25TH ANNUAL CENTRAL CALIFORNIA RESEARCH SYMPOSIUM

PROCEEDINGS OF THE 2004 SYMPOSIUM

Convened on
Thursday, April 22, 2004
in the
University Business Center
California State University, Fresno

TWENTY-FIFTH ANNUAL CENTRAL CALIFORNIA RESEARCH SYMPOSIUM

PROCEEDINGS

Sponsoring Institutions

California State University, Fresno
University Grants and Research Office

University of California, San Francisco
Fresno Medical Education Program

Alliant International University, Fresno

Fresno City College

United States Department of Agriculture
Agricultural Research Service

Children's Hospital Central California
Research Projects and Administration

Convened in the *University Business Center*
on the campus of

California State University, Fresno

Thursday, April 22, 2004

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PREFACE

Welcome to the *25th Annual Central California Research Symposium.*

From its inception, the purpose of this symposium has been to bring together investigators, students, and faculty from a variety of disciplines to share the results of their scholarly work. The continuation of these activities in the Central Valley is encouraged by this opportunity for exchange. We hope that all participants will gain new insights from this experience and that learning about the interests of other scholars will enrich them.

Abstracts for this year's event were reviewed and selected for presentation by the Symposium Planning Committee. In this review, the committee looked for a well-written abstract on a topic of scholarly merit.

This year *UCSF Fresno* has provided two cash awards for the best symposium presentation by a student--one for an undergraduate student and one for a graduate student. *Alliant International University* has provided a cash award for the best poster presentation. In addition to providing a cash award, the *University Grants and Research Office* of *California State University, Fresno* has planned and administered the symposium in cooperation with these institutions.

Presenters and guests are invited to a social hour following the student awards, which will be held in the University Business Center Gallery.

These proceedings are published as a permanent record of the work presented. We hope they will stimulate ideas for future work and subsequent symposia.

PLANNING COMMITTEE

UNIVERSITY OF CALIFORNIA, SAN FRANCISCO
FRESNO MEDICAL EDUCATION PROGRAM

Donna Hudson, Ph.D.
Symposium Co-Chairperson

Joan Voris, M.D.
Malcolm F. Anderson, M.D.
Robert Hierholzer, M.D.
Deborah Stewart, M.D.
Kent Yamaguchi, M.D.
Davin Youngclarke

CALIFORNIA STATE UNIVERSITY, FRESNO

Thomas McClanahan, Ph.D.
Symposium Co-Chairperson

Andrew Alvarado, Ph.D.
Mark Arvanigian, Ph.D.
Saeed Attar, Ph.D.
Sharon Benes, Ph.D.
Alejandro Calderon-Urrea, Ph.D.
Amir Huda, Ph.D.
Pamela Lackie, Ph.D.
Karl Oswald, Ph.D.
Brian Tsukimura, Ph.D.
Doug Carey

ALLIANT INTERNATIONAL UNIVERSITY, FRESNO

Merle Canfield, Ph.D.
Gregory Timberlake, Ph.D.

FRESNO CITY COLLEGE

Edward Lindley, Ph.D.
Rick Stewart

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE

Cynthia Eayre, Ph.D.
Joseph Smilanick, Ph.D.

CHILDREN'S HOSPITAL CENTRAL CALIFORNIA

Robert Wells, Ph.D.

EVENT AND PROCEEDINGS COORDINATORS

Millie C. Byers & Christina Roybal
California State University, Fresno

CALIFORNIA
STATE
UNIVERSITY,
FRESNO

February 2004

MESSAGE TO ALL RESEARCH SYMPOSIUM PARTICIPANTS

California State University, Fresno is pleased to serve as the host campus for the *Twenty-Fifth Annual Central California Research Symposium.*

This symposium continues to provide a unique forum for the presentation and discussion of scholarly activities of interest to researchers throughout the Fresno community. The program for the symposium reflects our commitment to promoting interdisciplinary research, encouraging scholarly exchange on theoretical and pragmatic topics, and providing an opportunity for both students and research scholars to share common interests. Cooperative efforts such as these benefit the individual institutions involved and ultimately the public that we all serve.

We appreciate your participation in this symposium, and it is my pleasure to extend my warmest welcome to our campus.

Sincerely,

John D. Welty
President

JDW:ec

Office of
the President
Thomas Administration
Building, 103
5241 North Maple Ave. M/S TA48
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559.278.2324
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University of California
San Francisco

UCSF

Fresno Medical Education Program

Office of the Associate Dean

Medical Education Building
2615 East Clinton Avenue
Fresno, CA 93703

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SF tel: 415-476-3882
fax: 559-228-6926

email:
dean@ucsfresno.edu

WELCOME

25th Annual
Central California Research Symposium

Dear Symposium Participants and Visitors:

I am honored to have this opportunity to welcome you to the 2004 Central California Research Symposium! Whether you contributed to the research presented today or are here to explore some of the most current advances in academia, I trust you will be stimulated into new areas of thinking.

This annual event is the exciting culmination of the collaborative efforts among several of the Central Valley's academic institutions, involving both students and faculty. This year I am particularly excited about this Symposium and the future of research here in the Central Valley, as the new UCSF Fresno Medical Education and Research Center will open in the Fall, providing even more opportunities for innovative research.

I hope you are challenged and energized as you explore this 25th Annual Central California Research Symposium.

Sincerely,

Joan L. Voris, M.D.
Associate Dean / Assistant Clinical Professor of Pediatrics
UCSF Fresno Medical Education Program

Fresno City College
1101 East University Avenue, Fresno, California 93741 Phone: 559-442-4600 FAX: 559-265-5777

Office of the President

April 2, 2004

Symposium Participants
Central California Research Symposium
University Grants and Research Office
California State University, Fresno
4910 North Chestnut Avenue
Fresno, CA 93726-1852

Dear Symposium Participants:

Fresno City College is pleased, once again, to be a sponsor of the Annual Central California Research Symposium. This cooperative venture not only advances the frontiers of knowledge, but leverages the research resources of each participating institution. Fresno City College is proud to be a partner in hosting this program and extends best wishes to all participants.

I hope the Symposium will be both informative and enjoyable for you.

Sincerely,

Ned Doffoney
President

mr

USDA

United States Department of Agriculture
Research, Education and Economics
Agricultural Research Service

February 25, 2004

Symposium Participants
25th Annual Central California Research Symposium
Fresno, California

Greetings,

On behalf of the USDA, ARS, San Joaquin Valley Agricultural Sciences Center located in Parlier, I want to take this opportunity to welcome you to the 25th Annual Central California Research Symposium. Fresno has a large research community that includes scientists from state, university, and federal institutions covering a multitude of disciplines (i.e., biological and physical sciences, agriculture, medicine). This symposium provides an opportunity to share and exchange recent research information in various fields among scientists, students and the general public. Through your participation in this Symposium you will gain knowledge of current research being conducted in your area.

Your participation will open new perspectives and provide new opportunities for you and your parent organization. If we can be of any assistance to you on agricultural matters, please do not hesitate to contact us.

Again, welcome to the Symposium and may your scientific endeavors and horizons increase in the future.

With best regards,

E L Civerolo

Edwin L. Civerolo
Center Director

ars

Office of the Director
San Joaquin Valley Agricultural Sciences Center
9611 So. Riverbend Avenue • Parlier, CA 93648
Tel: 559-596-2702 - Fax: 559-596-2701
Email: eciverolo@fresno.ars.usda.gov
Pacific West Area

Agricultural Research – Investing in Your Future

Alliant
International University

5130 East Clinton Wy.
Fresno, CA 93727
T 559/456-2777
F 559/253-2267

February 26, 2004

Dear Symposium Participants:

The Fresno campus of Alliant International University, which includes the California School of Professional Psychology, the California School of Organizational Studies, the Graduate School of Education and the School of Social and Policy Studies, is honored to be a sponsor of the 25th Annual Central California Research Symposium.

Not only is important research being conducted at the higher educational institution and hospitals in Central California but these institutions are also training our next generation of researchers.

By featuring the work of Central California researchers from diverse fields, the symposium provides an exciting view of the broad expanse of research taking place in the Central Valley. We look forward to presenting research findings from some of our faculty and students and we look forward to learning about the work of our colleagues in other settings.

With Respect,

Gregory Timberlake
Assistant Vice President, Fresno

Children's Hospital
Central California

9300 Valley Childr[redacted]
Madera, California [redacted]
T: 559.353.3000
www.childrenscent[redacted]

March 1, 2004

Symposium Participants
25th Annual Central California Research Symposium
California State University, Fresno
University Grants & Research Office
Fresno, CA 93726-1852

Dear Symposium Participants:

The mission of Children's Hospital Central California is to provide high quality, comprehensive health care services to nearly one million children in Central California. Children's Hospital is dedicated to supporting research that benefits our children and their families.

On behalf of all the physicians, staff, and volunteers at Children's Hospital Central California, we are proud to be a sponsor of the 25th Annual Central California Research Symposium which will be held Thursday, April 22, 2004 at California State University, Fresno. This multi-disciplinary forum serves as an excellent example of institutional cooperation, student participation, and community involvement which results in enriched training for our community of scientists.

We extend our best wishes to all participants.

Sincerely,

Jessie Hudgins
Chief Operating Officer

Plenary Session

University Business Center
Auditorium, Room 191

12:30 Opening Remarks

Dr. Thomas McClanahan, California State University, Fresno

Dr. Joan Voris, University of California, San Francisco
Fresno Medical Education Program

Dr. Donna Hudson, University of California, San Francisco
Fresno Medical Education Program

12:40 ***Relationships among Vernal Pool Invertebrates and Habitat Morphology***
Tanya Carl, Steve Blumenshine, Ph.D.

12:55 ***Cervical Cancer and Hmong Women in California, USA, 1988-2000***
Richard C. Yang, M.P.H., Paul K. Mills, Ph.D.,
Deborah G. Riordan, M.P.H.

1:10 ***The Afterlife of Zenobia of Palmyra***
Sandra Cooper, Pamela Lackie, Ph.D.

1:25 ***Forensic Validation of the Profiler Plus ID PCR Amplification Kit***
Sulekha Coticone, Ph.D., L. Bailey-Van Houten, M. Crow, R. Andrus,
D. Reeder

1:40-2:00 Break--University Business Center, Gottschalks Gallery

Moderator: Dr. Donna Hudson

Concurrent Session A

University Business Center
Auditorium, Room 191

2:00 ***The "Lemon Grove Case" and School Segregation in the Southwest***
Alicia J. Rivera, Malik Simba, Ph.D.

2:12 ***Religion and Greek Battlefield Trophies***
Joe Gai, Bruce Thornton, Ph.D.

2:24 ***Titus Labienus: Roman Hero or Roman Traitor?***
Brett R. Pierotte

2:36 ***Reading Instruction: Making Decisions***
Sandra Hammond

2:48 ***Internet Terrorism: Web Spoofing***
Amitesh Sinha, Tarek Alameldin, Ph.D.

3:00 ***A Study of the Relationship between Fear of Crime and Trust in the Broadcast News Media***
Chandra Mullins

3:12 ***Hydraulic and Chemical Properties of Soils Irrigated with Recycled Saline Drainage Water***
Kim Senatore, Dave Goorahoo, Ph.D., Sharon Benes, Ph.D., Jim Ayars

3:30 **Break -- University Business Center, Gottschalks Gallery**

3:40 **Concurrent Sessions Resume**

Concurrent Session B

University Business Center
Room 192

2:00 ***Selective Radiography in Anterior Shoulder Dislocation: Prospective Validation of a Clinical Decision Rule***
Gregory W. Hendey, M.D., M. Kristin Chally, M.D., V. Brooks Stewart, M.D.

2:12 ***Clinically Significant Improvement in Nausea as Measured on a Visual Analog Scale***
Neil Donner, M.D., Gregory W. Hendey, M.D.

2:24 ***Hypoglycemia at the Onset of E. Coli Septicemia***
Shamsuddin Alamgir, N. Volkova, M. Peterson

2:36 ***Alcohol Treatment and Change in Substance Use Patterns over Six Years in a Central California Veteran Population***
Geoff R. Twitchell, Ph.D., P. Byers, W. Robinson, A. Utendahl, H. Khouzam, M. Arteaga, S. Bell, P.Campbell-Scott, A. Cuyler, L. Drummond, D. Elble, T. O'Rourke, T. Stahl, D. Terry, C. Wade, L. Williams

2:48 ***Drug and Alcohol Treatment: Relapse = Drawing a Blank (on content retained from rehab sessions)***
Kathryn J. Biacindo, Ed.D.

3:00 ***Forecasting Pneumonia and Influenza Mortality***
Ronna R. Mallios, M.S., M.P.H.

3:12 ***Diabetic Complications and Ethnic Differences (DCED Study)***
Charanjit Singh, M.D., Sujatha Srikanth, M.D., Sundararajan Srikanth, M.D.

3:30 **Break -- University Business Center, Gottschalks Gallery**

3:40 **Concurrent Sessions Resume**

Concurrent Session C

University Business Center
Room 193

2:00 ***Development of Jointing Systems for Single-Layer, Steel Roof Domes***
Ricky Gutierrez, Stacy J. Sanchez, Juan A. Villanueva

2:12 ***Transverse Rectus Abdominis Musculocutaneous Flaps in Reconstruction Surgery: Prevention of Ischemia-Related Necrosis in a Rat Model***
Kelli Donovan, Winnie Tong, M.D., Kenty Sian, M.D., Tim Tyner, M.S.

2:24 ***Growth of Mycobacterium smegmatis on Toxins***
Denise Lopez, Mamta Rawat, Ph.D.

2:36 ***Genetic Experiments on Transgenic Tobacco Plants Expressing Nematode Cell Death Genes***
Thihan Padukkavidana, Alejandro Calderon-Urrea, Ph.D., Glenda W. Polack

3:00 ***Sero-Prevalence of Toxoplasma gondii in Central California HIV-Infected Patients***
Elsa T. Ghebrendrias, Roger B. Mortimer, M.D.

3:12 ***Distribution and Phylogeny of the Malagasy Aphaenogaster***
Christopher A. Hamm, Brian L. Fisher

3:30 **Break -- University Business Center, Gottschalks Gallery**

3:40 **Concurrent Sessions Resume**

Concurrent Session D

University Business Center
Room 194 AB

2:00 ***John Donne's Catholicism and its Role in the Divine Roems***
Joseph Teller, Reuben Sanchez, Ph.D.

2:12 ***Chaucer's The Clerk's Tale as Political and Religio-Aesthetical Satire of Ockhamism***
Gene R. Urrutia

2:24 ***Reasons That Reason Knows Not***
Daniel A. Caeton

2:36 ***Psychoanalytic Notes upon the Dramatic Account of a Case of Paranoia (Dementia Paranoides): The Psychotic Duke Vincentio***
Michelle Karell

2:48 ***The Dud-Alternative Effect Examined: The Importance of Pairwise Comparisons between Focal and Alternative Outcomes***
Andrew R. Smith, Paul C. Price, Ph.D.

3:00 ***Values-Based Character Education: A Meta-Analysis of Program Effects on Student Knowledge, Attitudes and Behaviors***
Heather Berg

3:12 ***Predicting Academic Achievement of Rural Hispanic High School Students: Psychosocial Characteristics, External Environmental Factors, Student Perceptions of School Factors and Student Perceptions of School Personnel Factors***
Adrian Beltran, Susan Tracz, Ph.D., Albert Valencia, Ph.D.,
Alfredo Cuellar, Ph.D.

3:30 **Break -- University Business Center, Gottschalks Gallery**

3:40 **Concurrent Sessions Resume**

Concurrent Session F

University Business Center
Auditorium, Room 191

3:40 ***Methyl Farnesoate: Possible Endocrine Alternative for Population Control of the Invasive Riceland Tadpole Shrimp Triops longicaudatus***
William K. Nelson, Brian Tsukimura, Ph.D.

3:52 ***Environmental Effects on the Lifecycle of the Chinese Mitten Crab, Eriocheir sinensis***
Daniel Kenneth Bauer, Brian Tsukimura, Ph.D.

4:04 ***Characterization of a M. smegmatis nitrosothiol reductase Mutant***
Samantha Hageman, Mamta Rawat, Ph.D.

4:16 ***Factors Affecting Brook Trout Distribution and Prey Sources in Sierra Nevada Headwater Streams***
Nicholas Basile, Steve Blumenshine, Ph.D.

4:28 ***Role of Homeobox Gene Cux-1 in Mammalian Limb Development***
Saben Kane, Alejandro Calderon-Urrea, Ph.D., Peter Witt, M.D., Tim Tyner, M.S.

4:40 ***A Phylogenetic Analysis of Sarcocystis Neurona***
Scott Peat, Paul R. Crosbie, Ph.D.

4:52 ***Neuroma Formation in a Rat Sciatic Nerve Model: Efficacy of Biosynthetic Nerve Guide Tubes in Prevention of Neuromas Following Neurectomy***
Matt Simons, David Russell, M.D., Kenty Sian, M.D., Brian Curtis, M.D., Kent Yamaguchi, M.D., Tim Tyner, M.S.

4:54 **Conclusion --University Business Center, Gottschalks Gallery**
Proceed to Students Awards and Social Hour

Concurrent Session G

University Business Center
Room 192

3:40 ***Effecting Behavior Change in a Multi-Disciplinary Approach to School-Based Health Education Training, Ages 8-12***
Theresa A. Leveque, Debra M. Harris, Ph.D.

3:52 ***Student and Community Characteristic's Relationship to Nutrition and Physical Activity Knowledge***
Jennifer E. Patten, Debra M. Harris, Ph.D.

4:04 ***An Efficient Teledermatology System***
Tarek Alameldin, Ph.D., Amitesh Sinha

4:16 ***Prevalence of Overweight Students Attending Fresno Unified School District***
Phyllis Preciado, M.D.

4:28 ***Child Obesity: CHDP Providers' Needs Assessment***
Pouran Nowzari, Ed.D., M.S.P.H., R.D., Sapna Reddy, Abdul B. Khan, Reuben Parrish

4:40 ***Evaluation and Diagnosis of Obese and Non-Obese Patients Presenting to the Emergency Department with Abdominal Pain***
Tim Platts-Mills, M.D., Brian Koch, M.D., Brandy Snowden, Michael Burg

4:52 ***Transferring Care Negatively Affects Treatment of HIV Infection***
Neelima Kethineni, R. Mortimer, S. Flamang, J. Lanford, S. Paul

5:15 **Conclusion --University Business Center, Gottschalks Gallery**
Proceed to Students Awards and Social Hour

Concurrent Session H

University Business Center
Room 193

3:40 ***19th Century Luddism and its Modern Equivalents***
Blair Hollingsworth

3:52 ***Defending Her Rights: The Impacts of Olympe de Gouges' Writings***
Lisa Bean

4:04 ***Solon v. Kleisthenes: Political Propaganda in Poetry***
Aubrie Morlet

4:16 ***The Evolution of Jerome's Vulgate Bible***
Staci Grunau

4:28 ***Using Computer-Generated Face Composites in Face Identification***
Marjorie Coleman, Valerie Fajardo, Karl Oswald, Ph.D.

4:40 ***Faculty Perceptions of Alcohol Use at Fresno State***
Roberto C. Vaca, Lynnette Zelezny, Ph.D., Sam Gitchel

4:52 ***Occupational Reality Shock: The Role of Pre-Graduation Activities in Reducing Occupational Reality Shock among Accounting Graduates***
Sarah L. Arthur, Skip Sherwood, Ph.D.

5:15 **Conclusion --University Business Center, Gottschalks Gallery**
Proceed to Students Awards and Social Hour

Concurrent Session I

University Business Center
Room 194 AB

3:40 ***Using Laser Technology to Monitor Air Quality***
Dave Goorahoo, Ph.D., Charles Krauter, Ph.D.

3:52 ***The Epidemic of Asthma in Children and Adolescents in the San Joaquin Valley: An Overview***
Virginia Rondero Hernandez, Ph.D., M.S.W.

4:04 ***Morality Disparities and Health Priorities of Latinos in the San Joaquin Valley, California, 1999-2001***
Matt Stanich, M.P.H., Alvaro Garza, M.D., M.P.H., Lydia Herrera-Mata, M.D.

4:16 ***Characterization of Regular Transient Loading Response in a Vapor-Phase Flow-Direction-Switching Biofilter***
William F. Wright, Ph.D., Edward D. Schroeder, Daniel P. Y. Chang

4:28 ***Reputation for Corporate Social Performance and Employee Job Selection***
Christopher L. Healy, Robert Hill, Ph.D.

4:40 ***Motivation and Volunteerism: A Study of Retiree Volunteerism in the Nonprofit Sector***
Christopher Tozlian

4:52 ***Social Security Privatization and its Effects on American Wealth***
John Nilmeier

5:15 **Conclusion --University Business Center, Gottschalks Gallery**
Proceed to Students Awards and Social Hour

Poster Session I
12:00 p.m. until 2:00 p.m.

University Business Center
Gottschalks Gallery

Authors will be available for questions from 12:00 p.m. until 2:00 p.m.

(1) ***Language, Culture and the Computer***
Mary Barakzai, Ed.D., F.N.P.-C., C.N.M., Dorothy Fraser, F.N.P.-C., M.S.N.

(2) ***Efficacy of Continuous Epidural Analgesia Versus Single Dose Caudal Analgesia in Children after Intravesical Ureteroneocystostomy***
Jamie McDonald, Paul A. Merguerian, M.D., F.A.A.P.

