOSES[4]. ([1]Clinical Olfactory Research Center and Dept. of Medicine, SUNY Health Science Center at Syracuse; [2]V.A. Medical Center, Syracuse, NY; [3]Molecular Pathophysiology Section NIADDK, NIH, Bethesda, MD; [4]Dept. of Medicine, Johns Hopkins Univ. School of Medicine, Baltimore, MD.) *Guanine Nucleotide-Binding Stimulatory Protein (G_s) – A Requisite for Human Odorant Perception.*

P. 48. DARLENE BURKE, ALIKI AKONTIDOU and ROBERT A. FRANK. (Dept. of Psychology, University of Cincinnati, Cincinnati, OH 45221.) *Time-Intensity Analysis of Gustatory Stimuli: Preliminary Assessment of a New Technique.*

P. 49. DEBORAH ANNE FROEHLICH and ROSE MARIE PANGBORN. (Depts. of Nutrition and Food Science, University of California, Davis, CA 95616.) *Induction of Human Parotid Salivary Alpha-Amylase Secretion by Oral Stimulation.*

P. 50. SANDRA P. FRANKMANN and BARRY G. GREEN. (Monell Chemical Senses Center, Philadelphia, PA 19104.) *Differential Effects of Cooling on the Intensity of Taste.*

P. 51. MELVIN P. ENNS and DAVID E. HORNUNG. (Depts. of Psychology and Biology, St. Lawrence University, Canton, NY 13617.) *Contributions of Smell and Taste to the Pleasantness of Flavor.*

P. 52. DANIEL M. ENNIS[1] and KENNETH MULLEN[2] ([1]Philip Morris Research Center, Richmond, VA 23261) ([2]Department of Mathematics and Statistics, University of Guelph, Guelph, Ontario, Canada N1G 2W1.) *A Psychophysical-Decision Model for Sensory Difference Methods.*

P. 53. HEATHER J. DUNCAN, AUDREY BUXBAUM and MICHAEL G. TORDOFF. (Monell Chemical Senses Center, 3500 Market Street, Philadelphia, PA 19104.) *Rats Eating Together Prefer the Taste of Their Food.*

P. 54. STEVEN T. KELLING[1], EDWARD SCHWARZCHILD[1], and BRUCE P. HALPERN[2]. ([1]Dept. of Psychology, [2]Dept. of Psychology and Section of Neurobiology and Behavior, Cornell University, Ithaca, NY 14853.) *Human Gustatory Judgments of Aqueous Square Wave Pulse Trains: Reaction Times and Magnitude Estimations.*

P. 55. HELY TUORILA-OLLIKAINEN. (Dept. of Food Chemistry and Technology, University of Helsinki, SF-00710 Helsinki, Finland.) *Relationships Between Attitudes and Hedonic Responses to Sweet, Salty and Fatty Stimuli.*

P. 56. T. ROBERTS, C. HARD af SEGERSTAD and G. HELLEKANT. (Dept. of Veterinary Science, University of Wisconsin, Madison, WI 53706.) *A Fully Automatic Device for Taste Stimulation, Data Acquisition and Data Processing.*

P. 57. D. J. MELA and R. D. MATTES. (Monell Chemical Senses Center, Philadelphia, PA.) *Relationships Between Selected Measures of Sweet Taste Preference and Dietary Habits.*

P. 58. D. B. KURTZ[1], J. C. WALKER[1], J. H. REYNOLDS[1], D. L. ROBERTS[1] and S. . YANKELL[2] ([1]BGTC, R. J. Reynolds Tobacco Co., Winston-Salem, NC 27102) ([2]University of Pennsylvania. School of Dental Medicine, 4001 Spruce Street, Philadelphia, PA 19104 and Integrated Ionics, Inc., 2235 State Route 130, Dayton, NJ 08810.) *Perceptual and Intraoral pH Measurements in Response to Oral Stimulation.*

P. 59. D. LEOPOLD, D. HORNUNG, R. RICHARDSON, P. KENT, M. MOZELL and S. YOUNGENTOB. (Depts. of Otolaryngology, Physiology, and Radiology, SUNY Health Science Center at Syracuse, NY 13210.) *A Changing Density Technique to Measure Nasal Airflow Patterns.*

TASTE ELECTROPHYSIOLOGY

P. 60. RAINER VOIGT and JELLE ATEMA. (Boston University Marine Program, Marine Biological Laboratory, Woods Hole, MA 02543.) *Signal-to-Noise Ratios and a Comparison of Cumulative Self-Adaptation of Taste and Smell Receptor Cells.*

P. 61. YASUYUKI KITADA. (Dept. of Physiology Okayama University Dental School, Okayama 700, Japan.) *Inhibitory Effects of Ca^{2+} On The $Mg^{2}+$ Response of Water Fibers in the Frog Glossopharyngeal Nerve.*

P. 62. MOHSSEN S. NEJAD and LLOYD M. BEIDLER. (Dept. of Biological Science, Florida State University, Tallahassee, FL 32306.) *Taste Responses of the Cross-Regenerated Greater Superficial Petrosal (GSP) and Chorda Tympani (CT) Nerves of the Rat.*

P. 63. JAMES L. FRAZIER. (E. I. du Pont, Wilmington, DE 19898.) *The Effects of Sesquiterpene Dialdehydes on the Styloconic Taste Cells of the Tobacco Hornworm Larva.*

P. 64. INGRID SCHMIEDEL-JAKOB, PETER A. V. ANDERSON, and B. W. ACHE. (C. V. Whitney Laboratory, Univ. Florida, St. Augustine, FL 32086.) *Intracellular Recording of the Receptor Potential in Primary Chemosensory Neurons.*

P. 65. KUNIO YAMAMORI[1], MORITAKA NAKAMURA[1] and TOSHIAKI J. HARA. (Dept. of Fisheries and Oceans, Freshwater Institute, Winnipeg, Canada R3T 2N6; [1]Kitasato University School of Fisheries Sciences Sanriku, Iwate 022-01, Japan.) *Gustatory Responses to Tetrodotoxin and Saxitoxin in Rainbow Trout and Arctic Char: A Possible Biological Defense Mechanism.*