(3) ***A Cognitive Approach to Cigarette Smoking in University Students***
Justin Matthews, Matthew J. Sharps, Ph.D., Amy B. Villegas

(4) ***Heuristic Processing, Verbal and Mathematical Reasoning and the CBEST***
Adam Hess, Matthew J. Sharps, Ph.D., Jana L. Price-Sharps, Jane Tech

(5) ***Coccidioidomycosis of the Thyroid Gland***
Sami Bogale

(6) ***Imaging and Science at Fresno State's Campus Observatory, 2003-2004***
F. A. Ringwald, G. E. Morgan, D. W. Chase, J. M. Culver, S. S. Endler, M. P. Garrett, A. J. Hathaway, M. E. Meyers, J. W. Prigge, D. S. Reynolds, A. L. Rodarte, R. W. Severson, Jr.

(7) ***Time-Resolved Spectroscopy and Photometry of CT Serpentis and V825 Herculis***
David S. Reynolds, F. A. Ringwald

(8) ***Studies of the Spectra of Three Nova Eruptions at Fresno State's Campus Observatory***
G. E. Morgan, F. A. Ringwald, J. W. Prigge, M. Garrett

(9) ***Symptomatology and Self-Care Practices Related to Quality of Life in Persons with HIV/AIDS***
Ginger K. Peterson-Mitchell

(10) ***Stereoselective Conjugate Addition of Aromatic Thiols to Cyclic Alpha, Beta-Unsaturated Ketones Using Inexpensive Transition-Metal Chiral Catalysts under Mild and Neutral Conditions***
Alan G. Preston, Saeed Attar, Ph.D.

Poster Session I Continued
12:00 p.m. until 2:00 p.m.

University Business Center
Gottschalks Gallery

(11) ***Nematicidal Activity of Ferrocenyl Chalcones***
Zachary O'Brien, Saeed Attar, Ph.D., Alejandro Calderon-Urrea, Ph.D.

(12) ***Synthesis, Characterization and Anion-Sensing Ability of a Ferrocene-Based Chiral Ligand***
Angela G. Thornton, Saeed Attar, Ph.D., Matthias Stender

(13) ***A Novel Screening Method to Reduce Artifacts in Forensic DNA Analysis of Mixtures Using Polyols***
E. Schoenau, L. Wander, S. Coticone, Ph.D.

(14) ***Use of Knowledge Management as a Learning Transfer Platform***
Jack Shantz, Ph.D.

(15) ***The Effect of Antiretroviral Medications on Blood Chemistry***
Ajitpal Dhillon, S. Paul

(16) ***Resistance Gene Analogs in Pepper (Capsicum annuum) and Applications in Marker-Assisted Breeding Programs***
Linda M. Donnelly, Ebenezer A. Ogundiwin, Bonnie R. Glosier, James P. Prince, Ph.D.

(17) ***Molecular Analysis of Putative Avirulence Genes in Phytophthora capsici***
Victoria Gomes, Ebenezer Ogundiwin, Bonnie Glosier, James Prince, Ph.D.

(18) ***Limits on the Dud-Alternative Effect in Multiple-Choice Testing***
Lily Pesin, Karl Oswald, Ph.D., Paul Price, Ph.D.

(19) ***Cross-Racial Identification as a Function of Interracial Experience***
Hiroko Tateno, Karl Oswald, Ph.D.

(20) ***Issues in Participant Recruitment of Mexican American Severely Mentally Ill***
Noemi Vega, Sergio Aguilar-Gaxiola, Ph.D.

(21) ***Effective Henry's Law Measurements for Hydrogen Peroxide in Salt Solutions***
Saddam Muthana, Alam Hasson, Ph.D., Myeong Chung

(22) ***Embryology of the Plant Pathogen Meloidogyne Incognita***
Alyssa Wright, Alejandro Calderon-Urrea, Ph.D.

Poster Session I Continued
12:00 p.m. until 2:00 p.m.

University Business Center
Gottschalks Gallery

(23) ***Response of Digital Electromagnetic Sensor to Soil Moisture and Electrical Conductivity***
Diganta D. Adhikari, Dave Goorahoo, Ph.D.

(24) ***Are WRKY 6 and WRKY 53 Associated with Senescence?***
Genevra A. Ornelas, John Constable, Ph.D., Alejandro Calderon-Urrea, Ph.D.

(25) ***Nitrate and Salt Loading for Fields Irrigated with Liquid Dairy Manure***
Genett Carstensen, Dave Goorahoo, Ph.D.

(26) ***Adults' Expectations of Children with Developmental Disabilities***
Hayley Lehman, Jean Ritter, Ph.D.

(27) ***ADHD, Substance Abuse and Heuristic Processing***
Matthew J. Sharps, Ph.D., Jana L. Price-Sharps, Sandy Schulte Day, Michael A. Nunes, Amy B. Villegas, Sandra Mitchell

(28) ***Substance Abuse and Cognition: A Contextual Reasoning Approach***
Amy Tillery, Matthew J. Sharps, Ph.D., Sarah Van Valkenburgh

Poster Session II
3:00 p.m. until 5:00 p.m.

University Business Center
Gottschalks Gallery

Authors will be available for questions from 3:00 p.m. until 5:00 p.m.

(1) ***Disparities in Health Access in the San Joaquin Valley: An Ecological Assessment***
Edward E. Graham, Ph.D., M.P.H., Kathleen A. Curtis, P.T., Ph.D.

(2) ***Foster Children's Behaviors at Supervised Visitation with Non-Custodial Parents***
Kristy L. Lacko, Brandy M. Luca, Kathie Reid, Ph.D.

(3) ***Effects of Winery Wastewater Application on Soil Water Quality***
Florence Cassel-Sharmasarkar, Ph.D., Dave Goorahoo, Ph.D., Diganta Adhikari, Mary McClanahan

(4) ***Preliminary Exploration of Adult Attachment and Emotional Health in Survivors of War Trauma***
Bita Ghafoori, Ph.D. Robert Hierholzer, M.D., Barbara Howsepian, Ph.D., Angela Boardman, Al Howsepain, M.D., Ph.D.

(5) ***From Woman to Goddess: The Story of the Evolution of the Virgin Mary***
DeAnna L. Stay, Honora Chapman, Ph.D.

(6) ***The Impact of Participation in Long-Term Longitudinal Studies: A Study of the Intergenerational Studies***
Candace Workman, Constance J. Jones, Ph.D.

(7) ***Moral Virtue: Cohort, Sex and Study Duration Differences***
Jenise M. Caetana, Constance J. Jones, Ph.D.

(8) ***Calculations Investigating Source of Atmospheric Radicals***
Ray Dickinson, Alam Hasson, Ph.D.

(9) ***Variation in Vegetation and Microenvironment in Riparian Zones of the Southern Sierra Nevada***
Dana K. Nagy, Ruth Ann Kern, Ph.D., Carolyn Hunsaker

Poster Session II Continued
3:00 p.m. until 5:00 p.m.

University Business Center
Gottschalks Gallery

(10) ***Minimizing Inappropriate Medication Use in the Elderly (MIME: A Case Study)***
Lisa Adams, Pharm.D., Alan Ko, Pharm.D., Paulette Ginier, M.D., George Arakel, M.D., Marilyn Brownell, N.P., Robert Hierholzer, M.D., Matthew Battista, Ph.D., Lisa Stinson

(11) ***Body Weight Supported Gait Training in Poststroke Hemiparetic Patients Undergoing Treatment with Serotonin Reuptake Inhibitors: A Pilot Study***
Annie Burke-Doe, M.P.T., Ph.D.

(12) ***Secondary Production and Biomass of Aquatic Insects and Seed Availability in Flooded Agricultural Fields of the Southern San Joaquin Valley, California***
Richard Moss, Steve Blumenshine, Ph.D., Joe Fleskes, Ph.D.

(13) ***Laboratory Studies of Aqueous Organic Species***
Gail R. Walker, Alam Hasson, Ph.D.

(14) ***Calibration and Biological Imaging of a Bioprobe Atomic Force Microscope***
Jesse Rorabaugh, Alejandro Calderon-Urrea, Ph.D., Saeed Attar, Ph.D., James Vesenka, Ph.D.

(15) ***Autism in Fresno County: Educational Programs and National Research Council***
Sarah Scheidt

(16) ***An Investigation of tfdR/S Promoter Activity***
M. R. Davison, A. D. Wright, Ph.D.

(17) ***Soil Moisture Patterns within Canopy Gaps in Sierra Nevada Mixed Conifer Forest, Sequoia National Park, California***
Ryan P. Lopez, Ruth Ann Kern, Ph.D.

(18) ***X-Ray Diffraction of Compressed Powders***
D. Ancalade, M. Blackston, B. T. Cooper, A. J. Hathaway, L. Huang, J. D. Rorabaugh, R. W. Severson, Jr., W. D. Whitaker, K. M. Wing

(19) ***Alcohol Instruments Used for Measurement in Psych Info***
Deborah Wiggins-Stevens, Matthew J. Sharps, Ph.D.

Poster Session II Continued
3:00 p.m. until 5:00 p.m.

University Business Center
Gottschalks Gallery

(20) ***Susceptibility of Mycothiol Deficient Mutants to Antibiotics, Oxidative and Nitrosative Stress and Toxins***
Rayken Chow, S. Simmons, F. Hung, M. Uppal, S. W. Wang, M. Rawat, Ph.D.

(21) ***Seed Producing Ability in Selected Populations of the USDA Limnathes Germplasm Collection***
M. M. Jenderek, R. M. Hannan

(22) ***Single Nucleotide Plymorphism (SNP) and Random Amplified Polymorphic DNA (RAPD) Based Gentic Linkage Map of Garlic (Allium sativum)***
Yayeh Zewdie, Michael J. Havey, James P. Prince, Maria M. Jenderek

(23) ***Military Correspondents on Empire and Democracy***
Cynthia Oliphant

(24) ***Homeless Women-Listening to Voices from a Strengths Perspective***
Toni K. Bridgnell, M.S.W., Mekada Graham, Ph.D.

(25) ***Distribution of Tardigrade Species at the McKenzie Table Mountain Preserve with a Description of Two New Species of Echiniscus***
Jan Hendrixson, Paul R. Crosbie, Ph.D.

(26) ***Distribution of Elevated Carboxylesterases in Culex Pipiens Complex Mosquitoes of California***
Rory D. McAbee, Anton Cornel, Paul R. Crosbie, Ph.D.

(27) ***The Associate between Reciting Bible Verses and Decreased Agitation in Patients with Dementia of the Alzheimer's Type: Description of Case Series***
Hani Raoul Khouzam, M.D., M.P.H., F.A.P.A.

(28) ***Field Responses of Nitrate Reductase to Elevated CO2***
John V. H. Constable, Ph.D.

Judges for Undergraduate and Graduate Student Presentations and Poster Presentations:

Dr. Mark Arvanigian	California State University, Fresno
Dr. Saeed Attar	California State University, Fresno
Dr. Sharon Benes	California State University, Fresno
Dr. Kathryn Bumpass	California State University, Fresno
Dr. Alejandro Calderon-Urrea	California State University, Fresno
Dr. Paul Crosby	California State University, Fresno
Dr. Daniel Griffin	California State University, Fresno
Dr. Donna Hudson	University of California, San Francisco
Dr. Pamela Lackie	California State University, Fresno
Dr. Thomas McClanahan	California State University, Fresno
Mr. Rick Stewart	Fresno City College
Dr. Gregory Timberlake	Alliant International University, Fresno
Dr. Brian Tsukimura	California State University, Fresno
Dr. Robert Wells	Children's Hospital Central California
Dr. Alice Wright	California State University, Fresno
Mr. Davin Youngclarke	University of California, San Francisco

Moderators for Oral Presentations:

Mr. Doug Carey	California State University, Fresno
Ms. Marie Fisk	California State University, Fresno
Dr. Donna Hudson	University of California, San Francisco
Dr. Brian Tsukimura	California State University, Fresno
Dr. Robert Wells	Children's Hospital Central California

<u>Presentations will be judged based on the following criteria and considerations:</u>

- Merit, creativity, timeliness, and value to an audience of scholars not necessarily from the same discipline
- Authors are encouraged to present their work using terminology suitable for a multi-disciplinary audience
- Results of completed work, as well as work-in-progress, for which there is preliminary data

ORAL PRESENTATION ABSTRACTS

(IN ALPHABETICAL ORDER BY PRESENTING AUTHOR)

Tarek Alameldin, Ph.D., Amitesh Sinha
California State University, Fresno

An Efficient Teledermatology System

Telemedicine is becoming increasingly possible due to the confluence of ongoing technical advances in areas such as telecommunications, imaging, multimedia, computers, and information systems. This paper presents a practical and an efficient web-based system that provides actual patient care specifically in the medical specialty of Dermatology.

Our web-based dermatology system provides the patients and the dermatologists with a user-friendly interface, accurate and secure storage of data, and portable software. The Tele-Dermatology system has proved to be practical and user friendly because of the involvement of medical doctors from early stages of design through out the life cycle of the project. Our system was designed following the ten usability heuristics for user interface: Visibility of system status, match between system and the real world, user control and freedom, consistency and standards, error prevention, recognition rather than recall, flexibility and efficiency of use, aesthetic and minimalist design, help users recognize, diagnose, and recover from errors, and help and documentation. Our Tele-dermatology system allows health care providers who need access to a specialist in dermatology to get the opinion they need regardless where the patient or the Dermatologist are located geographically. The only necessary requirement is a connection to the Internet.

The Tele-Dermatology system was successfully installed and tested at the Central Valley Dermatology Center in Fresno, California. Dr. Pervaiz, Center Director, used the Web based Dermatology system to examine patients in the cities of Madera and Oakhurst while physically being in Fresno. Both cities are about 40 miles away from Fresno and do not have access to a dermatologist. We would like to recognize the effort put by Late Dr. Syed Pervaiz, MD, who provided the project's requirements and gave his useful contributions through the life cycle of the project. We plan to extend this system to cover other areas of medicine.

Shamsuddin Alamgir, N. Volkova, M. Peterson
University Medical Center

Hypoglycemia at the Onset of E.coli Septicemia

Introduction: Septicemia is 10th leading cause of death in US. Profound hypoglycemia is usually a late phenomenon in patients with severe bacterial septicemia. However, sepsis may present with the sudden onset of hypoglycemia. Only isolated case reports are available describing early hypoglycemia in E.coli bacteremia. The primary goal for this study was to identify any association between hypoglycemia and E.coli bacteremia and calculate the influence of hypoglycemia on patient outcome.

Methods: This was a retrospective study evaluating the incidence of hypoglycemia at the onset of E.coli bacteremia in 1060 consecutive patents admitted to community hospitals in Fresno, CA between 1997 and 2003. Patients younger than 18 years old and pregnant women were excluded (total 72) from the study. Demographic characteristics, discharge diagnosis and survival were recorded. Patients with diabetes were evaluated separately. The comparisons between groups were made using the statistical SPSS package, t test or x2.

Results: Among 988 patients with E.coli septicemia, two thirds were females. Average age was 64 years old (SD ± 19.4). Overall, 10% had documented hypoglycemia (serum blood glucose level <70 mg/dL). It was no significant sex differences among hypoglycemic and non-hypoglycemic patients. The incidence of hypoglycemia was the same in diabetic and nondiabetic patients. Outcome analysis revealed that patients with hypoglycemia had worse outcomes, especially if the hepatic or renal function were abnormal. The race, age, and diabetes didn't have any influence on the survival. Females had better outcome than males (P<.001). Gastrointestinal and genitourinal sources for E.coli bacteremia were more commonly associated with hypoglycemia (P<.001).

Conclusion: Hypoglycemia is present at the manifestation of E.coli septicemia in 10% of patients and predicts poor outcome, especially in patients with abnormal hepatic and renal function and also with gastrointestinal and genitourinal sources for bacteremia. Hypoglycemia should be considered as a clinical sign of E.coli septicemia and early and aggressive therapy may potentially safe patient lives.

Sarah Louise Arthur, Skip Sherwood, Ph.D.
California State University, Fresno
Undergraduate Student Presenter

Occupational Reality Shock: The Role of Pre-Graduation Activities in Reducing Occupational Reality Shock among Accounting Graduates

Accountancy graduates often enter the workforce with an inadequate idea of what their career in the field will entail. For many, the transition is not as easy and rewarding as it is expected to be due to a gap between student expectations and the realities of the workplace. This study examines the effects of participation in three pre-graduation activities on the amount of Occupational Reality Shock encountered among Accountancy students.

Measures of differences among student expectation and alumni reality were gathered via a survey that included questions about the general profession, advancement and training, and personal concerns of the workplace. Hotellings T analyses were used to determine whether, in general, student expectation significantly varied from alumni reality. T-testing was performed on an item-by-item basis to identify specific questions that resulted in Occupational Reality Shock. Lastly, the Euclidean Distance, which measured the degree of dissimilarity among student and alumni responses, was calculated and individually t-tested against each of the three participation vehicles: Beta Alpha Psi (a national honors fraternity for Accountancy students), Internships, and Work Experience.

Hotellings T analyses revealed that, in general, Occupational Reality Shock exists. Specifically, 30% of the questions used in the study revealed significant discrepancies between student expectation and alumni reality, predominantly in the area of Advancement and Training. Results provided no support for the hypotheses that participation in pre-graduation activities provided students with more realistic expectations of the accounting profession.

Results suggest that Occupational Reality Shock does exist among Accountancy students, but to a much lesser degree than in previous studies. Although participation in the examined pre-graduation activities did not make a significant difference in student expectations about the profession, this study does provide valuable information as to what areas in particular need to be improved.

Nicholas Basile, Steve Blumenshine, Ph.D.
California State University, Fresno
Graduate Student Presenter

Factors affecting Brook Trout Distribution and Prey Sources in Sierra Nevada Headwater Streams

Historically, headwater streams in the Sierra Nevada have been fishless. However, Eastern Brook Trout are now well established throughout this area due to stocking in the late 1800's and early 1900's. State records indicate that fishermen and state workers even used blasting and transplanting to aid in trout establishment. Although not native, the fish have maintained healthy populations since stocking ended 60-80 years ago.

Our primary research question is whether the distribution and feeding ecology of this introduced species is influenced by variation in headwater stream habitats. This project is unique because it considers both within and among stream habitat variation. Twelve sites from among the five Bull Creek tributaries have been identified for collection (six of each wooded and meadow) of stream habitat characteristics and trout use.

Fall 2003 results indicate that there are approximately 200 fish/km, averaging 12cm and 26.7g. Fish densities and biomass were respectively 4x and 3x higher in meadow versus wooded areas. Interestingly, although density in riffles slightly exceeded that in pools, biomass in pools was 7x higher than in riffles. Literature suggests that Brook Trout prefer pools rather than riffles, but ironically our results in small headwater streams contradict that idea. However, fish found in pools tend to be larger. Further analysis will determine how these distributions influence trout diets (e.g. terrestrial versus aquatic prey) and growth rates. The results of this research will ultimately be used in a larger collaborative whole-ecosystem study conducted by the USDA-Forest Service addressing how current forest management practices affect stream ecosystems.

Daniel Kenneth Bauer, Brian Tsukimura, Ph.D.
California State University, Fresno
Graduate Student Presenter

Environmental Effects on the Lifecycle of the Chinese Mitten Crab, Eriocheir sinensis

Environmental triggers such as changing temperature, changing day length, lunar cycles or a combination of these factors initiate physiological changes that include as their endpoints population size dynamics. We use the Chinese mitten crab, Eriocheir sinensis, to investigate these triggers. We previously established the minimum size needed to begin reproductive maturation. We produced a lifecycle model for Eriocheir sinensis to predict the effects of environmental triggers on the species. Using preliminary temperature data, a correlation was found between San Francisco Bay temperature and population size 2-3 years later. Using hypothesis testing and some early temperature data we predicted low populations in the summer and fall of 2003. There was a population crash below previously seen levels that did coincide with our environmental impact predictions on population levels from the lifecycle we have constructed. These correlations lead us to look for a definable cause for the decline. Our hypothesis is that prolonged low temperatures around 10° C cause decreased larval survival. We are investigating the actual cause of the population decline by looking at larval survival at temperatures at and above 10° C. Below 10° C temperatures have been reported to be fatal for Eriocheir sinensis larva, but the effect of temperatures slightly above and at 10° C needed to be studied. Larvae are being raised in aquaria in light and temperature controlled environmental chambers set at 10, 12 and 14° C with larval survivorship and maturation rates being monitored. Hatch rates from egg to zoea have been very slow at 14° C and have caused us to raise temperatures to 16° C on selected berried females to induce maturation. Experiments are still underway and results may be available for presentation.

Lisa Bean
California State University, Fresno
Undergraduate Student Presenter

Defending Her Rights: The Impacts of Olympe de Gouges' Writings

Olympe de Gouges' Declaration of the Rights of Women was a statement that reflected several new ideas concerning the place of women in society and politics that were emerging at this time. De Gouges calls for the inclusion of women based on several of the Enlightenment ideals that led to the French Revolution. The Declaration influenced the French views of women in both the French feminist movement and the Jacobin political reform. Within the context of the French Revolution she was a hero and then a traitor. While the French feminist movement gained strength under enlightened writers such as de Gouges and Condorcet, Revolutionary leaders, such as Robespierre, used de Gouges as an example of women in opposition to the Revolution. Declaration was perhaps one of the most feminist pieces of writing of any time; de Gouges calls for complete equality between men and women, relying on the ideas that women are as much a part of society as men are, as well as being fully capable of reasoning. In recognizing this fact, men must remove their oppressive measures and allow women to take an active role in society and politics.

In this study, the impacts of de Gouges' feminist writings, especially Declaration of the Rights of Women, are studied in their relation to ideological influences in political France during the Revolution. Originally held as a great piece of Enlightened writing, Declaration was later demonized for being treasonous against the state. The author was executed for her role in this treason.

The study of feminist and French Revolutionary history have long overlooked Olympe de Gouges' contributions. Her rise and fall within the Revolution, due to changes in political and ideological sentiments, are often never recognized. De Gouges expressed ideas which most women would not have the audacity to publicly say until almost a century later. Her use of Enlightenment ideals was far more intrinsic than many of her contemporaries, and her social and political surroundings reacted accordingly, whether for the best or worst.

Adrian Beltran
California State University, Fresno
Graduate Student Presenter

Predicting Academic Achievement of Rural Hispanic High School Students: Psychosocial Characteristics, External Environmental Factors, Student Perceptions of School Factors, and Student Perceptions of School Personnel Factors

This research reports the psychosocial characteristics, the external environmental factors, student perceptions of school factors, and student perceptions of school personnel factors that predict academic achievement in rural Hispanic high school students. For a sample of 142 students, GPA is examined with a series of stepwise multiple linear regression equations. Significant predictors include student locus of control, student motivation and ambition, student ethnic identity, student perceptions of school curriculum, school atmosphere, and student perceptions of school administration. Implications for researchers and practitioners are discussed.

Heather Berg
California State University, Fresno
Graduate Student Presenter

Values-Based Character Education: A Meta-Analysis of Program Effects on Student Knowledge, Attitudes, and Behaviors

The purpose of this study was to investigate the effectiveness of character education on student knowledge, attitudes, and behavior. The Internet, ERIC, and PsycInfo databases were searched to obtain studies published between the years of 1990 and 2002 (including dissertation abstracts, journal articles, and unpublished manuscripts) involving U.S. public school children in grades K-12. The obtained studies were organized according to characteristics of the intervention, student population, dependent variables, and methodology. A meta-analysis was conducted to determine overall effect size (r), which was found to be small but significant (.10). Average effect sizes for overall behaviors (.14) and knowledge (.20) were also small but significant. The overall effect found for attitudes was not significant (.07), however. The highest effects were found for attitudes to verbal aggression (.56), and knowledge of the risks of cigarettes (.44) and alcohol (.39). It was concluded that values-based character education programs could have a small, but significant effect on some student knowledge, attitudes, and behaviors.

Kathryn J. Biacindo
California State University, Fresno

Drug & Alcohol Treatment: Relapse = Drawing a Blank (on content retained from rehab sessions)

Drug and alcohol treatment based on the medical model which sees abuse as a disease of the body or spirit (Alcoholics and Narcotics Anonymous) has not met with much success. It is common to find relapse rates as high as 70%, especially when covert observations identify a large number who report being clean and sober, but continue to abuse drugs and/or alcohol. Phase 1 of the current study investigated the relationship between retention of psychoeducational content (drug and alcohol awareness learned in group sessions) and relapse rates. For those in the sample that relapsed within one year of completing rehabilitation, knowledge of important content was tested, and it was found that less than 20% of original material learned had been retained. Phase 2 re-taught the "relapsers" similar content based on the Strengths model (van Wormer & Davis, 2003), employing active learning rather than static group sessions. One year after the new treatment, they were tested on content. Those who were still clean and sober had retained 70-80% of knowledge learned ($r = .89$), support for the Strengths model of treatment and the use of active learning, both of which fostered the long-term retention of psychoeducational content supporting rehabilitative success.

Daniel A. Caeton
California State University, Fresno
Graduate Student Presenter

Reasons That Reason Knows Not

The purpose of this paper is to contribute to, and complicate, the existing body of gender-criticism related to the poetry of Geoffrey Chaucer. Two of Chaucer's most familiar works, *The Parliament of Fowls (PF)* and *The Wife of Bath's Prologue (WBP)*, have consistently been appropriated by scholars seeking to prove or refute Chaucer's vilification of women. Rather than participating in the debate under these conditions, this paper attempts to redefine the contest in epistemological terms. The *PF* and *WBP* do not deal with gendered characters, so much as they explore gendered forms of knowledge. By welding the Classical duality of form and matter to the Christian exegetical dichotomy of reason versus concupiscence, Chaucer creates a dialectic of masculine "Auctoritee" versus feminine Experience. In *PF* Chaucer's narrative persona is used to reveal the limitations of inexperienced "Auctoritee," while in *WBP*, Alisoun's uninformed Experience is shown to be a specious path to knowledge. Taking into account Chaucer's use of satire and irony, this paper argues that Chaucer seeks to articulate a synthesis between "Auctoritee" and Experience in order to reveal an androgynous way of knowing.

Tanya Carl, Steve Blumenshine, Ph.D.
California State University, Fresno
Undergraduate Student

Relationships among Vernal Pool Invertebrates and Habitat Morphology

This study focuses on the relationship between abiotic factors of vernal pools and their effects on pool invertebrate assemblages. Vernal pools are ideal for testing basic theory because they represent discrete 'islands' in a terrestrial landscape. Island Biogeography theory predicts that (1) the number of species in a community should be positively correlated with habitat size, and (2) inter-pool distance should be negatively correlated with biological similarity. Further, it is expected that larger ponds should be more thermally stable, facilitating species diversity.

Eight vernal pools on Kennedy Table were strategically selected. Pools were measured for surface area, volume, and mean depth. Temperature loggers recorded 15-minute temperature fluctuations for four weeks. Invertebrates were systematically sampled from each pool and the first 100 organisms in each sample were identified, measured, and used to calculate species richness and diversity. All data was analyzed using a Pearson correlation matrix and stepwise multiple regression.

The results indicated strong negative correlations between average depth with temperature maximum and temperature standard deviation. Pool proximity and assemblage similarity were positively related. There was no significant correlation between temperature variation and species richness. Species diversity was not significantly correlated with pool morphology. Additionally, the highest diversity was calculated for the pool with the smallest surface area; however, these variables were not correlated across pools.

These results are congruent with the expectation that temperature variation would increase with average depth. As expected, temperature variation and species richness were highly correlated ($r=-0.773$, $r=0.804$), but not significant likely due to the low sample number. This demonstrates the need for large-scale analysis of vernal pool habitats in order to better understand the driving forces behind their unique faunal compositions. While standard theories can account for some patterns observed in these isolated ecosystems, many of them cannot, as can be seen from our results.

Marjorie Coleman, Valerie Fajardo,
Karl Oswald, Ph.D.
California State University, Fresno
Undergraduate Student Presenters

Using Computer-Generated Face Composites in Face Identification

The primary purpose of this research was to investigate whether novices could create identifiable face composites using the computer software FACES(tm), designed for forensic use in apprehending suspected criminals. Two experiments investigated identification accuracy of target face composites from a photograph line-up of similar faces. Experiment 1 simultaneously showed a composite face with a five-photograph lineup. Fourteen displays were presented in total. Overall, participants were accurate at correctly identifying the target face (62%). However, participants' confidence in their assessments was not correlated with accuracy. Experiment 2 followed a similar procedure while employing a memory component. Specifically, the composite face was displayed alone, immediately followed by a photo lineup. Compared to chance (20%), results showed that participants were able to correctly choose the target from the lineup (45%). Again, confidence was not correlated with accuracy. These results demonstrate that facial composite computer software for forensic purposes can, under certain conditions, be effective in creating representations of actual faces.

Sandra Cooper
California State University, Fresno
Undergraduate Student Presenter

The Afterlife of Zenobia of Palmyra

Of the many intriguing women in history perhaps Zenobia of Palmyra is one that has enjoyed a varied and interesting afterlife. An ancient Syrian queen, she challenged the authority of the Roman Empire during the tumultuous third century. Though she was defeated and lost her power, Zenobia has lived on in history and legend as a woman with qualities scorned, yet admired. Her reputed chastity, masculine characteristics, hunger for war, and excellent education have made her a legend that many have striven to elucidate on from the ancient writers through Chaucer, to contemporary times. Today Zenobia lives on in the form of a German rock band, a subject for historical romance novels, and more. She has been a subject of art and literature up through the early modern period in Europe, Victorian England, and even contemporary America, serving as the subject of several forms of art by various artists.

What is it about her that sparks interest and fascination? Perhaps it was the fact that she dared to challenge the mighty Roman Empire, defying the mighty soldier emperor Aurelian, or perhaps it is her manly pursuits of hunting and warfare, or her beauty, or the mystery surrounding the death of her husband, or the uncertainty of her fate. Whatever the attraction, she has lived on as a prominent historical figure, capturing the interest of people all over the world throughout history. An examination of primary sources will provide a historical background on Zenobia and her life. Following this will be a consideration of the more unconventional ways she has survived in culture and history. Artists, writers, and many others, have used these sources as a creative inspiration for own interpretation of Zenobia, while some simply borrow her name.

Sulekha Rao Coticone, Ph.D.
California State University, Fresno
Department of Chemistry
Lora Bailey-Van Houten, Mindy Crow, Rod Andrus
Bureau of Forensic Services
Fresno Regional Laboratory
Dennis Reeder
Applied Biosystems

Forensic Validation of the Profiler Plus ID PCR Amplification Kit

Profiler Plus kit amplifies nine short tandem repeat loci in a single reaction. In a previous study using the Profiler Plus kit, the FBI reported a mutation at the D8S1179 locus in a population of Chamorro and Filipinos from Guam. Subsequently, a single G-A transition (point mutation) at the primer binding site was found to responsible for the mutation. A degenerate unlabeled primer for the D8S1179 locus was shown to rescue the mutation. For those laboratories that prefer to include the D8S1179 degenerate primer in the Profiler Plus multiplex, the Profiler Plus ID kit containing the unlabeled primer has been developed.

The unlabeled D8S1179 primer concentration was chosen such that the heterozygote peak height ratio or all samples (with or without the mutation) were balanced. The robustness of the combined primer set was tested under various conditions. These studies included MgCl2 titrations, annealing temperature, species specificity, sensitivity, mixture studies and analysis of a variety of forensic samples. A subset of population samples (all homozygotes at the D8S1179 locus) previously typed using the Profiler Plus kit, when reanalyzed using the Profiler Plus ID kit, showed concordance with previous results. Guam population samples exhibiting the D8S1179 mutation when genotyped with the Profiler Plus ID kit showed recovery of the null allele. In addition, population DNA samples from Taiwan exhibiting the mutation also recovered the null allele using the Profiler Plus ID PCR amplification kit. Profiler Plus ID PCR amplification kit therefore, can be used to successfully analyze a variety of forensic and databasing samples.

Neil Donner, M.D., Gregory W. Hendey, M.D.
UCSF Fresno
University Medical Center, Emergency Medicine

Clinically Significant Improvement in Nausea as Measured on a Visual Analog Scale

Objective: Many studies have reported measurements of nausea on a visual analog scale (VAS), but it is unclear what degree of change in VAS is clinically significant. Our objective was to determine the minimum clinically significant improvement in nausea as measured on a VAS.

Methods: Prospective study of adults presenting to the ED with a complaint of nausea. After consent, patients were asked to report the severity of their nausea on a 100mm VAS at several times during their ED stay. They were also asked if their nausea was "a lot less," "a little less," "unchanged," "a little more," or "a lot more" compared to previous measurements. The minimum clinically significant improvement in nausea was defined as the mean difference in VAS in those patients reporting "a little less" nausea.

Results: 133 VAS measurements were collected from 50 patients who met all inclusion criteria. 58% were women and the mean age was 41. The mean changes in VAS with the corresponding qualitative changes were: "a lot less" = -42.2 mm; "a little less" = -15.4 mm; "no change" = -0.4 mm; "a little more" = +16 mm; "a lot more" = +23.7 mm. The mean VAS of the group reporting "a little less" nausea (-15.4 mm, 95% CI -19.8 to –11.0) was significantly different ($t=4.44$, $p<0.0001$) from that of the "no change" group (-0.4 mm, 95% CI –5.3 to +4.5).

Conclusion: We determined that the minimum clinically significant improvement in nausea is 15 mm on a VAS. This finding is similar to previous studies of pain measurements on a VAS, and helps in the interpretation of clinical studies reporting nausea improvement on a VAS.

Staci Grunau
California State University, Fresno
Undergraduate Student Presenter

The Evolution of Jerome's Vulgate Bible

Jerome, as he was known, produced a definitive Latin translation of the Christian manuscripts based on their original texts because there existed at that time various Latin versions with no two alike. In order to remedy the problems this presented to the body of believers, Jerome spent his adult life working on the project.

In 366 he became a secretary to Pope Damascus who was the bishop of Rome. Damascus approached Jerome with a request for a revision of the Gospel texts, which began a process of revision that would last decades after Damascus' death.

By the fourth century, extant copies of the Gospels had incurred many mistakes in their replication. So many that Jerome reportedly declared as many versions of the Gospels to exist as manuscripts. The original texts of the New Testament were written in Greek, a common tongue in the Roman Empire and as need for Latin translations arose many people undertook the challenge casually. When scribes were employed to rewrite the work they inevitably made slight mistakes that were magnified each time another scribe duplicated the copy and added his own inaccuracies. The result was a flood of Christian scripture varying from text to text. To make matters worse, the style of writing was to run words together with no punctuation, capitals or spaces. This uncial script was meant to be read aloud to discover its meaning.

In his introduction to the Gospels, Jerome wrote to Damascus that he "used his pen with restraint" and '[kept] the changes [of the revision] to a minimum." The quality of Jerome's Latin is unquestionable; however, his translation of Holy Scripture will never be without debate over its perfection. Jerome's translation from Hebrew is varied sometimes being conservative and sometimes succumbing to the influence of the Old-Latin and Septuagint. Still, the text became the official Holy Scripture translation for the Roman Catholic Church and made its mark as the first volume produced by Gutenberg's printing press. These combine to make the most famous book ever written.

Ricky Gutierrez, Stacy J. Sanchez,
Juan A. Villanueva
California State University, Fresno
Undergraduate Student Presenter

Development of Jointing Systems for Single-Layer, Steel Roof Domes

The presenters spent one semester of studies at the School of Engineering, University of Navarra, Spain, as part of the exchange program between that school and the College of Engineering and Computer Science at CSU, Fresno. The exchange experience included course work as well as a research project.

The research project, which is highlighted herein, was conducted to develop improved systems for the connections of spatial, large-size dome structures. These types of structures have gained popularity recently throughout Europe because of their structural advantages in cases where large open areas are needed. For instance, roof systems for stadiums, arenas, music halls, soccer fields, and others require large unsupported span systems to provide weather coverage with unobstructed view. Dome structures fabricated with reticular steel or aluminum members serve this function very efficiently. However, the connections of all the individual members in large domes present challenges of fabrication and speed of assembly on site. The challenge was then to design improved connection systems that will result in more expeditious assembling procedures and yet maintaining structural integrity and stability.

Several systems were developed and prototypes were fabricated and tested. Each of the authors developed at least one new system preparing drawings of their configuration and technical specifications. The preliminary designs were first modeled and analyzed in the computer to determine their load-deflection and stability characteristics. The designs that showed more promising results from the computer analysis were then fabricated in the machine shop of the University of Navarra and then instrumented for mechanical testing. Testing consisted of holding the prototype as a simply supported beam and subjecting it to a gradually increasing load. The deformations and stresses were recorded automatically as the applied load increased. Results from the experiments, although not thoroughly conclusive, provide good insight into the behavior of the proposed systems and an initial step towards the development of improved rigid connections for steel spatial structures for roof domes.

Samantha Hageman, Mamta Rawat, Ph.D.
California State University, Fresno
Graduate Student Presenter

Characterization of a M. smegmatis nitrosothiol reductase Mutant

Mycobacterium tuberculosis (Mtb), the bacterium that causes tuberculosis (Tb), is the second leading cause of death from infectious agents in the world, infecting one-third of the world's population. In most individuals, the immune system contains the bacteria in "granulomas" in the lung and they do not immediately develop the disease. The bacteria remain dormant until a future time when changes in the immune status of the host reactivate the bacteria, resulting in active disease.

The environment of the "granuloma" is highly hostile. Besides the lack of oxygen and nutrients, the granuloma contains (1) reactive oxygen species (ROI) such as peroxides, hydroxyl radicals, and superoxides (2) reactive nitrogen species (RNI) such as peroxynitrite and (3) alkyl peroxides that result from metabolism of unsaturated lipids which serve as nutrients. Despite this highly oxidative environment, viable mycobacteria are able to persist and replicate, indicating that Mtb is able to defend itself against these stresses. Identification of mycobacterial genes and gene products that promote survival in this highly hostile environment will eventually yield effective drug and vaccine targets.

Recently, it has been demonstrated that a gene in Mtb called formaldehyde dehydrogenase (fdh) also has a second dinitrosothiol reductase activity that is able to detoxify reactive nitrogen species produced by the host to damage the bacteria. To determine the role of fdh in protection against nitrosative stress, standard molecular biology techniques were employed to create a strain of M. smegmatis (Msmeg) that is mutated in the fdh gene via insertion of an antibiotic resistance gene. Because Mtb is highly pathogenic, we used Msmeg, a non-pathogenic species of mycobacteria, as a model for Mtb. To date, we have created two fdh mutants, which have been verified by PCR and Southern Blot analysis. We have characterized the mutants in terms of their formaldehyde dehydrogenase activity by checking for growth in methanol. We have also determined whether the mutant is able to detoxify the damaging reactive nitrogen species.

Christopher A. Hamm
California State University, Fresno
Department of Biology
Brian L. Fisher
California Academy of Sciences
Department of Entomology
Undergraduate Student Presenter

Distribution and Phylogeny of the Malagasy Aphaenogaster

The ant genus Aphaenogaster is globally distributed and while conspicuously absent from sub-Saharan Africa, is found on Madagascar. There are currently four described species from Madagascar (A. belti, A. gonacantha, A. friederichsi, and A. swammerdami) and three described subspecies of A. swammerdami (curta, clara, and spinipes). The original descriptions of this group leave the genus in a state of taxonomic chaos as these descriptions are frustratingly vague and hopelessly generalized. The specimens studied for this project have been placed into four species groups and are identified as A. gonacantha and A. swammerdami, no specimens of A. belti or A. friederichsi were found. It is highly likely that the descriptions related to A. belti and A. friederichsi are in fact species in a different genus such as Monomorium. The two remaining species studied for this work are most likely new species and are sister taxa to each other, with A. gonacatha and A. swammerdami being sister taxa to each other. Systematic analysis indicate that the two new species share a more recent common ancestor with other Aphaenogaster occurring in North America than they do with their congeners in Madagascar; these data support the hypothesis that Madagascar was colonized twice by the genus Aphaenogaster. Further work, including molecular analysis and viewing the holotypes, is required to further resolve this situation.

Sandra Hammond
California State University, Fresno
Graduate Student Presenter

Reading Instruction: Making Decisions

The focus of this research is how teachers make decisions about reading instruction. It is a data analysis of a two-semester project. Previous scholarly data and observational journals in K-8 classrooms in a teacher preparation program have informed this research. A survey of teachers has been piloted and a valid survey instrument will complete the work.

Decision making regarding instruction over the past decade has included numerous interventions at the both the state and local level. Part of the goal of this study is to determine the degree to which teachers control this aspect of instructional planning.

Mandated reading curriculum, that may or may not have been chosen by the teacher, is designed to provide a measurement of the progress of skills that do not necessarily transfer to the reading comprehension of authentic text; Paradoxically, much of a teacher's year might be spent teaching from and to these tests (Garan, 2002).

Teachers need to provide a balanced reading program designed specifically for their unique classroom (Thompkins, 2003; Garan, 2002; Ohananin, 1999). Extensive testing to provide accountability reporting may be eroding instructional hours and time students need to read independently and develop other life-skills. The challenges facing local public schools to report progress may not provide teachers with enough opportunities to use best-practices in the classroom. (Denhardt, Denhardt and Aristigueta, 2002).

How do teachers, the people working on the frontlines of education, make decisions regarding reading instruction? How do they decide on what methods to use and how to integrate reading into other subjects? How do they decide on homework given the challenges of diverse languages in classrooms? What interventions at the school-site level, the local, state and national level have become central to these important decisions? This report explores this important process.

Debra M. Harris, Ph.D., Theresa Ann Leveque
California State University, Fresno
Graduate Student Presenter

Effecting Behavior Change in a Multi-Disciplinary Approach to School-Based Health Education Training, Ages 8-12

This study assessed for behavior change in nutritional intake after attending a five-week training on nutrition. Forty-seven students, attending an after school recreation program at five low-income elementary schools, were studied. The elementary school students participated in a five week nutrition training program. During each session, selected elementary school students were interviewed for a 24-hour dietary recall. At that point, student's height, weight and Body Mass Index (BMI) were measured. The elementary school students were trained by health educators with educational backgrounds in Social Work, Nutrition, and Kinesiology. Three months after the conclusion of the training sessions, the elementary school students were interviewed for a 24-hour dietary recall to assess for behavior change in their eating habits, nutritional intake and BMI. It was found that after the five week training there was a change in student's BMI towards a more therapeutic level. Also, the student's fruit consumption increased towards a more therapeutic level per training. Additional findings indicate a slight increase towards a more therapeutic level in their intake of carbohydrates, protein, fat, calories, fruits and vegetables. Qualitative information is provided regarding health educators experiences during the training. Based on these findings a multi-disciplinary approach for elementary school health education in after school programs is suggested.