P. 66. TAKAMITSU HANAMORI, INGLIS J. MILLER, JR. and DAVID V. SMITH. (Dept. of Otolaryngology and Maxillofacial Surgery, University of Cincinnati Medical Center, Cincinnati, OH 45267, and Dept. of Anatomy, Bowman Gray School of Medicine, Winston-Salem, NC 27103.) *Taste Responsiveness of Hamster Glossopharyngeal Nerve Fibers.*

P. 67. SHUITSU HARADA, TAKAYUKI MARUI and YASUO KASAHARA. (Dept. of Oral Physiology, Kagoshima University Dental School, Usuki-Chyo, Kagoshima 890, Japan,) *Neural and Behavioral Taste Responses to Amino Acids in Mouse and Rat.*

P. 68. HISASHI OGAWA and TOMOKIYO NOMURA. (Dept. of Physiology, Kumamoto University Medical School, Honjo 2-2-1, Kumamoto 860, Japan.) *Response Properties of Thalamocortical Relay Neurons Responsive to Natural Stimulation of the Oral Cavity in Rats.*

P. 69. NOBUSADA ISHIKO, TAKAMITSU HANAMORI and DAVID V. SMITH. (Dept. of Physiology, Miyazaki Medical College, Miyazaki, 889-16, Japan and Dept. of Otolaryngolgy and Maxillofacial Surgery, Univ. of Cincinnati Medical Center, Cincinnati, OH 45267.) *Gustatory, Thermal and Mechanical Responses of Cells in the Nucleus Tractus Solitarius of the Frog.*

P. 70. C. F. LAMB IV and J. CAPRIO, (Dept. of Zoology and Physiology, Louisiana State University, Baton Rouge, LA 70803-1725.) *Taste and Tactile Responses in the Superior Secondary Gustatory Nucleus of the Catfish.*

P. 71a. ROBERT D. SWEAZEY and ROBERT M. BRADLEY. (Dept. of Oral Biology, School of Dentistry, The University of Michigan, Ann Arbor, MI 48109.) *Multimodal Neurons in the Lamb Solitary Nucleus: Responses to Chemical, Tactile and Thermal Stimulation of the Caudal Oral Cavity and Epiglottis.*

P. 71b. TAEKO YAMADA, MARI UMEZU and YASUKO FUKUSIMA. (Physiological Laboratory, Japan Women's University. Bunkyo-ku, Tokyo, Japan). *Developmental Changes of Chorda Tympani Responses to Four Basic Taste Stimuli in Mice Given Sweet Taste.*

TASTE: BEHAVIOR

P. 72. RUSSELL F. REIDINGER[1], [2], CHARLES N. STEWART[3] and J. RUSSELL MASON[1]. ([1]Monell Chemical Senses Center ad Biology Department, University of Pennsylvania, Philadelphia, PA 19104; [2]U.S. Fish and Wildlife Service, Federal Center, Lakewood, CO 80225; Psychology Department, Franklin and Marshall College, Lancaster, PA 17604.) *Rodenticide Flavor Profiles Identified Through Generalization of Conditioned Flavor Avoidance.*

P. 73. ROBIN KRIMM, MOHSSEN S. NEJAD, JAMES C. SMITH and LLOYD M. BEIDLER. (Depts. of Psychology and Biological Sciences, The Florida State University, Tallahassee, FL 32306.) *The Effects of Bilateral Sectioning of the Chorda Tympani, the Greater Superficial Petrosal Nerve and the Submaxillary Salivary Glands on Daily Eating and Drinking Patterns in Rats.*

P. 74. YUZO NINOMIYA, TETSUICHIRO HIGASHI, TSUNEYOSHI MIZUKOSHI and MASAYA FUNAKOSHI. (Depts. of Oral Physiology, Asahi University, School of Dentistry, Gifu 501-02, Japan.) *Genetics of the Ability to Perceive Sweetness of D-phenylalanine in Mice.*

P. 75. ANN JANE TIERNEY and JELLE ATEMA. (Boston University Marine Program, Marine Biological Laboratory, Woods Hole, MA 02543.) *Effects of Short-Term Exposure to Lowered pH on the Behavioral Response of Crayfish to Chemical Stimuli.*

P. 76. E. BOWDAN. (Dept. of Zoology, Univeristy of Massachusetts, Amherst, MA 01003.) *Tobacco Hornworm Caterpillar Feeding: An Analysis of Biting and Other Activities During Feeding on Tomato Leaf.*

P. 77. A BRAUN, J. R. GANCHROW and J. E. STEINER. (The Hebrew University–Hadassah Faculty of Dental Medicine, Dept. of Oral Biology, Jerusalem, Israel.) *Behavioral Reactions of Taste Stimuli in Hatchling Chicks.*

P. 78. GARY. M. BROSVIC[1], BURTON M. SLOTNICK[1] and ROBERT I. HENKIN[2]. ([1]The American University, Washington, DC and [2]Georgetown University School of Medicine, Washington, DC 20016.) *Taste Detection and Discrimination in Zinc-Deprived Rats.*

P. 79. AUDREY B. KAUFF and BURTON M. SLOTNICK. (The American University, Washington, DC 20016.) *Gustatory Deficits in Rats with Lesions of the Thalamic Taste Nucleus.*

P. 80. LAURA S. WILSON, JAMES C. SMITH, ROSS HENDERSON, JEFFREY SHAUGNESSY, MOHSSEN S. NEJAD and LLOYD M. BEIDLER. (Depts. of Psychology and Biological Sciences, The Florida State University, Tallahassee, FL 32306.) *An Apparatus for the Detailed Analysis of Short Term Taste Tests in Rats.*

P. 81. CHARLES N. STEWART[1], JOHANNA IFFT[1] and YAIR KATZ[2] ([1]Franklin & Marshall College, Lancaster, PA 17604 ([2]Monell Chemical Senses Center, Philadelphia, PA 19104.) *Taste Preference Changes and Adrenal Response in Pyridoxine Deficient Rats.*

P. 82. BURTON M. SLOTNICK and GARY M. BROSVIC. (The American University, Washington, DC, 20016.)

Failure of Rats to Acquire a Reversal Learning Set When Trained with Taste Cues.