Debra M. Harris, Ph.D., Jennifer E. Patten
California State University, Fresno
Graduate Student Presenter

Student and Community Characteristic's Relationship to Nutrition and Physical Activity Knowledge

Childhood overweight and obesity rates have escalated in the United States. Childhood overweight and obesity have great effects on children and adolescents both physically and emotionally. This study examined a five-week training whose purpose was to educate elementary school students about nutrition and physical activity. A pre/post test survey was used to assess for an increase in knowledge. The study examined student demographic characteristics, as well as community demographics, to assess for a relationship with knowledge increase. The study included a small sample size (n=33) of elementary school students, ages 8 to 11. The data found no significant relationship between the pre and post-test results. However, pre and post-test scores did demonstrate an increase in average scores. The student and community demographics and the pre and post-test survey results were also found to be non-significant. The findings regarding student assistant training and survey development related to elementary school children can be used in future research.

Christopher L. Healy, Robert Hill, Ph.D.
California State University, Fresno
Undergraduate Student Presenter

Reputation for Corporate Social Performance and Employee Job Selection

Corporate social responsibility (CSR) is an area of growing interest in the field of management. Corporate social performance (CSP), which is used as a measure of CSR, is the degree to which a firm engages in socially responsible behaviors and activities. The managerial problem is the decision whether to employ the traditional business strategy of maximizing profit, versus satisfying the various other social concerns demanded by those who have interest in a corporation and its activities. If CSP activities could positively affect firm performance, it would be beneficial to a firm to engage in such behaviors. The purpose of this study is to examine whether there is a relationship between a firm's reputation for CSP and employee job selection.

197 business students at CSUF participated in the study by completing a questionnaire. The participants were asked to rate how important various aspects of a company's reputation for CSP in selecting a full-time job.

Of seven measures of CSP, each was found to be significantly important in selecting a job. These measures of CSP (in order of rated importance) include: 1) employee relations, 2) products and services, 3) human rights, environment, and corporate governance, and 4) diversity and community relations. A significant overall gender effect indicated that females rate CSP more important than males. Specifically, females rated diversity and employee relations significantly more important than males. In addition, undergraduate students rated diversity significantly more important than MBA students.

This study has shown that a firm's reputation for CSP has a significant influence on job selection. By engaging in CSP, management can gain a competitive advantage in being more attractive as a potential employer, and thus recruiting a larger and more diverse applicant pool. Results suggest that employers who wish to increase their female employee base should focus heavily on diversity and employee relations.

Gregory W. Hendey, M.D., M. Kristin Chally, M.D.,
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UCSF Fresno
University Medical Center, Emergency Medicine

Selective Radiography in Anterior Shoulder Dislocation: Prospective Validation of a Clinical Decision Rule

Objectives: Our objectives were to determine whether the use of a clinical decision rule leads to a decrease in pre- and post-reduction radiographs in ED patients with anterior shoulder dislocation, and to assess the safety by determining the frequency of missed fractures or dislocations.

Methods: Prospective study of adults presenting to the ED with suspected anterior shoulder dislocation. Physicians ordered pre and post-reduction radiographs according to an algorithm based on: 1) whether the dislocation was recurrent, 2) the mechanism of injury, and 3) the physician's clinical certainty of joint position. Follow-up consisted of phone calls at one and 30 days, orthopedic appointments, and chart review. Actual x-ray utilization was compared to the standard of pre and post-reduction films in all cases.

Results: Of 76 enrolled patients, 80% were male; mean age was 35 (range 18-72). There were 72 anterior dislocations (4 with greater tuberosity fractures), two AC separations, one clavicle fracture, and one with capsulitis. Of patients with a dislocation, 43 (60%) were recurrent dislocators, with 26 (60%) of those via a traumatic mechanism. 22 (29%) had both pre- and post-reduction films, 28 (37%) had only pre-reduction films, 7 (9%) had only post-reduction films, and 19 (25%) had no radiographs performed. Overall, 79 shoulder radiographs were performed in 76 patients, representing a 47% decrease in film utilization compared to the standard approach. The median ED times were: patients with both pre- and post-reduction films—308 mins; pre-reduction only—261 mins; post-reduction only—237 mins; no radiographs—175 mins. On follow up, there were no clinically significant fractures or persistent dislocations missed, and 75 (99%) of 76 patients were satisfied with their care.

Conclusions: Using a clinical decision rule for selective radiography, the number of x-rays and ED time were reduced. No fractures or dislocations were missed, and patient satisfaction was high.

Virginia Rondero Hernandez, Ph.D., M.S.W.
Central California Children's Institute
California State University, Fresno

The Epidemic of Asthma in Children and Adolescents in the San Joaquin Valley: An Overview

Asthma is a serious and growing epidemic in the nation and the state and is known to affect school-age children in a disproportionate way. This presentation focuses on current estimates of lifetime asthma and asthma symptom prevalence among children and adolescents living in the San Joaquin Valley using data from the 2001 California Health Interview Survey (CHIS).

The methodology includes the use of survey data collected by the 2001 CHIS from the 8 Central California counties located in the San Joaquin Valley. Various demographic factors were examined in relationship to the frequency and severity of asthma symptoms among children ages 0-17 living in the Valley, as well as the use of medication, access to health insurance for asthma treatment, physical limitations related to asthma, use of hospital emergency facilities, and patient education.

The research revealed a series of pertinent findings about the prevalence of asthma in the San Joaquin Valley. For example, all but one county in the San Joaquin Valley have asthma prevalence rates for children and adolescents that exceed state estimates. In addition, three in five children and adolescents diagnosed with asthma and taking medication for this condition continue to experienced asthma symptoms in spite of the medication. The research also revealed disparities among children and adolescents with asthma across age, gender, ethnicity and race, income, and place of residence, and a strong relationship between patient education and the onset of asthma symptoms was identified.

The analysis of the frequency and severity of asthma symptoms have obvious implications for key issues such as asthma management, school attendance, and disruptions in daily routines, which not only affect children and adolescents but could also affect the employment, income, and quality of life of their families.

Blair Hollingsworth
California State University, Fresno
Undergraduate Student Presenter

19th Century Luddism and its Modern Equivalents

The Luddites, the early 19th century British labor movement that politely destroyed then modern farming and textile machinery, did not pass away with the first British Reform Bill. The movement has morphed and taken different forms throughout European and world history. Luddism, in its classical and modern form, is a combination of superstition, social and temporal revolution. Elements of Luddism exist in radical environmentalism, the manifesto of Theodore Kazinsky and the move against genetically altered fruits and vegetables.

Luddism was primarily a temporal revolution. The catalyst that pushed early Luddites to destroy factory machines was not a sense social frustration at the low wages and long hours of factory work, but a frustration at the shift from a task-oriented day to a wage slave mentality. Also, with the advent of the time clock and factory system came a loss of personal control over the workday. Workers saw the clock and the machines the machines they were tied to as slave masters. The machines were dirty, noisy and dangerous, making them an easy target to vent frustrations upon.

The destruction of machinery still occurs in sweatshops, ski resorts and elsewhere as a form of protest. Low wages, unbearable working conditions and the wholesale destruction of the environment are all cited as causes for this mayhem. The Unabomber took Luddism to a more destructive level by protesting the effect of technology on the human condition. Even the protests against genetically altered foods owe a tip of the bowler to the Luddites. Luddism didn't die it simply metamorphosed.

Saben Kane, B.S., Alejandro Calderon-Urrea, Ph.D.
California State University, Fresno
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UCSF Fresno
Department of Surgery
Graduate Student Presenter

Role of Homeobox Gene Cux-1 in Mammalian Limb Development

Cux-1, the murine homologue of the Drosophila Cut gene, is a unique homeobox protein regulating developmental gene expression. Cux-1 is expressed in proliferating cells bordering the apical ectodermal ridge (AER) in embryonic chick limb buds (Tavares et al., Development, 2003). The AER, in aves and mammals, is the layer of surface ectodermal cells at the apex of the embryonic limb bud, exerting an inductive influence on the condensation of underlying mesenchyme. Adenovirus-induced expression of Cux-1 inside the AER of developing chick limb buds was shown to cause limb truncations and correlated with the repression of limb development-associated genes (Tavares et al., Development, 2003).

Cux-1 is expressed in several tissues during mouse embryogenesis, including brain, lung, kidney and limbs. While Cux-1 null homozygous mutants are embryonic lethal, Cux-1 transgenic (tg) mice, displaying deregulated CMV-driven expression, develop relatively normal. Closer examination of adult Cux-1 tg mice revealed multi-organ hyperplasia of the liver, kidneys and heart. Cux-1 kidney hyperplasia was associated with increased proliferation of differentiated mesangial cells and did not reflect a decrease in apoptotic processes (Ledford et al, Developmental Biology, 2002).

Our lab is investigating the role of Cux-1 in mammalian limb development. We are utilizing immunohistochemical (IHC) and in situ RNA hybridization (ISH) techniques to assess Cux-1 expression in normal developing limbs and to determine the effects of Cux-1 deregulation on limb outgrowth and limb development-associated gene expression in Cux-1 tg embryos. Initial gross analyses of limbs of Cux-1 tg embryos reveal no obvious morphological differences compared to limbs of same-stage wt embryos. Preliminary ISH experiments indicate that Cux-1 expression is restricted to the AER during early limb bud development (E8 embryos). At latter developmental stages (E13-E16 embryos), Cux-1 appears to be expressed in developing joints between maturing limb bones (dedifferentiated chondrocytes). We are in the process of comparing the expression patterns of other limb development-associated genes (Fgf-8/10, Bmp-2/4, SHH, Twist, Wnt and Hox genes) in Cux-1 tg and wt embryos.

Michelle Karell
San Francisco State University
Graduate Student Presenter

Psychoanalytic Notes upon the Dramatic Account of a Case of Paranoia (Dementia Paranoides): The Psychotic Duke Vincentio

In 1911, Freud published "Psychoanalytic Notes Upon An Autobiographical Account Of A Case of Paranoia (Dementia Paranoides)" wherein he asserted his right to analyze a patient whom he had never seen based on the premise that since paranoiacs cannot be compelled to reveal more than they choose anyway analysis derived from a written report or printed case history can be used in place of personal contact with the patient. My analogous study of Duke Vincentio in Shakespeare's Measure for Measure is based on this Freudian precedent.

In this study, I use the conclusions Freud drew from his analysis of the paranoiac, Dr. Schreber, to argue that Duke Vincentio was likewise afflicted. Specific examples from Shakespeare's text are used to illustrate that both 'patients' – Dr. Schreber and Duke Vincentio – suffer from delusions of persecution, obsessional neurosis, and megalomania. The results of such a comparison reveal that Duke Vincentio epitomizes Freud's account of paranoid psychosis.

Naysayers of psychoanalytic theory often gripe that to analyze literature through such a lens distorts the text and reduces its complexity. In some instances, this may be the case; however with Measure for Measure a psychoanalytic reading clarifies rather than distorts the text, enriches rather than impoverishes the play's complexity. And, if nothing else, it attests to the profound knowledge Shakespeare had of the inner workings and malfunctions of the human mind.

N. Kethineni, R. Mortimer,
S. Flamang, J. Lanford, S. Paul
University Medical Center

Transferring Care Negatively Affects Treatment of HIV Infection

Introduction: Compliance with medication regimens is critical for success in treating HIV infection. Changing location of care may be an obstacle to maintaining compliance. In this study we assess the extent and characteristics of HIV infected patients transferring their care in the Central Valley region of California.

Methods: Clinical and demographic data was obtained by review of medical records of the HIV clinic at University Medical Center (UMC) in Fresno CA. The adult HIV clinic at UMC serves 600 outpatients, 91% of whom are on government insurance/assistance.

Results: For the last 10-year period, 85-130 HIV infected patients per year have entered care at UMC. An average of 60 patients per year left the program, with 20-44 deaths, and 20-40 lost to follow up per year. From 1/1/2003 through 6/31/2003, 74 patients entered care at UMC: 50% were transferring their care from another location and 50% were newly diagnosed with HIV infection. Of patients transferring their care to UMC, 84% were coming from outside of the Fresno area. For transferring patients, 18 out of 27 had an indication for antiretroviral therapy; however, only 4 of 18 were receiving antiretroviral therapy at the time of enrollment at UMC.

Conclusions: There is a high flux of patients (10% per year of total patients in care) through a large HIV clinic in the Central Valley region of California. 50% of new patients are transferring their care from other locations. Patients transferring their care to UMC had advanced disease, and 78% were not receiving indicated antiretroviral therapy. Within California transferring care is common, and appears to be a marker for lack of adherence to, or inability to access appropriate care for HIV infection.

Denise Lopez, Mamta Rawat, Ph.D.
California State University, Fresno
Department of Biology
Undergraduate Student Presenter

Growth of Mycobacterium smegmatis on Toxins

Bioremediation consists of the use of naturally occurring microorganisms to enhance the biodegradation of pollutants and toxins in contaminated sites. Traditionally, the approach has been to obtain soil samples from contaminated sites and to isolate and characterize microorganisms that are thriving in these soils. We took an alternative approach and chose three soil dwelling microorganisms, Mycobacterium smegmatis, Rhodococcus RHA1, and Pseudomonas aeruginosa and tested their ability to grow on herbicides and toxic dyes.

These microorganisms were tested for growth on various concentrations of herbicides (diuron, simazine, paraquat), a fungicide (metalaxyl), and toxic dyes (malachite green, congo red, and methyl violet). M. smegmatis and P. aeruginosa are able to grow on growth medium supplemented with 1.0 mg/ml of dyes and herbicides and more than 100 mg/mL of metalaxyl. Moreover, M. smegmatis is able to grow on the same concentrations of all the toxins regardless of the carbon source in the growth medium.

To characterize the growth of M. smegmatis on simazine, diuron, and metaxyl, cultures of M. smegmatis grown under varying concentrations of these toxins were observed under a dissecting microscope. We found that growth on toxins resulted in a change in colony morphology and that each toxin produced a characteristic colony morphology.

We also characterized the growth of M. smegmatis on the dyes malachite green and methyl violet and demonstrated that M. smegmatis is able to decolorize the two dyes into a less toxic colorless substance in a time dependent manner. We are currently screening for mutants that are unable to "bleach" malachite green and methyl violet in order to identify the genes involved in the detoxification of these dyes.

Ronna R. Mallios, M.S., M.P.H.
UCSF Fresno Medical Education Program

Forecasting Pneumonia and Influenza Mortality

Influenza epidemics occur nearly every winter, but influenza is not a nationally notifiable disease. To fill this void in national surveillance, the Centers for Disease Control and Prevention (CDC) gathers weekly mortality reports from 122 U.S. cities and metropolitan areas within 2-3 weeks of the date of death. Each area reports the number of deaths due to pneumonia and influenza (P&I), as well as the total number of deaths due to all causes. This sample accounts for approximately one-third of total U.S. deaths, providing epidemiologists with estimates of mortality data 2 to 3 years before finalized data are available.

The most common measure of P&I mortality is the percentage of total deaths attributed to pneumonia and influenza, often referred to as the P&I ratio or P&I rate. This study uses eight years of data from the 122 Cities Mortality Reporting System, available from the CDC website, to build a non-linear regression model that forecasts P&I ratios one week in advance.

We divide the eight years of data into a model building dataset and a validation dataset. The first model establishes a periodic model based upon the following estimated parameters: phase angle and amplitude. This model is enhanced first by adding lagged shocks (defined as deviations of observations from their expectations), and then by adding interactions of the original terms with the lagged shocks.

The final P&I mortality forecasting model fits the model building dataset with R2 = .87, and the validation dataset with R2 = .89. Thus, the methods proposed in this study produce a model that more accurately forecasts P&I mortality relative to existing models. The resulting model can be used for one-week-ahead forecasting during the flu season.

Aubrie Morlet
California State University, Fresno
Undergraduate Student Presenter

Solon v. Kleisthenes: Political Propaganda in Poetry

Solon was an Athenian leader, appointed by the people in 594 BCE. His policies initiated the recovery of a failing civilization. While all of Solon's changes could not please everyone, the measure of a good politician is often found in his ability to compromise. What we know of these policies is from poetry he himself authored. In this poetry, Solon celebrates his own success and one line in particular claims equality under the eyes of the law. This is a very forward thought and is not a concept that appears in Solon's actions. Now Kleisthenes, an Athenian leader appearing almost a century later, did prescribe to legal equality. This position gave Kleisthenes the respect of the lower classes but would not have faired well the upper class citizens. Is it possible that Kleisthenes altered Solon's poetry with the intent to use it as precedent to promote his way of thinking?

Clearly this is just a matter of elucidation, as is with all Ancient Sources. I used several translations by published authors, including my own, to compare and evaluate varying interpretations of the line of poetry in question. All of the translations had important differences that could lead to opposing conclusions.

The heart of the matter was in one word. This word could be translated by some to mean equal and translated by others to mean fair. This critical translation would change the way in which Solon is viewed in Ancient Greece. While Kleisthenes may have borrowed Solon's poetry to aid his cause, it can not be proved at this time. The varying translations of the material could allow for an interpretation that would have fit into Solon's program.

Chandra Mullins
California State University, Fresno
Graduate Student Presenter

A Study of the Relationship between Fear of Crime and Trust in the Broadcast News Media

Research in the area of fear of crime and television has revealed a relationship between the amounts of television watched and levels of fear of crime. More current research in this field has noted that attention to television also contributes to the cultivation of fearful feelings. This research examined the relationship between the perceived credibility of the broadcast news media and levels of fear of crime. The relationship between perceived credibility of broadcast news and the amount watched was also examined. The research examined these relationships in students enrolled at California State University, Fresno using surveys administered in the fall semester of 2003. No relationship was found between perceived credibility of broadcast news and fear of crime. Only a weak relationship between some aspects of perceived credibility and amount of news watched was found.

William K. Nelson, Brian Tsukimura, Ph.D.
California State University, Fresno
Graduate Student Presenter

Methyl Farnesoate: Possible Endocrine Alternative for Population Control of the Invasive Riceland Tadpole Shrimp Triops longicaudatus

We have tested the hypothesis that the crustacean hormone methyl farnesoate (MF) inhibits the development of adult characteristics, including mature gonads, in the invasive tadpole shrimp species Triops longicaudatus. T. longicaudatus infests rice fields in California's central valley, dislodging growing rice cotyledons while foraging, reducing crop yields. Copper sulfate, the pesticide currently used to control tadpole shrimp populations, is a class I toxin and its use may soon be eliminated by the EPA. MF is an analog of insect juvenile hormone, which, in insects, inhibits development of adult characteristics, including gonadal development. If MF has juvenilizing effects in the tadpole shrimp, it may be used in rice fields to reduce population sizes, thus providing an alternative method of tadpole shrimp control. We produced food pellets in two MF concentrations (0.0001 and 0.001 % by weight) as a delivery mechanism, along with a control pellet with no MF. These pellets were tested both in lab and field trials (rice checks for the study were donated by Koda Farms). At day 5 half the shrimp from each group were collected, dissected, and analyzed for ovarian production. At day 10 the remaining shrimp were collected and analyzed. Preliminary data from lab trials showed a significant decrease in ovary development at the 0.001% concentration. These data suggest MF inhibits ovarian development in juveniles, supporting the contention that MF has juvenilizing activities. Additionally, we are testing for the presence MF metabolic machinery, which would confirm that MF is a native hormone in T. longicaudatus. Endocrine structures have not been characterized in this species; therefore, we are examining several tissues (gonads, hepatopancreas, and maxillary gland) for MF metabolism using 3H radio-labeling enzyme assays.

John Nilmeier
California State University, Fresno
Undergraduate Student Presenter

Social Security Privatization and its Effects on American Wealth

Introduction: As America's life expectancy has increased with better nutrition and medical services, the social security system has fallen into a state of insolvency. Today's workers are not only living longer, thus increasing the duration of their benefit, but the generational structure characterizing the American society also poses a dire problem.

Methodology: This study compares likely retirement benefits from Privatized Retirement Accounts (PRAs) with predicted benefits from the current Social Security system. The study employs the use of a Monte Carlo Simulation study to calculate the most likely benefit that will result from PRAs. The study determines how much money "would have" been earned in a PRA if the current 6.2% Social Security tax had been invested into a PRA instead of Social Security (a second study tests PRA balance with a 12.4% contribution).

Results:

Retirement Benefits from Social Security and PRA at 6.2% and 12.4%
(Males)

	6.2 % CONTRIBUTION		12.4% CONTRIBUTION	
AGE	SOC. SECUTIRY	PRA	SOC. SECURITY	PRA
20	$1,096,562	$1,300,000	$1,096,562	$2,900,000
30	553,387	900,000	553,387	1,940,000
40	486,733	740,650	486,733	1,500,000
50	442,399	650,000	442,399	1,130,000
60	381,639	600,000	381,639	875,000

Retirement Benefits from Social Security and PRA at 6.2% and 12.4%
(Females)

AGE	SOC.SECURITY	PRA	SOC. SECURITY	PRA
20	$235,637	$820,000	$235,637	$1,750,000
30	238,637	580,000	238,658	1,250,000
40	229,351	480,000	229,351	975,000
50	228,116	340,000	228,116	680,000
60	249,692	240,000	249,692	485,000

Conclusions: The study found that, when looking at the retirement side of Social Security (Old Age), privatizing the Social Security system in the above manner could indeed improve retirement wealth for most Americans.

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Fresno County Department of Community Health
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Reuben Parrish, B.S.
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Child Obesity: CHDP Providers' Needs Assessment

This study was designed to identify CHDP Providers' current practices concerning childhood obesity, the perceptions of the barriers that impede prevention and treatment, and to acquire feedback on their views on how to address childhood obesity.

An assessment tool was developed, pilot tested and mailed to 80 randomly selected CHDP Providers. It focused on providers' current practices addressing child obesity, their perceived barriers to prevention and treatment as well as proposed approaches in overcoming these barriers. The response rate was 54%.

Providers surveyed indicated that the highest percentage of obese children in their practices lies within the 13-20 year age group (20%) followed by 6-12 year age groups (18%). BMI index and height/weight measurements are utilized in assessing obesity (67% and 63% respectively). Methods used to address the problem include counseling (100%) and referrals (65%). Family eating habits (100%), socioeconomic status (72%), cultural beliefs (70%), insufficient knowledge regarding lifestyle (67%), lack of resources (67%), parents' noncompliance (65%) and media (53%) were perceived as major barriers to prevention and treatment. Suggestions given included creating a conducive environment for a healthy lifestyle, school intervention, parents and families' education, resource development, and social and cultural intervention. They believed dietitians and school nurses (88%), physicians (86%), WIC program (84%), educators (79%), media (72%), Dept. of Community Health (67%), and youth organizations (65%) should be actively involved in addressing childhood obesity. More than half of the providers feel they are insufficiently prepared to manage childhood obesity issue. They would like the CHDP Program to provide them with educational materials, seminars and referral resources.

In conclusion, approaching childhood obesity must be a joint effort as it is a multifaceted problem. Environmental, socioeconomic, cultural and familial factors need to be addressed. The results will be used to develop projects to address providers' needs.

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Genetic Experiments on Transgenic Tobacco Plants Expressing Nematode Cell Death Genes

Our laboratory is interested in generating plants with resistance to nematodes by using nematode cell death genes. We use the genes of the free-living nematode Caenorhabditis elegans because of its well-documented programmed cell death pathway. We introduced cell death genes of C. elegans (ced3, ced4, ced9 kindly provided by other scientists) into wild type tobacco plants by using Agrobacterium–mediated transformation. Resistance to the antibiotic hygromycin was used as a selective marker. We wanted to obtain transgenic lines containing only one copy of the transgene and generate homozygous stocks. The work presented here describes how we generated these stocks.

First we self-crossed the primary transgenic lines, collected seeds and germinated them in a nutrient medium containing hygromycin to determine the copy-number of the transgene. According to Mendelian genetics, we expected a ratio of 3 resistant to 1 susceptible plant if there was only one copy of the transgene inserted in the genome. We grew approximately 200 seeds of each transgenic line and of the 24 ced3-containing transgenic lines, 11 had a ratio consistent with single copy of the transgene insertion; of the 27 ced4-containing transgenic lines, 10 had a ratio consistent with single copy insertion.

We are in the process of identifying homozygous plants of the single copy lines by test crossing progeny plants of the self-cross of primary transgenics to wild type tobacco plants. If a plant is homozygous, all the progeny of the test-cross will be resistant to hygromycin; if the plant is heterozygous, the progeny will be 50% resistant. Progeny of plants containing no transgene should be all susceptible. As a preliminary result, we have identified several homozygous lines carrying the ced3 transgene. These plants will be used to test if they can confer some level of resistance to plant pathogenic nematodes.

Scott Peat, Paul R. Crosbie, Ph.D.
California State University, Fresno
Department of Biology
Graduate Student Presenter

A Phylogenetic Analysis of Sarcocystis Neurona

Apicomplexan protozoa in the genus Sarcocystis are well known as encysted forms in the tissues (chiefly muscle, but also brain) of vertebrates. Fatal protozoan meningoencephalitis (PM) has been recognized in Pacific harbor seals and sea otters from Northern California; the causative agent has been identified as S. neurona, which is also the cause of equine protozoal myeloencephalitis (EPM). This study assesses the genetic variability of Sarcocystis isolates from southern sea otters, and harbor seals, specifically by sequencing the 18S and ITS-1 regions of nuclear DNA, and subsequent phylogenetic analysis. The molecular data gathered will be used to test several phylogenetic hypotheses, in particular that there are multiple genetic lineages of Sarcocystis present in marine mammals in California. Preliminary sequence analysis shows the relationship between isolates from sea otters and congenerics from other vertebrates. This analysis may be crucial to future management actions related to sea otters, which are state and federally listed as threatened with extinction. This project is a collaborative endeavor with the California Department of Fish and Game and the University of California, Davis.

Brett R. Pierotte
California State University, Fresno
Graduate Student Presenter

Titus Labienus: Roman Hero or Roman Traitor?

Titus Attius Labienus was one of the most successful Roman generals of the late-Republican era. He served with distinction as Julius Caesar's lieutenant throughout the Gallic Wars. He is remembered today, however, as the only general who abandoned Caesar and sided with Pompey during the Civil War. Given the prestige Labienus gained in Caesar's service, his actions remain puzzling. This paper explores possible motives. Its purpose is to discover whether Labienus was motivated by selfish considerations, or whether he acted on more noble principles.

Three possible interpretations are assessed. The first is that enmity had developed between Caesar and Labienus creating a rift in their relationship. A second interpretation suggests that a previous political relationship between Labienus and Pompey was the decisive factor. The third explanation considers the possibility that Labienus was motivated by genuine loyalty to republican institutions.

To assess these interpretations, I've utilized the available primary sources. The most complete picture of Labienus is found in Caesar's Commentaries on the Gallic Wars. Here, Labienus emerges as a commander of considerable tactical brilliance. Caesar lavishes praise on his subordinate while rewarding him with political advancement. This is in contrast to the Labienus found in Caesar's Commentaries on the Civil War. Here Labienus is fiercely anti-Caesar, voicing open disdain for his former commander. This transformation is the strongest evidence that personal enmity existed between Caesar and Labienus. Finally, there are the sources that comment directly on Labienus' motives. Cassio Dio, in his History of Rome, concludes that Labienus' arrogance created a rift with Caesar. Cicero, however, in his Letters to Atticus, suggests that Labienus was motivated by a sense of duty and praises Labienus as a "hero".

The cumulative evidence, however, fails to support Cicero's interpretation. Most likely, Labienus was motivated by personal friction with Caesar and the belief that he had more to gain by serving Pompey. It is safe to conclude that Labienus was motivated not by duty or principle, but by ambition and the desire for political gain.

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Brandy Snowden, Michael Burg
UCSF Fresno Emergency Medicine

Evaluation and Diagnosis of Obese and Non-Obese Patients Presenting to the Emergency Department with Abdominal Pain

Study Objectives: We describe the evaluation and diagnosis of obese and non-obese patients presenting to an emergency department with abdominal pain. We evaluated the hypothesis that more resources are used to evaluate obese patients and that it is more difficult to obtain a definitive diagnosis in these patients.

Methods: We conducted a prospective observational study of patients presenting to the emergency department with abdominal pain composed of a convenience sample of 50 obese and 85 non-obese patients.

Results: More laboratory tests (90% vs. 78%, p=0.07) and imaging studies (52% vs. 45%, p=0.41) were ordered for obese patients with abdominal pain than non-obese patients, but these differences were not significant. Although slightly more consultations were requested for obese patients (32% vs 29%, p=0.75), fewer of these patients were admitted (20% vs. 27%, p=0.36). Of the patients who received a consult, the percentage admitted was significantly lower for obese patients than non-obese patients (62% vs 92%, p<0.0001). A discharge diagnosis of undifferentiated abdominal pain was more common in the obese patients (40% vs 32%, p=0.36).

Conclusion: The results show trends consistent with our hypotheses that more resources are used to evaluate obese patients with abdominal pain and that they are less likely to be given a definitive diagnosis. The results also indicate that consulting services are less likely to admit obese patients with abdominal pain than non-obese patients. Further study of the causes of abdominal pain in obese patients and the utility of labs and imaging in these patients may improve diagnostic accuracy and decrease the cost of evaluating these patients.

Phyllis Preciado, M.D.
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Prevalence of Overweight Students Attending Fresno Unified School District

Introduction: A secondary data analysis was performed to determine the prevalence of overweight in students attending Fresno Unified School District, Fresno, CA. Obesity is one of the most common chronic disorders in childhood, with unquestionable long term health complications if left untreated. Most pediatricians believe that being overweight in childhood or adolescence affects future health-related quality of life. Obesity is correlated with impaired glucose tolerance, a known "pre diabetic" state. The impact of obesity, if left untreated and unrecognized can lead to impaired glucose tolerance, which can progress to Type 2 Diabetes. Obesity in children and adolescents has increased dramatically in the United States. In 1988, 11.3% children between the ages of 6-11 years of age, and 10.5% adolescents 12-19 years of age were overweight. In 2000, 15.3% children and 15.5% adolescents were overweight.

Methods: An analysis of the Fresno Unified School District data from the 2002 California Physical Fitness Test, included date of birth, ethnicity, height/weight for all 5th, 7th, and 9th graders. Body mass index was derived from 12,135 students 10 to 16 years of age. Height, weight, and age were calculated as of April 15, 2002. Gender specific 2000 CDC Growth charts were used to define "at risk for overweight" and/or overweight.

Results: Hispanic students, age 10-16 years of age have a 47% body mass index greater than 85% and 27% body mass index greater than 95%; whereas white students, age 10-16 years of age have a 33% body mass index greater than 85% and 16% body mass index greater than 95%. Overall, Hispanic students showed a higher prevalence of overweight than white students irrespective of age, sex, or ethnicity.

Conclusion: Hispanic students attending Fresno Unified School District had a significantly higher prevalence of overweight than white students. It is well known that obesity is a risk factor for Type 2 Diabetes. In order to prevent the progression of obesity to pre-diabetes, and possible Type 2 Diabetes, it is important to identify social, behavioral, and environmental influences that are unmasking a genetic predisposition to Type 2 Diabetes.

Alicia J. Rivera, Malik Simba, Ph.D.
California State University, Fresno
Graduate Student Presenter

The "Lemon Grove Case" and School Segregation in the Southwest

Objective: During the Great Depression a wave of anti Mexican sentiment swept through the Southwest. Mexicans and Mexican Americans found themselves blamed for the economic crisis that faced the nation. One of the direct results of this situation was school segregation of Mexicans and Mexican Americans. I will present in this research project my findings about a particular case in the community of Lemon Grove, San Diego, California. This case is of significance because it was the first successful 20th century desegregation case of children of Mexican ancestry. I will analyze the background of segregation of Mexicans and Chicanos in the Southwest. I will also bring the problem of Latino segregation in the context of today.

Summary of Method: This research consulted an array of primary sources such as interviews of individuals involved in the Lemon Grove incident such as Dr. Robert R. Alvarez, and newspapers such as "La Opinion" and scholarly periodicals of the time. I also consulted exhaustively, secondary sources such as doctorate thesis and books by authorities on the subject such as the book "Familia, Migration and Adaptation in Baja California, 1800-1975". For a view of the present day controversies related to school segregation, I consulted sources such as the Harvard Civil Rights Project magazine, Gazette.

Conclusion: This paper concludes that the Lemon Grove case constitutes a primary example of a community organizing with solidarity to achieve social/educational goals. The Lemon Grove incident should serve as an example today for anyone who believes in the positive aspect of organized struggle to achieve diversity in education. This paper denounces the segregation practices then and today. It asserts that activism, advocacy, and "familia" should be a primary task for the communities, here and now.

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Graduate Student Presenter

Hydraulic and Chemical Properties of Soils Irrigated with Recycled Saline Drainage Water

Irrigation with saline water may adversely affect soil physical properties, in turn, reducing infiltration and water flow through the soil profile. Knowing the effect of the soil chemical properties on soil water retention at various depths will lead to better management practices for soils irrigated with recycled drainage water.

Current research conducted in San Joaquin Valley (SJV), California, is addressing the need to reduce irrigation volumes and drainage by optimizing crop utilization of shallow groundwater. Demands for fresh water are increasing steadily in arid regions, thus it is likely that saline irrigation water sources will be used to a greater extent. Current infiltration models do not contain parameters, which account for variability in management practices.

The objectives of this study were to determine the flow and chemical properties of soils irrigated with recycled saline drainage water for the eventual use of these parameters in irrigation management models.

Soils from Red Rock Ranch in Five Points on the west side SJV, were collected in 30 cm (1 ft) increments to a depth of 120 cm. Soil was taken from a fresh-water irrigated area (Stage 1) and from an area that has been irrigated with recycled drainage water for seven years (Stage 4). Irrigation water salinity in Stage 1 has been < 1 dS/m and in Stage 4 it has averaged about 13 dS/m. Texture, EC, and SAR were determined for all sampling locations and for all soil depths. Five centimeter core samples were also taken and utilized for determining flow rates under saturated conditions and water retention characteristics.

Soils textures were mainly clay loams. Soil salinity (ECe) was less than 2.4 dS/m in Stage 1 to greater than 50 dS/m in Stage 4 and SAR was 8.6 and 85.4 for Stages 1 and 4, respectively. The saturated flow rates varied greatly with values ranging from 1.02 X 10-3 to 9.67 X 10-6 cm per second.

Matt Simons, B.A.
California State University, Fresno
David Russel, M.D., Kenty Sian, M.D., Brian Curtis, M.D., Kent Yamaguchi, M.D., Tim Tyner, M.S.
UCSF Fresno Department of Surgery
Graduate Student Presenter

Neuroma Formation in a Rat Sciatic Nerve Model: Efficacy of Biosynthetic Nerve Guide Tubes in Prevention of Neuromas following Neurectomy

Peripheral nerve damage is commonly associated with a traumatic injury (penetrating object, ie. gunshot wound) or surgical complication (inguinal herniorrhaphy, limb amputation). The injured (transected) nerve will undergo Wallerian degeneration, afterwhich regeneration will proceed from uninjured proximal axons. If the distal target signal guiding the regenerating axons is insufficient, proximal neurons may undergo aberrant axonal sprouting. This random sprouting often results in the formation of a neuroma, a hypersensitive mass of axon endings intermingled with proliferating fibroblasts, Schwann cells and connective tissue. Clinically, neuromas present as firm, oval nodules in the subcutis or deeper soft tissue and are usually quite painful. In an effort to prevent neuroma formation following neurectomy (nerve resection), surgeons may elect to implant the proximal stump into an adjacent vein or muscle tissue, or anastomize the nerve stump to an adjacent nerve fiber. There is currently no universally accepted method for prevention or treatment of painful neuromas.

Our collaborator, Integra Neuroscience, has developed a biosynthetic nerve-guide tube intended to support the regeneration of motor nerves across long gaps (10-20 mm). In our study, we attempted to utilize the nerve-guide tube in an effort to reduce random axon regrowth and limit interactions with surrounding tissue following neurectomy in a rat model. Briefly, neurectomy of the sciatic nerve in male Lewis rats was performed. A 1 cm piece of nerve-guide tube was sutured to the proximal nerve stump and a small piece (5 mm) of the excised distal segment attached to the distal end of the guide tube to provide a temporary signal for guided regrowth. Four weeks post-neurectomy, the proximal stump was removed and processed for histochemical analysis. Dorsal root ganglia (DRG) associated with transected sciatic nerves were also harvested for gene expression analysis (see below). Preliminary histological and gross analyses of the nerve stumps suggest that the nerve-guide tube alters the pattern of regeneration, but does not completely abrogate neuroma formation.

Previous studies (Tanabe et al., J Neurosci, 2003) utilizing DNA microarray technology on transected nerves lead to the identification of regeneration-associated genes (RAGs). Our lab is interested in identifying differences in gene expression between competently-regenerating neurons and neuroma-forming neurons. Briefly, mRNA was harvested from the DRG of competently-regenerating and neuroma-forming nerves and converted to cDNA by RT-PCR. We are in the process of preparing labeled cRNA from these cDNA transcripts for di-hybridization with an Affymetrix Rat Neurological EST array chip. Identification of neuroma-associated genes (NAGs) may provide insight into the molecular processes involved in nerve injury and repair, as well as providing potential targets for the next-generation nerve guide/anti-neuroma devices.

Charanjit Singh, M.D., Sujatha Sirkanth, M.D.,
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UCSF Fresno

Diabetic Complications and Ethnic Differences (DCED Study)

Uncontrolled diabetes in Hispanic population is a serious health challenge. Five major population based studies conducted in the past 20 years generated data, which appears to be inconsistent regarding the incidence of diabetic complications. This perhaps reflects non-homogeneity of the populations studied or other subtle environmental or genetic factors that are unique to the localities studied.

The purpose of this study is to characterize the diabetic population obtaining its care from UCSF Fresno clinics and to identify the differences in the ethnic incidence of various diabetic parameters and complications.

Diabetic patients who received care at UCSF Clinic sites from March, 2002 to February, 2003 were identified per computerized database. The information was collected regarding demographics, laboratory studies (glycosylated Hb, lipid profile, urine microalbumin), complications of diabetes (neuropathy, nephropathy), and coexisting diseases (congestive heart failure, coronary artery disease). Records of the patients identified to have gestational diabetes with post-partum euglycemia in the absence of therapy, were excluded.

1203 patients above age 19 were identified, Hispanics-68.2%, Caucasions-22.2%, and Blacks-9.5%. There were 54-58% females and 42- 46% males in various ethnic groups. Hispanic patients were found to have poor blood sugar control (glycosylated hemoglobin>8%) compared to the other ethnic groups ($p<0.001$). Similarly, Hispanic patients had significant abnormal liver function tests ($p<0.025$), and abnormal triglyceride levels ($p<0.001$) compared to other ethnic groups. No statistically significant difference was found regarding cholesterol levels, microalbuminuria, and presence of cardiac diseases or peripheral vascular diseases.

Despite poor diabetic control and elevated triglycerides, this study finds that Hispanic population is not different from other groups regarding the presence of cardiovascular diseases and other complications. This is suggestive of either relative protection or absence of representation due to early mortality. Further in-depth studies needed to delineate underlying causes of the ethnic differences, focusing on access to and quality of healthcare.

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California State University, Fresno
Department of Computer Science
Graduate Student Presenter

Internet Terrorism: Web Spoofing

Internet has opened doors for new ways of information sharing. At the same time, it has open doors for all destructive individuals and groups to carry out their attacks with significant ease and impact. Specially, in the current era of terrorism, these attacks raise more concern as the attacker can modify information flow in various ways to present false information, collect personal information in unauthorized ways and disrupt the internet communication. This paper discusses one of the most lethal Internet attacks called "Web Spoofing" and suggests solutions for guarding against such attacks.

Web Spoofing is considered one of the simplest attacks to carry, because little effort and technology are required in designing, implementing and successfully carrying it out .Web Spoofing is implemented by providing the false URL and changing graphical interface of the webpage. Web Spoofing have very serious impact since most Internet users are not "well educated" enough to look for signs of spoofing.

This paper demonstrates an implementation of web spoofing. The British Broadcasting Corporation's website (BBC - http://www.bbc.com) has been web spoofed for this demonstration. It clearly shows how easy it can be to carry out such attacks. This demonstration also illustrates the huge potential of manipulating user emotions, privacy and integrity of data.

Web Spoofing attacks are very difficult to detect. If not observed very carefully, it is very difficult to feel when someone has become victim to the web spoofing. This problem is further aggravated by the SPAM mails and similar sounding names of the websites. Further web spoofing attacks are becoming tools for destructive groups and organizations to execute low cost war against certain groups or governments. Some possible solutions to the Web Spoofing problem include educating the general user, disabling some properties on the browser, and customizing the output.

Andrew R. Smith, Paul C. Price, Ph.D.
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Graduate Student Presenter

The Dud-Alternative Effect Examined: The Importance of Pairwise Comparisons between Focal and Alternative Outcomes

Likelihood judgments about a focal outcome should decrease as the list of alternative outcomes increases. For example, the likelihood that a basketball team will win a tournament decreases when two new teams enter the competition. However, the dud-alternative effect is observed when the presence of unlikely alternative outcomes increases the perceived likelihood of the focal outcome (Windschitl & Chambers, 2004). The dud-alternative effect is thought to occur because people compare the focal outcome with each of the alternative outcomes individually. Therefore, the presence of unlikely outcomes increases the number of favorable comparisons and thereby increases the perceived likelihood of the focal outcome. This occurs even though adding any outcome decreases the objective probability of the focal outcome.

Experiment one replicated the methods used by Windschitl and Chambers (2004) to show that the dud-alternative effect could be demonstrated by a different sample. Participants gave gut-level certainty estimates for their chances of winning hypothetical raffles. In one condition there were duds present (other raffle players who held very few tickets) and in the other condition there were no duds. The results are consistent with previous research in that certainty estimates were higher for the dud-present condition than the dud-absent condition even when the objective probability was lower for the dud-present condition.

Experiment two tested the notion that the dud-alternative effect relies on pairwise comparisons between the focal outcome and the alternative outcomes. Similar to experiment one, participants made gut-level certainty estimates about hypothetical raffles. In this experiment, the other raffle players were grouped to form Team A. In one condition the participants made estimates about an individual's chance of winning the raffle, and in the other condition participants made judgments about the chances Team A would win the raffle. The results suggest that making pairwise comparisons are an important component of the dud-alternative effect.

The implications of these findings extend beyond having people judge likelihood rating of winning a raffle. Any situation where people must make judgments between a focal outcome and many alternative outcomes could be influenced by the dud-alternative effect. Adding two weak basketball teams to a tournament might actually increase the perceived likelihood that the focal team will win, even though the objective likelihood actually decreases.