SLIDE PRESENTATIONS

WEDNESDAY, July 23, 1986

RECEPTOR CELL PHYSIOLOGY

Session IIIA: Kearns Room
Chaired By: Barry W. Ache

3:00 - S. 74. WOLF A. KAFKA. (Max-Planck-Institut fur Verhaltensphysiologie,D-3131 Seewiesen, FRG.) *Olfactory Receptor Cells in Insects: Reaction Spectra and the Concept of Generalists and Specialists in* ***Antheraea Polyphemus L.***

3:15 - S. 75. PAOLA F. BORRONI and JELLE ATEMA. (Boston University Marine Program, Marine Biological Laboratory, Woods Hole, MA 02543.) *Self- and Cross-Adaptation of Single Chemoreceptor Cells in the Taste Organs of* ***Homarus americanus.***

3:30 - S. 76. JOHN CAPRIO and JOHN DUDEK. (Dept. of Zoology and Physiology, Louisiana State University, Baton Rouge, LA 70803.) *Cross Adaptation Experiments Predict Olfactory and Gustatory Responses to Stimulus Mixtures.*

3:45 - S. 77. WILLIAM E. S. CARR, RICHARD A. GLEESON, BARRY W. ACHE and MARSHA L. MILSTEAD. (C. V. Whitney Laboratory and Dept. of Zoology, University of Florida.) *ATP-Sensitive Olfactory Receptors: Similarities to P_2-Type Purinoceptors.*

4:00 - S. 78. MARILYN B. WHITNEY and LINDA M. KENNEDY. (Dept. of Biology, Clark University, Worcester, MA 01610.) *Temporal Analyses of the Actions of Normal Alcohols on Taste Receptor Cell Responses to Sucrose.*

4:15 - S. 79. RUDOLF ALEXANDER STEINBRECHT. (Max-Planck-Institut fur Verhaltensphysiologie, D-8131 Seewiesen, W.Germany.) *The Electrolyte Distribution in Insect Olfactory Sensilla as Revealed by X-Ray Microanalysis.*

4:30 - Coffee Break

Chaired By: John Caprio

4:45 - S. 80. ALAN J. GRANT[1], ROBERT J. O'CONNELL[1] and ABNER M. HAMMOND, JR.[2] ([1]The Worcester Foundation for Experimental Biology, 222 Maple Avenue, Shrewsbury, MA 01545.) ([2]Department of Entomology, Louisiana State University, Baton Rouge, LA 70803). *Neurophysiological Responses to Pheromone Blend Components in the Soybean Looper Moth.* ***Pseudoplusia Includens*** *(Walker).*

5:00 - S. 81. S. A. SIMON, R. ROBB and J. GARVIN. (Departments of Physiology and Anesthesiology, Duke University Medical Center, Durham, NC 27710.) *Epithelial Responses of Rabbit Tongue and Their Involvement in Taste Transduction.*

5:15 - S. 82. DAVID L. HILL. (Dept. of Psychiatry, University of Toledo, Toledo, OH 43606.) *Development of Amiloride Sensitivity in the Rat Peripheral Gustatory System: A Single Fiber Analysis.*

5:30 - S. 83. PETER W. SORENSEN[1], TOSHIAKI J. HARA and NORMAN E. STACEY[1]. (Dept. of Fisheries and Oceans, Freshwater Institute, Winnipeg, Manitoba R3T 2N6 Canada; [1]Dept. of Zoology, University of Alberta, Edmonton, Alberta T6G 2E9 Canada.) *The Olfactory Sensitivity of Mature Male, Female, Immature and Hypophysectomized Goldfish to L-Amino Acids, Bile Acid, and Steroidal Compounds by Underwater Electro-Olfactogram (EOG).*

5:45 - S. 84. G. HELLEKANT, J. N. BROUWER, T. ROBERTS, C. HARD AF SEGERSTAD and H. VAN DER WEL. (Dept. of Veterinary Science, University of Wisconsin, Madison, WI 53701.) *Chorda Tympani Nerve Responses to Intralingual and Surface Taste Stimulation in the Rhesus Monkey and the Rat.*

6:00 - S. 85. DALE M. NORRIS. (642 Russell Laboratories, University of Wisconsin, Madison, WI 53706.). *Transduction of Repellent Energy State into Cockroach Avoidance Behavior.*

6:15 - S. 86. MITSUO TONOIKE. (Osaka Branch, Electrotechnical Laboratory, Amagasaki 661, Japan.) *Response Characteristics of Olfactory Evoked Potentials Using Time-Varying Filtering.*

TASTE: ANATOMY

Session IIIB: Anderson Room
Chaired By: Bruce Oakley

3:00 - S. 87. FERDINAND A. SIBBING. (Dept. of Exp. Animal Morphology and Cell Biology, Agricultural University, Marijkeweg 40, 6709 PG Wageningen, The Netherlands.) *The Role of Taste in the Feeding Mechanism of the Carp* ***(Cyprinidae).***

3:15 - S. 88. KLAUS REUTTER. (Anatomical Institute, University of Tuebingen, Oesterbergstrasse 3, 74 Tuebingen, FRG.) *Cell Specializations in the Taste Bud of the European Silurid Fish,* ***Silurus glanis*** *(Teleostei).*

3:30 S. 89. BRUCE OAKLEY and MARK A. HOSLEY. (Dept. of Biology, University of Michigan, Ann Arbor, MI 48109.) *Development of Rat Foliate Taste Buds.*

3:45 - S. 90. DAVID R. RIDDLE and BRUCE OAKLEY. (Dept. of Biology, University of Michigan, Ann Arbor, MI 48109.) *Induced Formation of Double Taste Buds in Gerbil Fungiform Papillae.*

4:00 - S. 91. C. M. MISTRETTA, T. NAGAI and R. M. BRADLEY. (Dept. of Oral Biology, Dentistry,

and Center for Nursing Research, University of Michigan, Ann Arbor, MI 48109.) *Relation of Receptive Field Size and Salt Taste Responses in Chorda Tympani Fibers During Development.*

4:15 - S. 92. MARK B. VOGT and CHARLOTTE M. MISTRETTA. (Dept. of Oral Biology, School of Dentistry and Center for Nursing Research, University of Michigan, Ann Arbor, MI 48109.) *Receptive Fields of Second Order Taste Neurons in Sheep: Convergence of Afferent Input Increases During Development.*

4:30 - Coffee Break

Chaired By: A. I. Farbman

OLFACTION: ANATOMY
(Session IIIB cont.)

4:45 - S. 93. H. P. ZIPPEL and D. L. MEYER. (Physiologisches Institut, Humboldtalle 23, Institut fur Anatomie, Kreuzbergring 36, Universitat D-3400 Gottingen, FRG.) *Functional and Morphological Regeneration after Partial Olfactory Bulbectomy in the Goldfish.*

5:00 - S. 94. S. GRAHAM[1], B. M. SLOTNICK[1], D. G. LAING[2] and G. A. BELL[2]. ([1]The American University, Washington, DC 20016 and [2]CSIRO, Div. Food Res., Australia.) *Odor Detection in Rats with Lesions of Olfactory Bulb Areas Identified With 2-DG.*

5:15 - S. 95. GARY J. SCHWARTZ and HARVEY J. GRILL. (University of PA, Dept. of Psychology, Philadelphia, PA 19104.) *Alterations in Behavioral Responses to Tastes Following Chorda Tympani (CT) and/or Glossopharyngeal (IX) Nerve Section in Rats.*

5:30 - S. 96. STEPHEN W. KIEFER, CHRISTINE W. METZLER and NANCY S. MORROW. (Depts. of Psychology, Kansas State University, Manhattan, KS 66506.) *The Complex Sweet Taste of Alcohol: Aversion Generalization Data from Normal Rats and Rats Lacking Gustatory Neocortex.*

5:45 - S. 97. WESLEY C. LYNCH, CHARLES M. PADEN and SUSAN KRALL. (Depts. of Psychology and Biology, Montana State University, Bozeman, MT 59717.) *Decreased Sensitivity to Bitter Solutions Following Chronic Opioid Receptor Blockade.*

6:00 - S. 98. RUDY A. BERNARD, TIMOTHY W. PRIEHS and KAREN J. MOONEY. (Dept. of Physiology, Michigan State University, East Lansing, MI 48824.) *Myopathic (BIO 14.6) Hamsters Fail to Develop Salt Appetite in Response to DOCA.*

6:15 - S. 99. BERT Ph. M. MENCO. (Dept. of Neurobiology and Physiology, O. T. Hogan Bldg., Northwestern University, Evanston, IL 60201.) *A Freeze-Fracture Study on the Pre-Natal Development of Ciliated Surfaces of Rat Olfactory Epithelia.*

PSYCHOPHYSICS: AGING

Session IIIC: Max Park Room
Chaired by: Gary Beauchamp

3:00 - S. 100. J. CHAUHAN, Z. J. HAWRYSH, C. KO and S. KO. (Dept. Foods and Nutrition, University of Alberta, T6G 2M8.) *Taste Perception of Salt in Young, Old and Very Old Adults.*

3:15 - S. 101. CLAIRE MURPHY. (Dept. of Psychology, San Diego State University, San Diego, CA 92182-0350.) *Effects of Age and Biochemical Status on Preference for Amino Acids.*

3:30 - S. 102. WILLIAM S. CAIN[1] and CLAIRE L. MURPHY[2]. ([1]John B. Pierce Foundation, 290 Congress Avenue, New Haven, CT 06519 and [2]Dept. of Psychology, San Diego State Univesity, San Diego, CA 92182.) *Influence of Aging on Recognition Memory for Odors and Graphic Stimuli.*

3;45 - S. 103. JOSEPH C. STEVENS and WILLIAM S. CAIN. (John B. Pierce Foundation Laboratory, 290 Congress Avenue, New Haven, CT 06519.) *Aging Impairs the Ability to Perceive Gas Odor.*

PSYCHOPHYSICS: PATHOLOGY
(Session IIIC cont.)

4:00 - S. 104. JAMES M. WEIFFENBACH, PHILIP C. FOX and BRUCE J. BAUM. (Clinical Investigations Section, National Institute of Dental Research, National Institutes of Health, Bethesda, MD 20892.) *Taste and Salivary Gland Dysfunction.*

4:15 - S. 105. M. GRUSHKA, B. J. SESSLE and T. P. HOWLEY. (Faculty of Dentistry, University of Toronto, Toronto, Canada M5G 1G6.) *Psychophysical Evidence of Taste Dysfunction in Burning Mouth Syndrome (BMS).*

4:30 - Coffee Break.

Chaired By: Bruce Jafek

4:45 - S. 106. RICHARD D. MATTES, CATHY ARNOLD and MARCIA BORAAS. (Monell Chemical Senses Center, Philadelphia, PA 19104 and Fox Chase Cancer Center, Fox Chase, PA 19111. *Blocking Learned Food Aversions in Cancer Patients Receiving Chemotherapy.*

5:00 - S. 107. RICHARD L. DOTY, PATRICIO REYES and TOM GREGOR. (Smell and Taste Center, School of Medicine, University of Pennsylvania, Philadelphia, PA 19104 and Department of Neurology, Jefferson Medical College, Philadelphia, PA 19107.) *Olfactory Dysfunction in Alzheimer's Disease.*

5:15 - S. 108. EDWARD E. MORRISON[1], PASQUALE P. C. GRAZIADEI and RICHARD M. COSTANZO[1]. ([1]Dept. of Physiology and Biophysics, Medical College of Virginia, Richmond, VA 23298 and Dept. of Biological Sciences, Florida State University, Tallahassee, FL 32306.)

Degeneration-Regeneration of the Olfactory Neuroepithelium Following Bulbectomy: An SEM Study.