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Latino Center for Medical Education and Research

Morality disparities and health priorities of Latinos in the San Joaquin Valley, California, 1999-2001

Objectives: The objective of the study was to identify disparities in mortality burden and priority health issues among Latinos in the San Joaquin Valley (SJV), California.

Methods: We analyzed California Department of Health Services, Death Statistical Master File data for 1999-2001. We calculated average, age-adjusted mortality rates for 12 causes of death in the general population and Latinos within eight regions of the State. In addition, we determined mortality rates for different racial ethnic groups within the SJV. We compared these cause specific, regional mortality rates to the respective rates in California and to the Healthy People 2010 Objectives (HP).

Results: The SJV general population had significantly higher mortality rates than both California rates and HP 2010 objectives, due to motor vehicle crashes, unintentional injuries, coronary heart disease, drug-related, and diabetes. Similarly, in comparison with California Latinos and the HP 2010 objectives, SJV Latinos had significantly higher mortality rates for the same causes as above except for coronary heart disease. Mortality rates due to motor vehicle crashes and unintentional injuries were relatively higher among SJV Latinos compared to other racial ethnic groups in the SJV. Furthermore, within the SJV, Latinos and African Americans had significantly higher rates of death due to diabetes compared to other racial ethnic groups.

Conclusions: We identified four causes of death that are disproportionately higher among SJV Latinos. These mortality disparities should be given priority attention for further disease and injury prevention research and policy development.

Joseph Teller
California State University, Fresno
Graduate Student Presenter

John Donne's Catholicism and its Role in the Divine Poems

Much of John Donne's devotional poetry is characterized by a struggle to find both his relationship to God and an assurance of his own salvation. Thus, critical discussion of Donne's work has attempted to clarify the specific theological influences that shape the poetics of the Divine Poems. Arguments by scholars such as Louis Martz, for example, attempt to explain Donne's devotional poems as products of Ignatian meditations and Catholic theology and practice, while critics such as Barbara Lewalski have attributed Donne's religious poetry to emerging Protestant poetics and form in seventeenth century English poetry. Additionally, critical biographies of Donne's life connect the searching, intense nature of Donne's religious poems to Donne's own guilt over his rejecting his Roman Catholic upbringing. These biographical explanations therefore link the characteristic anxiety of Donne's devotional poems to Donne's personal anxiety and religious guilt as a lapsed Catholic in a turbulent Protestant, often anti-Catholic political atmosphere.

Yet classifying Donne as either a Protestant or Catholic poet proves difficult, since his life and poetry demonstrate a myriad contradictions, modifications, and ambiguities that defy a tidy evaluation of his poetics along sectarian lines. Rather, Donne's religious poetics can better be explained in terms of the religious tensions—especially between his public mask of religious certainty and his inner struggles to find that certainty—that serve to shape his poetry. We can thus better understand the intense, despairing quality of Donne's devotional poetry by viewing it as the product of a man naturally inclined to desire religious certitude, but who is torn between the Catholicism of his youth and the publicly committed Protestantism that characterizes his later role as the staunch Anglican Dean of St. Paul's.

This paper examines how Donne's religious tension, especially in his Holy Sonnets and in the poems A Litanie and La Corona, betrays an enduring attraction and debt to the Catholic forms of devotion and prayer Donne claims to have rejected as a young man. Such tension in his Holy Sonnets also shows Donne's profound uncertainty about the Protestant view of salvation, and demonstrates as well as his struggle to find with certainty the "One True Church" that will lead him to God.

Christopher Tozlian
California State University, Fresno
Undergraduate Student Presenter

Motivation and Volunteerism: A Study of Retiree Volunteerism in the Nonprofit Sector

Volunteers are a critical resource for any nonprofit organization's financial viability. Although historically retirees have volunteered relatively little (Chambré, 1993), retirees are a large subsection of America's overall population (35 million in 2000) that is a potential resource for nonprofit organizations. The purpose of this study was to identify why retired persons are, or are not, volunteering in the nonprofit sector.

To study the motivational and hindrance factors that relate to retiree volunteerism, a survey was given to 1,005 retired persons from two retiree organizations, either via mail or in person. Both volunteers and non-volunteers were surveyed, and 47.3 percent of surveys were returned (N=475).

While no significant hindrances to volunteering were found (marginally significant hindrances were found), many attitudes predicted various aspects of volunteering, such as whether or not the respondent was currently volunteering, how frequently the respondent volunteered in an average month, and the respondent's total number of hours volunteers in an average year. In particular, individuals who indicated that volunteering is enjoyable, that they offer a unique contribution to a nonprofit organization, and that volunteering could lessen feelings of loneliness were more likely to volunteer often and for a greater number of hours.

The implications of the finding of motivational predictors will affect nonprofit organization marketing techniques toward current and prospective volunteers. Also, understanding the marginally significant hindrances found may help nonprofit organizations to nullify these hindrances, enabling more retirees to volunteer.

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Alcohol Treatment and Change in Substance Use Patterns over Six Years in a Central California Veteran Population

Objective: Alcohol and drug use patterns change over time. However, many treatment programs do not appear to take such changes into account. We used consistent methods to evaluate substance use patterns at treatment entry at two time points (1998 & 2003) to aid in program development. Veterans entering a 120-day Intensive Outpatient Program or a year-long Dual Disorder Treatment Program were assessed. The Cognitive-Behavioral modeled treatment programs emphasized 12-step and social skill building.

Method: Substance use patterns for 245 male veterans (n=146 at 1998 and n=99 at 2003; mean age=48.0(8.6) were characterized by the Addiction Severity Index. Outcome variables included prevalence of any use of alcohol and 10 drugs in 30 days prior to intake.

Results: Alcohol was the most prevalently used substance across both time points exceeding 75%. Additionally, there was a significant increase in reported cocaine use over time (22.6% at 1998 vs. 35.4% at 2003, chi-square=4.8, p=.03). Demographics revealed no age differences, but an increased percent of African-American patients over time (11.6% at 1998 vs. 23.2% at 2003, chi-square=5.8, p=.02) and with 76+% of African-Americans reporting cocaine use in both cohorts. Logistic regression using sample membership (1998 vs. 2003) and race to predict cocaine use found that race accounted for the effect.

Conclusions: The finding of consistently high rates of alcohol use across two time points in this VA sample highlights the need for continued education and focused treatment of alcohol use disorders. The observed increase in both cocaine use and in African-Americans in our treatment programs over a 6-year period suggests that routine examination of drug use trends and patient characteristics may be necessary to better understand current patient needs and to devise culturally sensitive treatments that target drugs of abuse.

Gene R. Urrutia
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Graduate Student Presenter

Chaucer's *The Clerk's Tale* as Political and Religio-Aesthetical Satire of Ockhamism

In *The Clerk's Tale*, found in The Canterbury Tales, Geoffrey Chaucer satirizes interpretations of *potentia absoluta* and obedience that were held by the Modern Way School of nominalism. The tale works to support and defend the established religio-aesthetic normative of the poet's era – Scholastic Realism. This paper discusses *how* Chaucer uses the tenets as satirical objects through Walter and Griselda's uncommon actions while viewed in the context of William of Ockham's unorthodox interpretations of the two tenets.

A critical examination Ockham's deconstruction of *potentia absoluta*, and Chaucer's use of it, gives readers a clearer understanding of the tale's complex meaning. This aspect is critical because, as part of his "razor," Ockham entirely bypassed literally hundreds of years of Christian orthodoxy. In doing so, he now focused on God's 'will' rather than his 'being.' As a result, Ockham created a 'spiritual anxiety.' Analyzing the constructs of Ockham's challenge to the religio-aesthetic normative of the era is critical in observing and understanding Chaucer's sophime – *The Clerk's Tale*.

Roberto C. Vaca, Lynnette Zelezny, Ph.D.,
Sam Gitchel
California State University, Fresno
Undergraduate Student Presenter

Faculty Perceptions of Alcohol Use at Fresno State

The purpose of this study was to contrast faculty vs. student perceptions about alcohol use and abuse at California State University, Fresno. During spring 2003 the National College Health Assessment (NCHA) assessed alcohol use and abuse among students. Fifteen hundred students were randomly selected and 572 (39%) completed and returned the survey. It was found that the majority of students 75% have 0-3 drinks when they party/socialize, with a mean of 2.79. However, most students overestimate their peers' alcohol consumption: 78% estimated that the "typical" student has 4 or more drinks when they party/socialize. Hence, students may be influenced by a false norm. A campus based social norms marketing project is underway to reduce heavy drinking and alcohol-related harm by correcting misperceptions among students.

Interestingly, according to preliminary survey data collected on a stratified proportionate sample of Fresno State faculty, it was found that the majority of faculty (66.7%) believed that the typical student on campus had 4 or fewer drinks the last time they partied or socialized. Moreover, the majority of faculty (75%) believe that compared to other campuses, alcohol use among Fresno State students is about the same. Also, faculty were aware (68.8%) of the social norms campaign at Fresno State; however only 56.4% believed the social norms messages. Notably, most faculty believe that selling alcohol at sporting events contributes to student alcohol problems.

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California State University, Fresno
Edward D. Schroeder, Ph.D.,
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University of California, Davis

Characterization of Regular Transient Loading Response in a Vapor-Phase Flow-Direction-Switching Biofilter

The principal objective of this study was determination of the response of a vapor-phase flow-direction-switching biofilter to regular transient loadings. Transient loading may result in exceedence of the local reaction capacity or mass transfer capacity of the inlet region. In such cases higher concentrations of contaminants are carried deeper into the bed and, in some cases, breakthrough of contaminants may occur. A laboratory reactor (150 mm I.D., nominal air flow 0.018 m3/min) was used for an experimental program to determine the relationship between loading pattern and response in a flow direction switching biofilter. Three loading cases were studied: (a) variable flow-reversal interval, (b) variable feed-on/off interval lengths (for repeating feed-on/off cycles), and (c) variable inlet concentration during a repeating feed-on/off cycle. Toluene was used as the model compound and response was assessed by monitoring toluene vapor concentration at several points along the packed beds.

The most significant findings of the study were: (1) Relative to unidirectional mode of operation, periodic flow reversal produced a more uniform distribution of reaction capacity along the length of the packed bed; (2) A 12-hour flow reversal interval was sufficiently short to maintain the toluene-degrading microbial community in a fully active state throughout the unit; (3) For the case of increasing off-period length in a cyclic feed-on/feed-off transient loading pattern, (a) toluene penetration into the bed increased as toluene removal rates in the inlet region of the packed bed decreased and (b) removal rates along the length of the bed became more uniform. Information developed in this study should provide a more complete basis for establishing operating protocols and monitoring regulations for vapor-phase biofiltration systems.

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Public Health Institute

Cervical Cancer and Hmong Women in California, USA, 1988-2000

Background: The Hmong immigrated to the US from Laos after the Vietnam conflict ended. Hmong encounter numerous readjustment issues, including health care. Hmong health beliefs encompass more spiritual than biological etiologies, as they usually seek first course of treatment from traditional healers. This practice delays early diagnosis and treatment of disease because biomedicine is used only as a last resort. This study examined cervical cancer incidence, mortality, and tumor characteristics in the Hmong female population of California, 1988-2000.

Methods: All female cases identified as Asian Pacific Islander (API) diagnosed with cervix cancer were secured from the California Cancer Registry. Patients with any of the 18 Hmong surnames and Laos or Thailand as birthplace were classified as true Hmong patients. For US-born cases with non-unique Hmong surnames, given names and birthplaces were used. When these variables could not determine the true ethnicity of a case, maiden names and/or next-of-kin contact names were used. Population at risk was estimated with data from the 1990 and 2000 decennial censuses. Annual average age-adjusted rates were calculated, and compared to those of API and Non-Hispanic White women.

Results: Hmong women experienced incidence and mortality rates three and four times higher than API and NHW women, respectively. Fifty-one percent of Hmong women chose no treatment, compared to 5.8% for API and 4.8% for NHW women. Hmong women 40+ years carried an unequal burden of cervical cancer. They were more likely to be diagnosed with cervical cancer at later stages, poorer histological grades, and had poorer survival than younger Hmong females.

Conclusions: Cervical cancer is clearly a public health issue that threatens the health and well-being of Hmong women. Culturally sensitive screening and prevention programs need to be developed and target older Hmong women using bilingual and bicultural Hmong women health educators utilizing oral communications.

POSTER PRESENTATION ABSTRACTS

(IN NUMERICAL ORDER BY POSTER BOARD NUMBER)

Mary Barakzai, Ed.D., F.N.P.-C., C.N.M.
California State University, Fresno
Dorothy Fraser, F.N.P.-C., M.S.N.
University of California, Davis
Poster Session I, Poster Board No. 1

Language, Culture, and the Computer

Many institutions of higher education are encouraging faculty to develop distance-learning courses in an effort to improve access and control costs. Despite the fact that the college population is becoming more ethnically and linguistically diverse, little attention has been given to the effect of culture and language on achievement in distance delivered coursework.

In order to determine if native language and culture affect student satisfaction and achievement in online coursework, a population of ethnically diverse nurse practitioner and physician assistant students at three institutions was studied. In order to improve reliability, two courses that are fundamental to the education of health care providers were considered: a foundational science course and a medicine course for clinical application. Student course evaluations and final course grades were compared by language background and culture using independent samples t-tests and one-way ANOVA. Qualitative data were also obtained both through videotaped interviews and the course evaluations.

Although the native English speaking students consistently scored higher than did those for whom English was a second language, there was no significant difference in the scores of the two groups in the online courses. In addition, there was no significant difference in student satisfaction with the online courses based on native language.

Despite these findings, it is important to remember that technology is just the medium, not the message. It is not the computer per se that causes a direct effect on achievement, but rather the teaching methods that such technology supports. In this study students utilized narrated PowerPoint lectures delivered via CD which allowed them to watch and listen to presentations multiple times. In addition, online quizzes provided practice in test-taking and self assessment. Case studies and questions of the day completed in small groups encouraged application of material to real world situations and opportunities for collaboration.

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Poster Session I, Poster Board No. 2

Efficacy of Continuous Epidural Analgesia versus Single Dose Caudal Analgesia in Children after Intravesical Ureteroneocystostomy

Introduction: The purpose of our study was to prospectively compare the effects of caudal injection and continuous epidural infusion of bupivacaine, on postoperative pain intensity, supplemental opioid analgesic requirements, and adverse effects, in children undergoing intravesical ureteroneocystostomy.

Materials and Methods: Over a period of 12 months, children ages 6-18 years of age with primary vesicoureteral reflux, who were scheduled for ureteroneocystostomy, were recruited for this study. The surgeon, patient, parents and staff were blinded to the child's group assignment. Patients were randomized to one of two treatment groups: Group A received a single-dose caudal injection of bupivacaine prior to surgical incision; Group B received placement of an epidural catheter, followed by epidural administration of bupivacaine. Upon completion of surgery, a continuous epidural infusion of bupivacaine was initiated at a rate of 0.4ml/kg/hr. Patients also received intravenous morphine patient controlled analgesia as a rescue analgesic. All patients received ketorolac and oxybutynin postoperatively. The epidural catheter was discontinued 48 hours postoperatively and the bladder catheter was removed 4 hours later. Outcome measures included: patient self report pain intensity rating using a 0-10 numeric scale, supplemental morphine requirements, level of local anesthetic blockade, presence and pain intensity of bladder spasms, opioid and local anesthetic related side effects, time to tolerating a regular diet and patient and parent satisfaction.

Results: A total of 34 patients met criteria. There were no statistically significant differences between the two groups for age, weight, American Society of Anesthesiologists (ASA) physical status classification score, preoperative sedation, unilateral versus bilateral reflux, grade of reflux, surgical procedure, and length of surgery. There was no statistically significant difference in average daily pain scores between the 2 groups. Pain intensity scores were low for children in both groups. There was a statistically significant difference between groups in morphine requirements in the post anesthesia care unit (PACU) and on the floor.

Conclusion: Both continuous epidural analgesia and single-dose caudal analgesia of bupivacaine, in conjunction with IV morphine PCA and ketorolac, provide adequate pain control following intravesical ureteroneocystostomy in children. These findings may contribute to earlier discharge following surgery, but further investigation is warranted.

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Poster Session I, Poster Board No. 3

A Cognitive Approach to Cigarette Smoking in University Students

Cigarette smoking is extraordinarily destructive, with highly negative and frequently lethal consequences for human health in virtually every physiological system, including especially the respiratory and cardiovascular organs. Yet nearly one quarter of American adults engage in this destructive and addictive habit. Rates of smoking in college students are also mounting alarmingly. Among college students, 13% of undergraduates identify themselves as smokers, even though 98% consider themselves knowledgeable about the dangers of smoking. Yet despite this apparent understanding of the dangers and risks of smoking, people continue to smoke. This is the paradox that must be addressed: How is it that college students can possess understanding of the risks of smoking behavior, and yet demonstrate very little influence of this understanding on the actual behavior of smoking?

Although previous research has shown the importance of feature-intensive processing of relevant information in the staving off of addictive behaviors, the present study examined the possibility that a more global, gestalt rejection of cigarette smoking may be operating to reduce smoking behavior. This research addressed this possibility in a college-aged population through the use of a decision efficacy rating procedure, in which smoking and nonsmoking respondents were asked to determine whether an individual was justified in smoking in a variety of given situations. Nonsmokers tended to reject smoking under any circumstances, whereas smokers tended to entertain mitigating circumstances more favorably in justifying smoking, especially when smoking could be construed as providing some perceived positive gains in serious situations, consistent with the hypothesis advanced. Results are discussed in terms of the gestalt/feature-intensive processing theory of cognition.

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Heuristic processing, Verbal and Mathematical Reasoning, and the CBEST

Many college students exhibit academic difficulties in relatively rudimentary areas of basic academic skills. This has been shown especially in performance on the California Basic Educational Skills Test, until recently the qualifying examination for teachers in this state. In view of the relatively high level of resources directed toward basic skills education at primary, secondary, and college levels, this is puzzling. Recent research in the area of gestalt and feature-intensive cognitive processing suggests that much of this difficulty may lie in heuristic competency, the ability to use and successfully manage general strategies and "rules of thumb" in academic as well as other situations. The present study evaluated this possibility. The performance of a sample of University students on a practice California Basic Educational Skills Test, used by permission, was compared by means of regression analyses with heuristic and algorithmic performance on a series of mathematics and reading comprehension exercises. The results were consistent with this hypothesis for verbal materials, although not, interestingly, for mathematics: better heuristic competencies predicted reading comprehension capabilities, although they did not predict better math performance. These results indicate the importance of including heuristic training in educational contexts, and also highlight the importance of a relatively domain-specific approach to questions of cognition in higher education.

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Poster Session I, Poster Board No. 5

Coccidioidomycosis of the Thyroid Gland

Introduction: Coccidioidomycosis, a fungal infection with Coccidioides immitis, is commonly known as Valley Fever mainly because it was first described in the San Joaquin Valley of California, and also for its high prevalence in the region. To date, however, there had been no reported case of Coccidioidomycosis of the thyroid from the area. Thus making this case, the first case to be reported from the valley and the fifth overall from the entire nation.

A 65 year old male came for evaluation of an anterior neck mass. Ultra Sound of his neck, revealed a soft tissue density cephalic to the thyroid and a small nodule in the left lobe of the thyroid. Fine needle aspiration cytology of the thyroid nodule was consistent with a papillary thyroid cancer. The patient underwent total thyroidectomy. Histopathologic study of the specimen confirmed the diagnosis of a papillary Carcinoma of the thyroid, a lipoma, and Coccidioidomycosis organisms which were incidentally noted. His Coccidioidal Serology was mildly elevated but his CXR and CT chest and abdomen did not show any suspicious focus of dissemination. The patient was started on oral fluconazole.

Discussion: Each year an estimated 100,000 people are infected with Coccidioidomycosis, 90% of which resolve spontaneously. The remaining 10% harbor the infection primarily of the lungs and less than 1% develop an extra pulmonary, disseminated disease.

All of the cases have either thyroid enlargement, nodule or abscess. Fine needle aspiration cytology wasn't initially analyzed for cocci in this pt. Given the high incidence and prevalence of the disease in the central valley region, it is recommendable to look for Coccidioidomycosis ideally in all pathologic specimens.

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Imaging and Science at Fresno State's Campus Observatory, 2003-2004

Activity between 2003 April and now at Fresno State's Campus Observatory, on the grounds of the Downing Planetarium, is reported. The best images from this period, mostly taken or processed by students, are presented, and the techniques used for the digital image processing are described. Several science programs produced results in the past year, including:

(1) Observations in support of, and simultaneous with, Hubble Space Telescope observations of low states in the magnetic cataclysmic variables AM Her and AR UMa (in collaboration with Dr. Steven H. Saar, at Harvard).

(2) Observations simultaneous with Chandra X-ray Observatory (NASA's other billion-dollar space telescope) and the NASA/Rossi X-ray Timing Explorer spacecraft (with Dr. Koji Mukai, at NASA), of accretion in the magnetic cataclysmic variable AM Herculis.

On most projects students collaborate with the Central Valley Astronomers, Fresno's amateur astronomy club, who are a great help.