5:30 - S. 109. JEUNG GWEON LEE, MASARU OHYAMA, ETSURO OBATA, KAZUYOSHI UENO and SHOKO KATAHIRA. (Dept. of Otolaryngology, Faculty of Medicine, Kagoshima University, Kagoshmia, 890 Japan.) *Olfaction Test in the Laryngectomized Patients by the Artificial Airway Tube Method.*

5:45 - S. 110. BRUCE W. JAFEK, DAVID T. MORAN, PAM ELLER and J. CARTER ROWLEY, III. (Depts. of Otolaryngology/Head and Neck Surgery and Anatomy, University of Colorado School of Medicine, Denver, CO 80262.) *Steriod Dependent Anosmia.*

POSTER SESSION III

WEDNESDAY, July 23, 1986

Hoaglund Room

MIXTURES

P. 83. DAVID E. HORNUNG and MELVIN P. ENNS. (Depts. of Biology and Psychology, St. Lawrence University, Canton, NY 13617.) *Possible Mechanisms for the Processes of Referred Taste and Retronasal Olfaction.*

P. 84. BARRY W. ACHE and RICHARD A. GLEESON. (C. V. Whitney Laboratory, Univ. of Florida, St. Augustine, FL 32086.) *Heterogeneous Types of Interactions Between Odorants at Olfactory Receptor Cells.*

P. 85. ROBERT A. FRANK and GARY ARCHAMBO. (Dept. of Psychology, University of Cincinnati, Cincinnati, OH 45221.) *Mixture Integration in Sucrose/Sodium Chloride and Sucrose/Citric Acid Solutions: An Assessment of Subadditivity for Total Mixture Intensity.*

P. 86. T. J. HERDER, B. W. ACHE, and W. E. S. CARR. (C. V. Whitney Laboratory, Univ. of Florida, St. Augustine, FL 32086.) *Concentration-Independence of Mixture Interactions in the Antennular (Olfactory) Pathway of the Spiny Lobster.*

P. 87. ROSE MARIE PANGBORN, ANDREA L. KAYE and CAROLINE T. WANG. (Food Science and Technology, University of California, Davis CA 95616.) *Sensory Responses to Sucrose and Fat in Milk Drinks.*

P. 88. LAWRENCE J. MYERS, RANDY BODDIE and KIMBERLY MAY. (Dept. of Physiology and Pharmacology, Auburn University, AL 36849.) *Electrophysiological and Innate Behavioral Responses of the Dog to Intravenous Application of Sweet Compounds.*

P. 89. DAVID A. STEVENS and HARRY T. LAWLESS. (Dept. of Psychology, Clark University, Worcester, MA 01610 and S. C. Johnson & Son, Inc., Racine, WI 53403.) *Sequential Interactions of Oral Chemical Irritants.*

P. 90. TERESA ANNE VOLLMECKE. (Dept. of Psychology, University of Pennsylvania, 3815 Walnut Street, Philadelphia, PA 19104.) *Long Lasting Effects of Context on Sweetness Evaluation.*

P. 91. MICHAEL D. RABIN, AMY L. SCHWARTZ and WILLIAM S. CAIN. (Dept. of Psychology, Yale University and John B. Pierce Foundation Laboratory, New Haven, CT 06519.) *Selective Attention for the Components of Odor Mixtures.*

SALT

P. 92. GARY K. BEAUCHAMP and BEVERLY J. COWART. (Monell Chemical Senses Center, 3500 Market Street, Phildelphia, PA 19104.) *Preference for Extremely High Levels of Salt Among Young Children.*

P. 93. MARY BERTINO, MICHAEL G. TORDOFF and JOHN TLUCZEK. (Monell Chemical Senses Center, Philadelphia, PA 19104.) *Concentration Dependent Responses of Sodium-Depleted Rats to NaCl in Food.*

P. 94. ROBERT J. CONTRERAS. (Yale University, Dept. of Psychology, Box 11A Yale Station, New Haven, CT 06520.) *Salt Deprivation- and Amiloride-Induced Alterations in Neural Gustatory Responses Predict Salt Intake in Sham Drinking Rats.*

P. 95. BRADLEY K. FORMAKER and DAVID L. HILL. (Dept. of Psychology, University of Toledo, Toledo OH 43606.) *The Suppressed Response of NaCl Following Amiloride: A Halogen Response.*

P. 96. LINDA GOLDSTEIN, NANCY ODBERT, URSULA FARRELLE and MICHAEL O'MAHONY. (Dept. of Food, Science and Technology, Univ of California, Davis, CA 95616.) *Taste Signal Strengths of Salt and Water Stimuli Provide a Model for Sensory Difference Tests, Involving Adaptation, Learning, and Variation in Supra-and Subadapting Sensivitity.*

P. 97. ELEANOR E. MIDKIFF and ILENE L. BERNSTEIN. (Dept. of Psychology, Univ. of Washington, Seattle, WA 98195.) *Generalization of Conditioned Taste Aversion to NaCl in Fischer-344 and Wistar Rats.*

P. 98. TAKENORI MIYAMOTO, YUKIO OKADA and TOSHIHIDE SATO. (Dept. of Physiology, Nagasaki University School of Dentistry, Nagasaki 852, Japan.) *Contribution of Cations to Generation of Salt-induced Receptor Potential in Frog Taste Cell.*

TASTE: ANATOMY

P. 99. T. A. CUMMINGS, R. J. DELAY and S. D. ROPER. (Dept. of Anatomy, Colorado State University, Fort Collins, CO 80523.) *The Ultrastructure of Apical Specializations of Taste Cells in the Mudpuppy,* ***Necturus maculosus.***

P. 100. J. YANG and S. D. ROPEF. (Dept. of Anatomy, Colorado State Univ., Fort Collins, CO 80523.) *Dye-Coupling Between Taste Cells in the Mudpuppy,* ***Necturus maculosus.***

P. 101. SUZANNE M. ROYER and JOHN C. KINNAMON. (Rocky Mountain Taste and Smell Center, Dept. of

Molecular, Cellular and Developmental Biology, Univ. of Colorado, Boulder, CO 80309.) *Interactions Between Taste Cells and Nerve Fibers in Murine Foliate Taste Buds.*

P. 102. DAVID M. HENZLER and JOHN C. KINNAMON. (Rocky Mountain Taste and Smell Center, Dept. of Molecular, Cellular and Developmental Biology, Univ. of Colorado, Boulder, CO 80309.) *Ultrastructure of Mouse Fungiform Taste Buds.*