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Time-Resolved Spectroscopy and Photometry of CT Serpentis and V825 Herculis

Time-resolved spectroscopy and photometry of two cataclysmic variable binary star systems are presented. A radial velocity study shows CT Ser (Nova Ser 1948) has an orbital period of 0.195 +/- 0.002 d. Its light curve shows only erratic flickering. A radial velocity study shows that V825 Her (PG 1717+413) has an orbital period of 0.206 +/- 0.002 d. This CV's spectrum is similar to that of a dwarf nova in outburst, or an old nova: we show a long-term light curve that shows only small, "stunted" outbursts, so it is likely to be a luminous nova-like CV, similar to a dwarf nova stuck in outburst all the time. We use time-resolved photometry to discover quasi-periodic oscillations (QPOs), with periods between 15-24 minutes, not unlike those seen in other luminous CVs, although one of the strongest effects of this kind ever discovered.

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Poster Session I, Poster Board No. 8

Studies of the Spectra of Three Nova Eruptions at Fresno State's Campus Observatory

Nova eruptions are among the most powerful explosions in the Galaxy, and are bright enough to be studied with small telescopes, such as in Fresno State's Campus Observatory.

Such a small observatory, on campus and easily accessible to students, has an advantage that most larger, world-class observatories do not have: the ability to make observations through time. Attaching a spectrograph to the telescope allows for physical study of the eruption, the nuclear reactions that power it, and the expansion of the fireball thrown off from the underlying star system.

We present observations of how the spectra change over time of three recent nova eruptions. All three novae showed the characteristic pattern of lines of iron, indicating dense fireballs thrown off from relatively low-mass white dwarf stars, the most common kind.

The first two novae we studied, V4742 Sagitarii and V4743 Sagitarii, both erupted in 2002 August. Both were both fast novae, which are often missed by large observatories, because they fade in only a few days. The third nova, V475 Scuti, erupted in 2003 September. The spectrum indicated a strong outflow that disappeared seven weeks after the nova was discovered, and indeed, suggests that much of the fireball fell back onto the star from which the explosion came, highly unusual for a nova.

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Symptomatology and Self-Care Practices Related to Quality of Life in Persons with HIV/AIDS

Objective: The primary objective of this study, via secondary analysis, was to determine the relationships among reported symptoms (i.e., anxiety, depression, and fatigue), the use of self-care practices (i.e., complementary and alternative medicine, activities/thoughts, and exercise), and health-related quality of life (HRQOL) in persons with HIV/AIDS.

Methods: A descriptive design was used to obtain information from 372 HIV-infected subjects in an outpatient clinic in southeast Texas. Participants completed a sociodemographic data form, Center for Epidemiological Studies Depression Scale (CES-D), Living With HIV/AIDS Scale (LIV), Revised Sign and Symptom Check-List for HIV (SSC-HIV rev), and Self-Care Symptom Management for People Living with HIV/AIDS (SSM). The CES-D is a 20-item self-report scale designed to measure depressive symptomatology. The 38-item LIV Scale measures HRQOL. Items on the SSC-HIVrev consisted of 72 items with possible scores ranging from "0" (blank) to "3" (severe). Using the SSM, participants were asked to identify self-care activities used to manage reported symptoms, frequency of use, and perceived effectiveness. Results: Sociodemographic attributes of the sample (n=372) were between the ages of 18 and 66 years, with a mean age of 39.98 (+ 8.27). The participants were comprised of 250 (67.2%) males and 118 (31.7%) females with 4(1%) transgender. Approximately 72% were African American, 15% Caucasian, and 9% Latino/Hispanic. Clients used a large number of self-care activities, with activity/thoughts, exercise, and complementary/alternative medicine being among the most frequently reported. There was a negative correlation ($r = -0.258$, $p = 0.010$) between ethnicity and talking with family/friends with a positive correlation ($r = 0.223$, $p = 0.028$) between gender and talking with others on the symptom of anxiety.

Conclusions: A positive relationship was correlated between age and gender with the variables of anxiety and depression with a significant relationship between the variables of depression and fatigue and HRQOL.

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Stereoselective Conjugate Addition of Aromatic Thiols to Cyclic Alpha, Beta-Unsaturated Ketones Using Inexpensive Transition-Metal Chiral Catalysts under Mild and Neutral Conditions

Asymmetric conjugate additions of aromatic thiols to alpha, beta-unsaturated ketones are important reactions in biochemistry, the synthesis of biologically active compounds and in the formation of useful synthetic intermediates. Methods for the stereoselective synthesis of beta-(arylthio)-cyclohexanes are under investigation. Reactions using in-situ Ni and Co based chiral catalysts using (R)-(+) and (S)-(-)-1,1'-Binaphthyl-2,2'-diamine and (R,R)-(-) and (S,S)-(+)-N,N'-Bis(3,5-di-tert-butylsalicylidene)-1,2-cyclohexanediamine ligands under mild and neutral conditions are described. The determination of enantiomeric excess (% ee) in these reactions using chiral GC analysis will also be reported.

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Nematicidal Activity of Ferrocenyl Chalcones

Two families of ferrocenyl chalcones were synthesized according to Schemes 1 and 2 below. The compounds were characterized by 1H NMR, IR and UV-Vis spectroscopy. The compounds were administered to C. elegans nematodes in three different concentrations (1, 10, and 100 _M) to ascertain minimum levels of toxicity. The solutions were 1% DMSO and 99% (v/v) liquid medium. DMSO alone in concentrations greater than 1% was lethal to the nematodes. Each nematode was placed in 50 _L of the test solution and 10 duplicates were run for each compound. The active compounds were then duplicated 96 times for a better statistical cross-section. Results point to the existence of some biological activity, especially for 1-(4'-fluorophenyl)-3-ferrocenyl-2-propen-1-one (3, R=4-F). After fourteen days of exposure to this compound, 78% of the nematodes were killed. Of the surviving 22%, all but one had reproduced. There seems to be a correlation between biological activity and the position of the ferrocene moiety and the presence of electron-withdrawing groups on the phenyl ring. Further investigations into the structure-activity relationships in this series of compounds are underway.

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Synthesis, Characterization, and Anion-Sensing Ability of a Ferrocene-Based Chiral Ligand

Ferrocencarboxaldehyde was allowed to react with trans-(1S,2S)-diaminocyclohexane mono-(-)-tartrate to form N,N-bis(ferrocenylidene)-trans-(1S,2S)-diaminocyclohexane (1) as an orange solid. Compound 1 was reacted with silver trifluoromethanesulfonate (triflate) in CH2Cl2 for 48 hours to yield a deep-purple crystalline solid which, by an X-ray crystallographic analysis, was shown to be the protonated form of 1, i.e. N,N-bis(ferrocenylidenium)-trans-(1S, 2S)-diaminocyclohexane triflate (2). Using a NaBH4 / ethanol mixture, compound 1 was reduced to N,N-Bis(ferrocenylmethyl)-trans-(1S, 2S)-diaminocyclohexane (3). Compounds 1-3 were characterized by UV-Vis, IR, and 1H-NMR spectroscopy. The addition of 20 drops of a 1 x 10-4 M CDCl3 solution of 3 to a CDCl3 solution of a racemic mixture 2-butanol caused the splitting of the peaks in the alcohol region of the 1H-NMR spectrum of the racemic mixture, indicating the possible use of compound 3 as an NMR chiral shift reagent. This possibility was investigated further with racemic mixtures of other optically-active compounds. In addition, the anion (X-) sensing ability of compound 3 was studied by 1H-NMR spectroscopy (X = Cl, Br, I, BF4, ClO4). Finally, compound 3 was used as a chiral auxiliary in the enantioselective reduction of a few ketones with NaBH4 in the presence of Ni(II) or Co(II) salts. The results of these investigations will be presented.

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A Novel Screening Method to Reduce Artifacts in Forensic DNA Analysis of Mixtures Using Polyols

Microsatellites or short tandem repeats (STRs) consist of tandemly repeated sequence motifs of 1 to 6 nucleotides in length. They are widely dispersed and abundant in the eukaryotic genome and are often highly polymorphic due to the variations in the number of repeat units. Due to their polymorphism, microsatellites are attractive DNA markers for PCR-based use in forensic investigations. Tetranucleotide STRs are specifically powerful in forensic applications, since multiplex STR tests that have matching probabilities of one in several billion individuals are now available.

The combination of PCR and capillary electrophoresis has greatly improved the analysis of the microsatellite DNA sequences. However, PCR artifacts referred to as "stutter peaks" can complicate analysis of closely spaced alleles. Stutter peaks differ from the main allele by multiples of the repeat unit size. Due to the multipeak pattern for each allele interpretation is complicated specifically when two alleles from an individual are close in size or when DNA samples contain mixtures from two or more individuals.

We have developed a chemical screening assay to identify solutes which can specifically reduce the presence of stutter artifacts in mixtures in forensic analysis. The assay involves the use of a fluorescent multiplex PCR system and the addition of specific polyols and testing the products using capillary electrophoresis (ABI Prism 310). The reduction in the artifact is measured by determining the stutter percentage ratio at each locus in the multiplex. The stutter percentage ratio is defined as the ratio of the stutter allele to the main allele peak. The relative ability of the polyols to reduce the artifact is then determined. This improves genotyping and allele assignment of microsatellites by eliminating errors in genotyping thereby improving the sensitivity of the technique. In the forensic field specifically samples containing mixtures of DNA samples will be easier to decipher simplifying analysis.

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Use of Knowledge Management as a Learning Transfer Platform

This study examined two participant Registered Nurse study groups (n = 40) from local health care organizations to predict if utilizing knowledge management theory, applications, and principles effected their perceived ability and motivation to transfer learning to the job. The study was conducted utilizing two sub-scales of the Learning Transfer Inventory Scale (LTSI): Transfer Design and Motivation of Transfer Learning.

Group A (n = 20) underwent a training program based on knowledge management theory, principles, and application, while group B (n = 20) underwent training without utilizing the knowledge management platform.

Two independent sample t-tests were conducted between group A and group B for the Transfer Design and Motivation to Transfer Learning scales. The scores were examined for violations of critical assumptions. Analyses were also conducted to check for evidence of abnormality or unequal variances in the data. A Pearson's r correlation was conducted between the two dependent variables, the Transfer Design and Motivation to Transfer Learning scales. Additional independent sample t-test analyses were conducted on each item in the Motivation to Transfer Learning scale.

Results revealed significantly higher scores in group A than participants in group B on the Transfer Design scale. The results on the Motivation to Learning Transfer scale showed no statistical significant difference between group A and group B. The analyses of each item in the Motivation to Transfer learning scale revealed group A had significant higher scores than group B on Question #4, "I believe the training will help me do my job better".

A knowledge management platform appears to be an effective strategy in the design of training program.

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The Effect of Antiretroviral Medications on Blood Chemistry

Introduction: Antiretroviral medications for treatment of HIV infection have been shown to cause mitochondrial toxicity, damaging the energy producing organelles within cells. Rarely, this toxicity can lead to development of severe lactic acidosis, presumably due to a diminished capacity for aerobic metabolism. The serum "anion gap" (the difference between the routinely measured positive and negative anions in blood) may reflect elevated blood lactate levels. The goal of this study was to determine the normal range of serum anion gap in patients at University Medical Center, Fresno CA with HIV infection taking or not taking antiretroviral medications.

Methods: Medical chart review was carried out for HIV infected patients in three groups 1. not taking antiretroviral medications, 2. taking antiretroviral medications that did not include stavudine and 3. taking antiretroviral medications that include stavudine. Thirty patients in each group were selected randomly from the entire clinic population. Patient demographics, medication history, and anion gap results for the previous 12 month period were recorded

Results: The average anion gap result for patients in the three groups were: 1. no antiretroviral medication 9.18 +/- 0.25, 2. Non-stavudine based antiretroviral therapy 9.46 +/- 0.53, and 3. Stavudine based antiretroviral therapy 10.2 +/- 0.69. The differences between the stavudine group and the group on no medications is statistically significant ($p<0.05$). In addition, all patients with an anion gap >90th percentile were on antiretroviral medications ($p<0.05$).

Conclusions: There is large variability in serum anion gap both between individuals and between testing in the same individual. However, an effect of antiretroviral therapy on serum anion gap can be detected. This marker may be useful in identifying patients who are developing toxicity from antiretroviral therapy for further study.

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Resistance Gene Analogs in Pepper (*Capsicum annuum*) and Applications in Marker-Assisted Breeding Programs

California pepper crops are subject to major yield losses each year due to infection with the pathogenic oomycete, *Phytophthora capsici*. One method of control currently being examined involves the introduction of resistance (R) genes to susceptible cultivated lines through breeding, utilizing molecular markers closely linked to these R genes. This study attempts to identify resistance gene analogs (RGAs) and possibly genes conferring resistance to *P. capsici* in pepper using sequence knowledge of previously isolated R genes from other plant species and polymerase chain reaction (PCR) based methodologies. Fifteen primer pairs designed from conserved regions of R gene sequences from other plants are being used to screen DNA of susceptible (JEP and Psp11) and resistant (CDM and PI201234) pepper lines. To date, 11 of the primer pairs have identified a total of 17 polymorphic loci between susceptible and resistant varieties. Linkage analysis of these polymorphic loci segregating in two mapping populations created by the cross of a resistant to a susceptible line (JEP x CDM and Psp x PI201234) placed 9 of these loci on the pepper linkage maps. Five of these markers linked closely to quantitative trait loci (QTLs) involved in resistance to *P. capsici*. These markers are being sequenced for comparison with DNA sequences in GenBank in order to determine their similarity with other plant R genes. Studies are also underway on the screening of 34 pepper lines, representing five *Capsicum* species, with the R gene-based primers to identify novel sources of resistance to Phytophthora disease. With this study we hope to identify R genes in pepper that confer resistance to *P. capsici* or markers that closely link to these genes to enable the introduction of these R genes to susceptible cultivated varieties of pepper utilizing marker-assisted selection.

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Molecular Analysis of Putative Avirulence Genes in *Phytophthora capsici*

Gene-for-gene interactions are characteristics of many plant-pathogen interactions. This interaction involves the recognition of plant resistance (*R*) genes by the pathogen's avirulence (*Avr*) genes. Elicitins, *Avr* gene products, have been implicated in the compatible reactions between *Phytophthora* species and their Solanaceous hosts. Some of these elicitins have been cloned, and they show a high level of sequence similarity. The sequence similarity of elicitins from other *Phytophthora* species facilitates the use of these sequences in the search for avirulence genes in *P. capsici.*

P. capsici virulence has been determined through previous screenings against pepper lines. DNA from all isolates screened was extracted and quantified. PCR primers specific for the ITS1 region of *P. capsici* were used to positively identify the isolates. Five sets of PCR primers were designed from *P. infestans* elicitin sequences and are being used to screen *P. capsici* isolates for putative avirulence genes.

P. capsici specific primers have shown that all isolates are indeed *P. capsici.* All five PCR primer sets have shown amplification. PCR conditions have been optimized for one of the primer sets while optimization continues on the remaining four sets. PCR products of interest will be cloned and sequenced. Comparison of these sequences to each other and known elicitin sequences will be conducted.

The identification of avirulence genes in *P. capsici* could be useful in the development of durable genetic resistance in pepper by increasing our basic understanding of plant-pathogen interactions. *Avr* gene identification will also contribute to the study of the molecular basis of *P. capsici* isolate evolution. An understanding of these issues could lead to better control strategies for *P. capsici.*

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Poster Session I, Poster Board No. 20

Issues in Participant Recruitment of Mexican American Severely Mentally Ill

Over the past few years the rise of the Mexican American population is undeniable. There are few efforts to increase the knowledge that researchers have about the severely mentally ill (SMI) in this minority. The present study aims to address this deficit by expanding the knowledge that researchers interested in minority mental health have about their prospective participants. There is little known about characteristics inherent in an SMI Mexican American person that may prevent him/her from participation in a study. If knowledge about such characteristics is attained, researchers will be better able to know how to recruit said populations.

In order to determine characteristics of research participation two different groups were studied. From the 4,013 people interviewed in the Mexican American Prevalence and Services Survey, 280 were classified as SMI using the Composite International Diagnostic Interview. Within the 280, 111 have been successfully re-interviewed. The 280 cases were divided up into two groups: those who have been re-interviewed and those who have not. Statistical analyses were made (using a chi-square) to determine whether or not there were significant differences between the two groups according to their diagnoses, location stability (whether or not they have moved since the first interview), preferred language, marital status, and co-morbidity.

Results showed that under diagnosis, major depression, panic attacks, and any co-morbidity revealed significance ($p \leq .05$). Participants with these diagnoses tended to not be in the 111 re-interviewed group. Therefore, diagnosis is not a major reason why SMI Mexican Americans are not re-interviewed. However, the study revealed that a person's location stability was statistically significant. It can be concluded that SMI's harder to re-interview because of their mobility. Future research should detect reasons for high mobility within this population.

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Effective Henry's Law Measurements for Hydrogen Peroxide in Salt Solutions

Recent epidemiological studies indicate that increases in human mortality are associated with significantly lower concentrations of fine particles than those previously thought to affect human health, and that hydrogen peroxide (H_2O_2) solutions as dilute as 10^{-11} M may cause cell injury. Hydrogen peroxide is believed to partition between the gas-phase and aqueous-phase according to its Henry's law constant:

$$A\,(g) \Leftrightarrow A\,(aq) \qquad (R1)$$

$$P_A \times H_A = [A] \qquad (E1)$$

Where P_A is the gas-phase partial pressure, H_A is the Henry's law constant, and [A] is the aqueous-phase concentration.

Recent measurements indicate that aerosol-phase concentrations of H_2O_2 are several times higher than predicted by E1. However, aerosols contain high concentrations of inorganic salts, which may enhance the effective solubility of H_2O_2. In this research project the effective Henry's law constants of H_2O_2 in pure and concentrated salt solutions (ammonium sulfate, ammonium nitrate, sodium chloride, and sodium nitrate) were measured.

Henry's law constants were obtained using apparatus consisting of a flow meter, impinger, and helical coil collector connected in series. Air was bubbled through the impinger which contained a standardized H_2O_2/salt solution. H_2O_2 was taken up by the gas stream and was transferred to a stripping solution in the coil collector. Quantification of hydrogen peroxide present in a stripping solution was achieved using High Performance Liquid Chromatography with fluorescence detection (HPLC-fluorescence). From the concentrations of H_2O_2 present in the stripping solution, the effective Henry's law constant was determined.

Henry's law constant in pure water at 19°C was 7.7×10^4 M atm^{-1}. In salts containing ammonium ion (NH_4^+), effective Henry's law constants increased by up to a factor of two. However, salts not containing NH4+ did not strongly influence the Henry's law constant. Aerosols containing NH_4^+ may therefore be more toxic and can cause adverse health effects.

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Poster Session I, Poster Board No. 22

Embryology of the Plant Pathogen Meloidogyne Incognita

Pathogenic nematodes cause significant damage to agricultural crops worldwide, reducing top growth and crop yield by as much as 50%. Various methods of biocontrol are being investigated, including the possibility of targeting the programmed-cell death (PCD) pathway in the infecting nematode. One species of plant pathogen, Meloidogyne incognita, is particularly vigorous, and is the target of our study. Very little is known about this species of nematode, especially as compared to the model organism Caenorabditis elegans. The aim of our research is to characterize PCD processes in the developing embryo. However, the fundamental embryological development of this species is not yet known, and this must be described before such PCD characterization can be attempted. To characterize the morphological embryogenesis of this species, eggs were harvested from host tomato plants and observed over a two-week period using Nomarski microscopy. A composite was built to document the development from the single-cell stage to hatching. Morphology was described especially as provided a phylogenetic comparison with other species of nematodes. Various staining methods similar to those used with C. elegans will be used to further investigate embryogenesis, including immunoflourescent staining, nuclear staining, p-granule staining, and fragmented chromosome staining. Characterization of the PCD pathways in the embryogenesis of M. incognita may lead to groundbreaking means of nematode biocontrol in the agricultural industry.

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Poster Session I, Poster Board No. 23

Response of Digital Electromagnetic Sensor to Soil Moisture and Electrical Conductivity

The principles behind the use of electromagnetic waves in moisture sensing technology are based on propagation of the waves through a media described by its magnetic and electrical properties. Water, which has a uniquely high permittivity, can be measured by its impact on the propagation velocity of electromagnetic waves through the medium containing water.

The overall goal of this study was to test the ability of sensors to provide reliable results during multiple wetting cycles for various soil types, soil temperatures, and water salinity levels. In this phase we tested the response of a commercially available electromagnetic sensor to variation in soil moisture and solution electrical conductivity (EC) in a sandy loam soil at two temperatures.

Sensors were set up in rectangular boxes filled with sandy loam soils of known bulk densities. Soil was wetted up to saturation from the bottom of the box to limit air entrapment; allowed to drain to field capacity; and weighed periodically to determine the gravimetric and volumetric water contents. Tests were conducted at average temperatures of approximately 25°C and 40°C by starting with the application water of deionized water and subsequent dosages of salt solutions of 1.5 dS/m. Calculated volumetric soil moisture contents were compared with values obtained from the computer readouts.

For the tests conducted at the two temperatures with the application of increasing salt solutions on a sandy loam soil, there was excellent correlation (R2 ranging from 0.98 to 1.00) between the volumetric water contents measured with the electromagnetic digital sensor and the calculated values. Future work will focus on conducting similar tests on more sandy and clay soils, and at a lower average temperature.

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Poster Session I, Poster Board No. 24

Are WRKY 6 and WRKY 53 Associated with Senescence?