P. 103. INGLIS J. MILLER, JR. (Dept. of Anatomy, Bowman Gray School of Medicine, Wake Forest University, Winston-Salem, NC 27103.) *Human Fungiform Taste Bud Density and Distribution.*

P. 104. SAUT GURKAN and ROBERT M. BRADLEY. (Dept. of Oral Biology, School of Dentistry, University of Michigan, Ann Arbor, MI 48109.) *Beta-Adrenergic Control of Von Ebner's Glands in the Rat.*

P. 105. JOAN YONCHEK[1], THOMAS E. FINGER[1], ROBERT H. CAGAN[2] and BRUCE P. BRYANT[3]. ([1]Dept. of Anatomy, Univ. of Colorado School of Medicine, Denver, CO [2]Colgate-Palmolive Co., Piscataway, NJ and [3]Monell Chemical Senses Center, Philadelphia, PA.) *Monoclonal Antibodies Directed Against Catfish Taste Receptors: Immunocytochemistry of Catfish Taste Buds.*

P. 106. BRUCE P. BRYANT[1], JOSEPH G. BRAND[1], [2], D. LYNN KALINOSKI[1], RICHARD C. BRUCH[1] and ROBERT H. CAGAN[3]. ([1]Monell Chemical Senses Center and [2]Veterans Administration Medical Center, Univ. of Pennsylvania and [3]Colgate-Palmolive Co., Piscataway, NJ.) *Use of Monoclonal Antibodies to Characterize Amino Acid Taste Receptors in Catfish: Effects on Binding and Neural Responses.*

P. 107. TAKAYUKI MARUI, YASUO KASAHARA, [1]JAGMEET S. KANWAL, [1]JOHN CAPRIO and [2]SADAO KIYOHARA. (Dept. of Oral Physiology, Kagoshima Univ. Dental School, Kagoshima 890, Japan; [1]Zool. Physiol., College of Basic Science, LSU, Baton Rouge, LA 70803; [2]Biol. Inst., College of Liberal Arts, Kagoshima Univ., Kagoshima 890, Japan.) *Neural Connections From/To the Facial and Vagal Lobes in the Japanese Sea Catfish* ***Plotosus anguillaris.***

P. 108. S. KIYOHARA[1], S. YAMASHITA[1], T. MARUI[2] and J. CAPRIO[3]. ([1]Biology Institute, College of Liberal Arts, Kagoshima Univ., Japan, [2]Oral Physiology, Dental School, Kagoshmia Univ., Japan, [3]Zoology & Physiology, Louisiana State Univ.) *Central Projections of Major Branches of the Facial Taste Nerve in the Japanese Sea Catfish.*

P. 109. DAVID BLAUSTEIN, ARTHUR C. BEALL and CHARLES D. DERBY. (Dept. of Biology, Georgia State University, Atlanta, GA 30303.) *The Structure of Chemosensory Centers in the Brain of Spiny Lobsters and Crayfish.*

P. 110. LESLIE L. WIGGINS[1], GORDON C. BAYLIS[2] and EDMUND T. ROLLS[2]. ([1]Dept. of Psychol, Univ. Cincinnati, Cincinnati, OH 45221), ([2]Dept. Exp. Psychol., Oxford Univ., Oxford, 0X1 3UD, England.) *Afferent Connections to the Taste-Responsive Region of the Macaque Orbitofrontal Cortex.*

P. 111. MARK C. WHITEHEAD and LAWRENCE D. SAVOY. (Dept. of Oral Biology, Univ. of Connecticut Health Center, Farmington, CT 06032.) *The Solitary Nucleus of the Hamster: Cytoarchitecture and Pontine Connections.*

P. 112. MASARU OHYAMA, KEI OGAWA, KOZO FUKAMI, ERIKO TABUCHI, KAZUYOSHI UENO, and KAZUYO TANAKA. (Dept. of Otolaryngology, Faculty of Medicine, Kagoshima Univ., Kagoshima 890 Japan.) *Comparative SEM and Histochemical Studies of Lingual Papillae in Some Animals.*

TASTE: DEVELOPMENT/REGENERATION

P. 113. PHILLIP S. LASITER and DAVID L. HILL. (Dept. of Psychology, Univ. of Toledo, Toledo, OH 43606.) *Histogenesis of Pontine Taste Area Neurons in the Albino Rat.*

P. 114. J. R. GANCHROW[1] and D. GANCHROW[2]. ([1]Dept. of Oral Biology, The Hebrew University–Hadassah Faculty of Dental Medicine, Jerusalem, Israel and [2]Dept. of Anatomy and Physical Anthropology, Sackler School of Medicine, Tel-Aviv University, Tel-Aviv, Israel.) *Embryonic Development of Taste Buds in the Chicken.*

P. 115. DAVID V. SMITH[1] and INGLIS J. MILLER, JR.[2]. ([1]Dept. of Otolaryngology and Maxillofacial Surgery, Univ. of Cincinnnati Medical Center, Cincinnati, OH 45267 and [2]Dept. of Anatomy, Bowman Gray School of Medicine, Wake Forest Univ., Winston-Salem, NC 27103.) *Taste Bud Development in Hamster Vallate and Foliate Papillae.*

OLFACTION: DEVELOPMENT/REGENERATION

P. 116. DAVID T. MORAN, J. CARTER ROWLEY and GEORGE AIKEN. (Rocky Mountain Taste & Smell Center, Dept. of Cellular and Structural Biology, Univ. of Colorado School of Medicine, 4200 E. 9th Avenue, Denver, CO 80262 and U.S. Geological Survey, 5293 Ward Road, Arvada, CO 80002.) *Trout Olfactory Receptors Degenerate in Response to Water-Borne Ions: A Potential Bioassay for Environmental Neurotoxicology?*

P. 117. M. S. LIDOW[1], R. C. GESTELAND[2] and M. T. SHIPLEY[2]. ([1]Northwestern University). ([2]University of Cincinnati.) *Comparative Study of Olfactory Receptor Cells Which Axones Have Not Yet Reached the Olfactory Bulb and Those Which Axones Have Already Reached It.*

P. 118. KATE M. GUTHRIE and MICHAEL LEON. (Dept. of Psychobiology, Univ. of California, Irvine, CA 92727.) *Developmental Pattern of Ornithine Decarboxylase Activity in the Rat Olfactory Bulb.*

P. 119. G. A. MONTI GRAZIADEI, J. A. HECKROTH and P.

P. C. GRAZIADEI. (Dept. of Biological Science, Florida State Univ., Tallahassee, FL 32306.) *Transplants of Olfactory Mucosa into the Olfactory Bulb of Rodents.*

P. 120. DAVID A. HOLTZMAN and MIMI HALPERN. (Program in Neural and Behavioral Sciences, Downstate Medical Center, Brooklyn, NY.) *Development of Olfactory and Vomeronasal Systems in the Red-Sided Garter Snake,* ***Thamnophis Sirtalis Parietalis.***

P. 121. R. SAFAII, R. MOUSSAVI and E. MEISAMI. (Institute of Biochemistry & Biophysics, Univ. of Tehran, and Dept. of Physiology-Anatomy, Univ. of California, Berkeley, CA 94720.) *Postnatal Development of Enzymes in the Olfactory Bulb of Normal and Hypothyroid Rat.*

GENERAL INFORMATION

CONFERENCE THEME

The IX International Symposium on Olfaction and Taste (ISOT) and the 8th annual meeting of the Association for Chemoreception Sciences (SChemS) presents a conference with the theme, **From Reception to Perception: An International Symposium on Chemical Senses."** An exciting program of formal presentations and informal discussion sessions is planned for this meeting. The venue is a new convention site in Snowmass Village, Colorado, nestled among the most colorful peaks in the Western United States. The program includes symposia, slide and poster presentations, breakfast workshops, an informal reception barbecue, a banquet, and numerous opportunities for open discussions, such as extended lunch breaks.

Spouses and guests are invited to attend the social events presented by the symposium (including dinners and continental breakfasts) for a reduced fee. Recreational events will be organized (see below). Opportunities for hiking, fishing and other outdoor activities abound. In nearby Aspen, the internationally famous ASPEN MUSIC FESTIVAL, celebrating its 38th season, offers concerts in the beautifully restored Wheeler Opera House and in the grand Music Tent. Detailed programs may be obtained after arriving in Snowmass or by writing the Music Association of Aspen, Inc., 600 East Hopkins Street, Aspen Colorado 81611.

Colorado weather features warm days, cool evenings and occasional late afternoon showers. Bring clothing suitable for temperature ranges between 55 and 85 degrees. Casual wear is appropriate and encouraged.

BREAKFAST WORKSHOPS

Breakfast Workshops have been designed to promote open, round-table discussions on specific topics. These workshops will provide an opportunity to meet with other participants in an informal setting and to probe special intersts in greater detail than might be possible in symposia and volunteer sessions. These informal gatherings will feature a full breakfast, served buffet-style, and will be held in open patios, weather permitting. The workshops will begin at 7:15 a.m. and will conclude at 8:30 a.m., prior to the day's Symposium. **A separate fee will be charged for each breakfast workshop.** See course application.

Due to space restrictions, **attendance at the breakfast workshops will be strictly limited to a maximum of 25 per workshop.** Your early registration will assure your selection and attendance at these round-table discussions. If your first choice is not available, every effort will be made to accommodate your alternate choice(s).

MEALS

The basic registration fee includes continental breakfasts for your convenience at the conference center. Options for box lunches are available (see course application). The fee also includes an outdoor barbecue and a formal banquet. There are no dining facilites in the conference center, but there are several excellent restaurants in Snowmass Village and in nearby Aspen. (Buses run between Aspen and Snowmass Village every hour during the day until 11:00 p.m. – $1.50 one way, 20 minutes.) There are also two grocery stores and a delicatessen in Snowmass Village if you have a condominium and want to cook.

Please contact the Conference Office, Continuing Medical Education, The University of Colorado School of Medicine, 4200 E. 9th Ave., Denver, CO 80262 if you wish vegetarian meals.

TRANSPORTATION

The official host agency for this symposium is Professional Travel Corporation, 77 West 5th Avenue, Denver, Colorado 80204-5102. The group supervisor is Ms. Janet Nelson-Williams. Substantial savings in air and bus fares can be realized by booking your travel through Ms. Nelson-Williams, including travel to Denver's Stapleton Airport and connections to Snowmass, Colorado. Be sure to identify yourself with the ISOT/AChemS symposium. The toll-free telephone number is 1-800/824-0624. Professional Travel Corporation can also help those of you who wish to rent a car in Aspen/Snowmass. Automobile rentals may be quite limited during the summer season and you are encouraged to reserve well in advance.

A representative from Professional Travel will be at Denver's Stapleton Airport to assist those who have contacted them in making connections with transportation to Snowmass. The representative will meet you in the baggage claim area at **Door #7.**

If you wish to travel to Snowmass from Denver via bus and are making your own airline reservations into Denver, make certain that Ms. Nelson-Williams is notified of your arrival time in Denver. A chartered bus will be available at a time which will be adjusted to your flight arrival, but only if Professional Travel has advanced notice. This is particularly important if you have made flight arrangements through your own travel agent.

If you plan to use your own travel agent, please be aware that special fares from Denver to Aspen/Snowmass are available through Aspen Airlines. Identify yourself as a University of Colorado School of Medicine participant traveling to Aspen and refer to fare code KG10.

For participants from Japan, the official host agent is Mr. Miyazawa Mayumi, Vivre International, Inc., Meisei Building, 8-9 Sakuragaoka-cho, Shibuya-ku, Tokyo 150. Telephone: 03-770-3908. Vivre International is handling transportation and hotel bookings for participants traveling from Japan only.

For all other participants, please refer all questions concerning transportation to Ms. Janet Nelson-Williams, Professional Travel Corporation: 1-800/824-0624, or in Colorado: 303/469-5186.

LODGING

Hotel rooms are reserved for this conference at the Hotel Wildwood, which is right next to the Snowmass Conference Cen-

ter. These rooms have two queen-size beds and a bath. Condominiums are reserved at Woodrun Place, which is only a 5-minute walk to the Conference Center. These condominiums have one, two or three bedrooms and a full kitchen. Please fill out and return the separate lodging form (or a photocopy) which is on this program to: The Snowmass Resort Association, Attn: Central Reservations, P.O. Box 5566, Snowmass Village, Colorado 81615. **Note that deadlines are June 5 for condominiums at Woodrun Place, and June 20 for hotel rooms at the Hotel Wildwood.**

As a special service to ISOT/AChemS participants, the Organizing Committee is providing an informal roommate matching service for those registrants who would like to share lodging. If you have not been able to find a roommate on your own, you may contact Ms. Donna Willson (303/394-5676) or Dr. Tom Finger (303/394-7464) at the Department of Anatomy, Campus Box B111, University of Colorado School of Medicine, 4200 East 9th Avenue, Denver, Colorado 80262. Please leave your name and whether you are a smoker or a non-smoker. You will then be matched with an appropriate roommate and contacted with their name(s). **It will then be your responsibility to make these lodging arrangements directly with Woodrun Place or the Hotel Wildwood.** To meet the deadlines for the Conference Lodging form (see above), you must contact Ms. Willson or Dr. Finger by **May 22** for condominium sharing or **June 6** for hotel room sharing. You will be notified after these respective dates with the appropriate roommate(s).

DAY CARE

The Snowmass Resort Association, through its Guest Services Department, has a **Pioneers Program** geared for children 6-10. The cost is $32/day including lunch. The Resort Association also keeps a list of individuals in the Snowmass area who have expressed an interest in being referred for babysitting. The address for both the **Pioneer Program** and the babysitting is: Snowmass Resort Association, Guest Services Department, P.O. Box 5566, Snowmass Village, Colorado 81615. The phone number is 303/923-2000.

Additionally, **Aspen Sprouts,** an Aspen-based nursery and toddler school, has a babysitting referral service with insurance coverage on the referred employees that is available after 5:00 p.m. They will sit for children of all ages. The address is 315A Baltic Avenue, Aspen Business Center, Aspen, Colorado 81612; the phone is 303/920-1055.

RECREATION AND ENTERTAINMENT

Four special events have been planned for your enjoyment while in Snowmass.

- On Monday, July 21, a fly-fishing expert from Snowmass Village will give a demonstration and instructions on fly-fishing. There is no cost for this offering. For those of you who wish to do some fishing while in Snowmass, fishing licenses may be obtained in three local sporting goods stores. World-renown fishing is available on the Roaring Fork River and other local streams.

- On Tuesday, July 22, a bus will pick you up at the Snowmass Conference Center for a 2½ hour trip to Maroon Bells, where you will see some of the most spectacular scenery in the western United States. Boxed lunches will be available for you to buy to eat on the bus, or you may bring your own. The cost for this offering is $12.00 for the round trip.

- On Wednesday, July 23, a horseback ride is planned for 12:00 p.m. to a lovely meadow outside of Snowmass, where you will have lunch and return at 2:30. No one under six years of age is allowed on a horse, but a horse-drawn wagon is available for youngsters and others who do not wish to ride. There are only 80 horses available, so sign up early! The cost is $25 for adults and $24 for children 10 and under.

- For those of you staying over on Thursday, we have plannned a river trip down the Colorado River. A bus will pick you up at the Snowmass Conference Center at 12:00 noon and return you to Snowmass at 5:30 p.m. The cost for this trip is $34.50 for adults and $29.00 for children 15 and under (lunch is included).

See application form to register for these events.

PUBLICATIONS

All abstracts will be published in **Chemical Senses** unless you expressed otherwise on the abstract form. Revised abstracts will be accepted up until July 24, and can be handed to Dr. Jelle Atema or Dr. John C. Kinnamon at the meeting.

The Symposia will be published in a separate volume, ISOT IX, printed by the New York Academy of Sciences. The editorial committee for ISOT IX will invite a limited number of short papers for inclusion in this volume.

CREDIT

The University of Colorado School of Medicine is accredited by the Accreditation Council for Continuing Medical Education to sponsor continuing medical education for physicians. This offering meets the criteria for 28 credit hours in Category I of the Physician's Recognition Award of the American Medical Association. The credit sheet will be available at the registration desk during the hours the course is in session.

REGISTRATION

The registration fee for this symposium is $115 (U.S. funds only). AChemS members may attend for $100. Guests may attend for $75. After June 20 the registration fee will be $135, AChemS members $115, guests $85. This fee includes continental breakfasts, coffee breaks, a barbecue and formal banquet. Up to ten working days before this course, a 90% refund will be made for cancellations requested by participants. No refunds can be made for cancellations within ten days of this course or for non-attendance.

OTHER INFORMATION

A report prepared by Dr. Jack Pearl, National Institutes of Health, and Dr. Thomas V. Getchell, Wayne State University, that summarizes information concerning support of extramural research and training in the chemical senses will be available at the registration desk. This report gives examples of chemosensory research supported by NIH, titles of NIH chemosensory grants, statistics on growth of support, opportunities for research, and information sources for chemosensory grantees.

The REGISTRATION DESK for the meeting will be open each day during the hours the course is in session. Conference partici-

pants may be reached during these hours by telephoning 303/923-5083.

ASSISTANCE AND/OR ADDITIONAL INFORMATION

Please contact the Office of Continuing Medical Education, University of Colorado School of Medicine, 303/394-5241.

ACKNOWLEDGEMENTS

The IX International Symposium of Olfaction and Taste and the Association for Chemoreception Sciences gratefully acknowledges support for the conference from:

BROWN & WILLIAMSON TOBACCO CORPORATION, USA
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The Association for Chemoreception Sciences also acknowledges the generous financial support provided by the Corporate Members:

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In addition, the Association for Chemoreception Sciences acknowledges the GIVAUDAN CORPORATION for its support in providing the 8th Annual Givaudan Lecture.

The Organizing Committee for the IX International Symposium on Olfaction and Taste and the Eighth Annual Meeting of the Association for Chemoreception Sciences is:

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