Senescence is a controlled cell disassembly process occurring in plants that are responsible for many diverse yet, important developmental stages. At the genetic level, senescence is recognized by the increased expression of Senescence Associated Genes. In Arabidopsis thaliana, two transcription factors possibly involved in the senescence process have been identified, WRKY6 and WRKY 53. Using the herbaceous perennial Podophyllum peltatum, a common species in the North Eastern United States, we are interested in determining whether its senescence initiation has similarities to Arabidopsis thaliana. P. peltatum is composed of an underground rhizome network with single interspersed leaves that emerge in April and senesce two months later although conditions remain suitable for photosynthesis. Why does P. peltatum senesce so early in the season? Do WRKY6- and WRKY 53-like sequences of P. peltatum play a role in the early appearance of senescence?

WRKY genes appear to be present in a wide range of species probed, therefore it is hypothesized they will also be present in P. peltatum. Two complementary PCR-based approaches are being used to identify WRKY-like sequences in P. peltatum DNA extracts In the first approach, primers based on the Arabidopsis sequences were created to amplify WRKY6 and WRKY53 like sequences. In the second approach the goal is to amplify WRKY6- and WRKY53-like sequences using degenerate primers. Once WRKY like sequences have been identified, changes in WRKY expression will be characterized through the P. peltatum life cycle. Currently, as revealed by electrophoresis, an approximately 1 kb segment of the genome has been successfully amplified with WRKY6 primers; we are in the process of cloning this product using the Gateway system (Invitogen, San Diego, CA), and subsequent sequencing will establish the product's putative similarity to other WRKY-like sequences.

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Poster Session I, Poster Board No. 25

Nitrate and Salt Loading for fields Irrigated with Liquid Dairy Manure

Dairymen commonly use liquid dairy manure (LDM) as a nutrient source and to amend fields for crop production. A three year study was conducted to investigate the impact of the application of LDM on sandy loam soils at a large dairy in Hanford, CA. Fields were flood irrigated with LDM which was mixed with fresh water at a ratio of 1:1 before application. A field that received no LDM was compared to a field that received LDM throughout the three years. Soil samples were taken from 0-15cm, 15-30cm, and 30-45cm. The LDM amended field was sampled at the Head, Middle and Tail locations. Water samples were also taken monthly throughout the last year of the study from the dairy ponding basin to determine the variability of the salts and ammonium (NH4) in solution throughout a full season.

The water applied to the field varied from an Electrical Conductivity (EC) of 3.6 mS/cm in the summer when the water is used to feed crops to 9.6 mS/cm in the winter when the water is stored in the pond. Ammonium concentration ranged from 92-234 mg/L.

Data analysis to date indicates that the field with no amendment had very little change in the salt loading as indicated by EC and sodium absorption ratios (SAR). The LDM amended field had an increase in EC and SAR each of the three years. There was also an increase in EC and SAR at the different depths. A large increase in salts in the tail area of the third year was also detected.

Soil nitrates were low (2.8-28 ppm) on the field which received no LDM. Nitrates on the amended field (58-116 ppm) showed relatively even distribution overall with more nitrate in the first 15cm in the head and middle of the field and more nitrates at the 30 to 45cm depth at the tail of the field.

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Poster Session I, Poster Board No. 26

Adults' Expectations of Children with Developmental Disabilities

This study explored whether physical appearance influences the expectations adults have for the competence of children with developmental disabilities. Down syndrome and autism were compared because Down syndrome is characterized by distinct physical features whereas autism is not. Ninety participants received a photograph, a behavioral description or both of either a child with Down syndrome or an autistic child and were asked to made estimates of the competence of the child in four domains: compliance, social relationships, independence, and self-control. It was predicted that adults would rate autistic children as relatively competent when a photograph was available whether or not behavioral information was available. Contrary to prediction, however, appearance did not appear to be as powerful a predictor of competence ratings as behavioral information for autistic children. When only a photograph was available, autistic children elicited high expectations; however, when behavioral information was available, whether or not a photograph was provided, competence expectations were significantly lower. Children with Down syndrome tended to elicit similar or higher expectations of competence when behavioral information was provided than when a photograph was the only available information. Finally, expectations for the competence of Down syndrome children tended to be higher than those for autistic children if behavioral information was available to the raters. These results suggest that adults are more influenced by behavior than by appearance when making competence estimates for children with disabilities and that adults are more optimistic about the competence of children with Down syndrome than children with autism.

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Poster Session I, Poster Board No. 27

ADHD, Substance Abuse, and Heuristic Processing

The connection between attention deficit hyperactive disorder (ADHD) and substance abuse behavior is well established. ADHD, and tendencies toward ADHD in non-diagnosed populations, impair specific aspects of cognition. In recent studies, we have demonstrated that difficulties with sustained attention in non-clinical populations with elevated ADHD symptomatology tend toward a gestalt (as opposed to feature-intensive) style of cognition which contributes to a failure to consider risk factors in depth. The present study addresses the question of whether diminished heuristic processing may also be a factor in the cognitive relationship of ADHD to SA behavior. Heuristic processing, without the necessary feature-intensive analysis needed to identify prospects of risk specifically, is at the core of gestalt processing (Sharps & Nunes, 2002; Sharps, 2003). The use of heuristic short cuts or generalities in the processing of complex information effectively precludes the probability of the effective feature-intensive analysis which might suggest that a given situation, such as SA behavior in a given context, is simply too risky. The individual who relies on heuristics or general principles to evaluate crucial aspects of the context of decision situations, but who fails to control these processes adequately and to recognize when they are appropriate, would therefore be most susceptible to the type of poor decision-making frequently involved in substance abuse. The present research addressed this hypothesis, using our established Ratio of Heuristic to Algorithmic Processing (RHA) Index as the primary variable. In a college aged population, it was shown that a protective factor against substance abuse may lie in relatively efficient heuristic processing, especially synthetic or inferential heuristic processing. It was further demonstrated that those with ADHD symptoms tended to have poorer abilities in this regard, even at the subclinical, nondiagnosed level. Results are discussed in terms of the gestalt/feature-intensive processing theory of cognition.

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Substance Abuse and Cognition: A Contextual Reasoning Approach

Gestalt/Feature-Intensive Processing Theory (G/FI; Sharps, 2003) suggests that programs for use in curtailing substance abuse (SA) behavior can be successfully constructed through the use of cognitive principles; specifically, through the feature-intensive cognitive engagement of explicit risk information in the immediate cognitive context of SA decisions. This suggestion was subjected to a preliminary test in a young-adult sample of University students, using a contextual reasoning paradigm in which respondents were asked to rate justifications for SA behavior in the presence of different types of feature-intensive risk information. Analysis of variance indicated that a straightforward verbal presentation of SA-related risks to the human nervous system resulted in significantly better risk understanding and decision processing than could be produced either for a control group or for a group provided with this information in multimedia form. It is suggested that the multimedia situation required too much division of attention among incoming information sources for maximum benefit in the present experimental framework. These results were consistent with the general predictions of the G/FI theory, although they further suggest the importance of avoiding division of attention among incoming stimulus resources for maximizing the use of information in contextual reasoning situations.

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Disparities in Health Access in the San Joaquin Valley: An Ecological Assessment

This preliminary study is an ecological assessment of the relationship between socio-economic factors and indicators of health care access in selected geographic areas of the San Joaquin Valley. Zip-code level data was aggregated into sixty-one (61) community clusters over eight counties and reported in a recently published study, Health in the Heartland: The Crisis Continues. Simple linear regression analysis was used to determine the strength of the relationship at the community level between socio-economic factors and health care access measures. Community level data were obtained from the 2000 Census, the 2001 California Department of Health Service Birth Profiles by Zip-code and the 2001 Office of Statewide Health Planning and Development, Patient Discharge Data Files. Among communities, some of the statistically significant findings are the associations: 1) between poverty and ethnicity, Latino ($r2 = 0.6280$, t-test ($\beta 1$), $p < 0.0001$); 2) between teen births and poverty ($r2 = 0.7627$, t-test ($\beta 1$), $p < 0.0001$); 3) late prenatal care and poverty ($r2 = 0.1042$, t-test ($\beta 1$), $p = 0.0112$); and 4) Hospital discharges for Ambulatory Care Sensitive Conditions and poverty ($r2 = 0.1737$, t-test ($\beta 1$), $p = 0.0008$). These findings indicate that communities with a high percentage of residents living in poverty had higher percentages of Latino residents, higher rates of teen births, higher rates of late prenatal care and higher rates of avoidable hospitalizations, than did communities with fewer residents living in poverty. These findings, especially in respect to prenatal care, are particularly striking, because with the expansion of Med-Cal eligibility the vast majority of pregnancy-related health care and birthing are covered by health insurance. These findings indicate that there are significant barriers to timely receipt of prenatal care other than the lack of health insurance. Increased access to health care among San Joaquin Valley communities requires the development and implementation of strategies in the context of barriers imposed by poverty, ethnicity and other socio-economic factors.

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Poster Session II, Poster Board No. 2

Foster Children's Behaviors at Supervised Visitation with Non-Custodial Parents

The purpose of this study was to compare foster child behaviors during initial interactions with non-custodial parents at two different supervised visitation sessions. The research question for this study was: Did foster children exhibit different behaviors at visitation session one when compared to visitation session three?

The sample for this study consisted of foster children ranging from 3 to 12 years of age who were the only child in the family participating in visitation sessions. Data consisted of the recorded observations of visitation supervisors the foster child's the initial interaction with their non-custodial parent at visitation session one and session three. We used paired t-tests to compare visitation session one to visitation session three.

When comparing visitation one and visitation three, there were significant differences in children initial interactions with parents. The children were significantly less likely to be withdrawn at visitation three ($M = .100$, $SD = .316$) than at visitation one ($M = .200$, $SD = .423$) [$t(10) = .667$, $p = .035$]. They were also significantly less likely to be detached at visitation three ($M = .100$, $SD = .316$) than at visitation one ($M = .200$, $SD = .423$) [$t(10) = .667$, $p = .035$]. Although not significant, two possible trends were indicated: (1) children were more likely to smile at their parents during initial interaction at visitation three ($M = .800$, $SD = .422$) than at visitation one ($M = .600$, $SD = .516$) [$t(10) = .612$, $p = .060$]; and (2) children were more likely to move toward their parent during initial interaction at visitation three ($M = .800$, $SD = .422$) than visitation one ($M = .400$, $SD = .516$) [$t(10) = -.612$, $p = .060$]. No differences were found in hugging, kissing, or positive verbal interaction.

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Poster Session II, Poster Board No. 3

Effects of Winery Wastewater Application on Soil Water Quality

Application of food processing wastewater to lands is a widely used disposal method in California. Such technique allows for the treatment of organic wastewater material and reuse of nutrients in the surface soil horizons. However, excessive application of wastewater can lead to subsurface and groundwater degradation. Thus, it is important to evaluate the effects of wastewater land application on subsurface soil water quality. The goal of this study was to assess the percolate water quality following land application of winery processing wastewater at a research site located in Fresno, CA. The study site was divided into sections sequentially receiving winery wastewaters. Percolate waters were sampled twice during the study period using suction lysimeters installed at 2- and 4-foot depths in all sections. Hydraulic and organic loading rates were monitored for each wastewater application. The site was characterized by sandy soils (60-85%) with elevated nitrogen levels. The quality of the winery wastewaters applied to the study site varied greatly over time with biochemical oxygen demand (BOD) ranging from about 800 to 17,000 mg L^{-1}. High variations were also observed for nitrogen, organic carbon and solids levels. The pH of the applied wastewaters was relatively constant and quite acidic (3.2-3.9). Hydraulic and organic loading rates varied greatly among applications and were dependent on wastewater quality, application duration, and size of the discharge area. The pH of the collected percolate waters was relatively neutral (5.8-7.9). Elevated levels of NO_3-N, Mn, Fe, total dissolved solids (TDS), total organic carbon, and alkalinity were found in the percolate waters. Analyte concentrations were very variable among sections. The TOC levels were very low (<500 mg L^{-1}) in the section planted with sudan grass. Positive correlations were observed between total BOD loadings and TDS, chloride, and alkalinity values.

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Poster Session II, Poster Board No. 4

Preliminary Exploration of Adult Attachment and Emotional Health in Survivors of War Trauma

Objective: The aim of this study was to test the hypothesis that secure adult attachment is related to emotional health in survivors of war trauma.

Method: Adult veterans who had experienced combat trauma participated in a structured clinical interview (Structured Clinical Interview for DSM IV and Clinician Administered Posttraumatic Stress Disorder (PTSD) Scale) and completed measures of attachment (Relationship Questionnaire, Experiences in Close Relationships Inventory; Relationship Scales Questionnaire; Parental Bonding Index; Attachment to God; Religious Well Being Scale; Levin's Measure of Feeling Loved by God). Preliminary data from 61 cases were analyzed.

Results: The association of four attachment styles, fearful, dismissing, secure, and preoccupied, were compared to a current, lifetime, or no PTSD diagnosis, and other DSM-IV Axis I diagnoses. Chi-Square analyses suggested that attachment to a significant other is related to current PTSD ($p=.001$), lifetime PTSD ($p=.003$), lifetime Alcoholism ($p=.051$), current Dysthymia ($p=.048$), and lifetime Dysthymia ($p=.048$). Fearful attachment style was most often associated with a current and lifetime PTSD diagnosis and a lifetime Alcoholism diagnosis, while secure attachment style was most often associated with no current or lifetime PTSD diagnosis. A dismissive attachment style was most often associated with a current and lifetime Dysthymia diagnosis, while fearful and secure styles were both associated with no current and lifetime Dysthymia diagnosis. Attachment to God was significantly related to current Dysthymia ($p=.046$), lifetime Dysthymia ($p=.046$), current Major Depressive Disorder ($p=.017$), and lifetime Major Depressive Disorder ($p=.051$). Secure attachment to God was most often associated with no Dysthymia and no Major Depressive Disorder, while Anxious/Ambivalent attachment was most often associated with a diagnosis of Dysthymia. The association between attachment to friends, and parents yielded non-significant results.

Conclusions: These findings indicate secure adult attachment to God and/or a significant other may be protective of long term deleterious effects of combat trauma.

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Poster Session II, Poster Board No. 5

From Woman to Goddess: The Story of the Evolution of the Virgin Mary

Not many will deny that the status of women over the centuries has been in question. In almost every culture, during almost every time period, women were, and still are, thought of as less than equal or weaker than their male counterparts. But in high contrast to damaging stereotypes and denigrating ideas about the female persuasion is the idea of some sort of "Godly Mother." From the Ancient Greeks to Native Americans, from Egyptian mythology to tribes in the deepest Africa, the Earth Goddess, the Godly Mother was worshipped in relation to agriculture, motherhood and fertility. Although this ancient image spans time and geography, the Christian image of the Virgin Mary epitomizes the idea of the Motherly Goddess.

This project involves an historical, theological and philosophical examination into the life and image of the Virgin Mary. The project investigates a time period spanning from a brief look at Greek, Roman and Egyptian traditions into early Christian ideas. It examines the Virgin Mary through her physical and spiritual lives. It explores the terms "virgin birth" and "immaculate conception" in order to show their importance within Christian texts and also to investigate the debate over them within the two main branches of the Christian Church. Also explored are the different conceptions of Mary including: her role as "Mother of God," her place as a disciple, woman, mother and her importance during the life of Jesus and after. A comparison with Old Testament traditions and women is included along with shifting attitudes of Old Testament versus New Testament women. Analyses of primary and secondary texts along with scholarly work and mainstream publications are evaluated which allow different viewpoints of scholars and laypersons.

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The Impact of Participation in Long-Term Longitudinal Studies: A Study of the Intergenerational Studies

The Intergenerational Studies (IGS) are comprised of three long-term longitudinal studies which began in the late 1920's and early 1930's. The Guidance Study (GS) began in 1928 assessing infants, as did the Berkeley Growth Study (BGS). The Oakland Growth Study (OGS) began in 1932 assessing junior high students. Members of both the GS and BGS were assessed regularly during infancy, childhood, adulthood and were most recently assessed at age 68. Members of the OGS were assessed regularly throughout childhood and adulthood and were most recently assessed at age 75. However, members of the OGS received special privileges not received by members of the GS and BGS, including access to a special school club house. It is normally assumed that there are minimal impacts on participants of non-experimental research, but because of the extensive, long-term assessments, longitudinal research may fair differently. This study is a between-groups comparison of the impact of participation in a longitudinal study. The level of influence reported by the OGS members was compared to that of the GS and BGS members. In 1996, remaining study members (N=173) were asked if their life had been influenced in any way due to being a continuing member of the IGS (1 = "life not influenced" to 6 = "life very much influenced") and if they did report their life had been influenced, in what ways did they feel there was influence. Results indicate that the most frequent response (25.5%) was that the study had no influence. There was no significant difference in level of influence reported between the OGS as compared to the GS and BGS. However, there was a significant difference among the positive aspects associated with the study. OGS members reported more positive influences in association with their participation (M=4.17, SD=1.02) as compared to the GS and BGS members (M=3.64, SD=1.04). It appears that in long-term longitudinal studies, a subset of participants can be significantly affected.

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Moral Virtue: Cohort, Sex, and Study Duration Differences

Ancient Greek society considered moral virtue an important goal in life, a goal that appears not to be shared in modern society. Within the scientific field of psychology, the study of virtues was initially popular, but eventually was replaced by the study of personality traits. Recently, however, the study of virtue has reemerged in the field of positive psychology. This study examined cohort, sex, and study duration differences in moral virtue using California Psychological Inventory data collected from original participants of the Intergenerational Study and their spouses (1920's cohort) and their children (1950's cohort). It was hypothesized that (1) the 1920's cohort would show more moral virtue than the 1950's cohort, (2) women would show more moral virtue than men, and (3) original participants would show more moral virtue than their spouses and children. A total of 364 participants were included in this study. Results confirmed Hypothesis 1: the 1920's cohort showed more moral virtue than the 1950's cohort. Results obtained for Hypothesis 2 were opposite what was expected: men showed more moral virtue than women. Hypothesis 3 was not supported. The cohort and sex differences shown provide information about society that will be of aid to the further study of moral virtue.

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Poster Session II, Poster Board No. 8

Calculations Investigating Source of Atmospheric Radicals

In our efforts to reduce pollution, it is helpful to understand the chemistry that is associated with it. One aspect of this chemistry is the formation and reaction of radicals in the atmosphere. Among these, the hydroxy radical is the most important, in that it plays a major role in facilitating the formation of smog.

It is helpful, therefore, to have a grasp of the sources of this hydroxy radical. One source is the reaction of organic compounds in the air, called alkenes, with ozone. This reaction can take two different paths depending on the structure of the alkene. One path is known to lead to the formation of hydroxy radicals, but the other, while in theory could produce them, has hindering factors that have generally been considered to prevent it from forming the radical.

In a recent study where this reaction was done in the laboratory with labeled alkenes, where any hydroxy radical produced by this hindered pathway would be labeled, it was observed that there was a significant fraction of labeled radicals produced, leading the workers to conclude that perhaps this pathway was more significant than previously thought.

However, it has been proposed that the labeled radicals observed may have come from a secondary reaction of the less hindered pathway. It is this proposition that our study evaluates.

To evaluate its plausibility, we performed calculations modeling the physical and chemical properties of this secondary reaction on two different molecules. For one molecule, originating from a less branched alkene, these calculations predicted that the hydroxy radical would be produced by this reaction with a significant yield. For the other molecule, originating from a more branched alkene, they predict that the yield may be significant only at low pressures.

From these results, combined with results from related research, we conclude that this secondary pathway may be significant, but only for smaller, less branched alkenes.

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Poster Session II, Poster Board No. 9

Variation in Vegetation and Microenvironment in Riparian Zones of the Southern Sierra Nevada

Introduction: Riparian zones are interfaces connecting terrestrial and aquatic systems, essential to the form and function of surrounding landscapes. Knowledge of hydrologic, geomorphologic and soil conditions, vegetation composition and microenvironment is essential in the development and implementation of sustainable management practices. While an integral part of the Sierra Nevada, little research is available on the structure and function of headwater riparian ecosystems. This research will provide direction for prescribed fire and thinning treatments by investigating the spatial and temporal relationship between riparian vegetation and microenvironment.

Methods: Fieldwork began in the summer of 2003 and will continue through 2004. Four 1st to 2nd order streams, each representing a unique watershed, were divided into 100 m segments. A sampling location was randomly selected within each 100 m segment. At each sampling location a 10 m long transect line was established perpendicular to and centered on the deepest point of the channel.

Five transect lines, per stream, were instrumented for the collection of soil, air and water temperature, relative humidity and soil moisture data. Locations were selected based on canopy cover. Soil temperature, air temperature, relative humidity and water temperature are recorded at 30-minute intervals using data loggers. Soil moisture will be measured every two weeks during the field season at a depth of 26 cm, at four points collocated with soil moisture points, using permanent rods and Time Domain Reflectometry. Hemispherical photos will be taken at each vegetation quadrant during the height of the growing season to determine canopy cover and light availability.

One 1 m^2 vegetation quadrant was established at the intersection of the transect line and the vegetation line of each bank. Trees, shrubs, and herbs are identified to species, and percent cover recorded to the nearest 1%. Percent cover of bare ground, litter, and woody debris are also recorded.

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Minimizing Inappropriate Medication use in the Elderly (MIME: A Case Study)

This is a case study for a 77 year-old gentleman who presented to the VA Geriatrics Unit for respite care. He was admitted with low blood pressure (average of 87/43) and an average heart rate of 83. The patient was confused and disoriented, had dilated pupils, dry mouth and skin, and urinary retention. His mini-mental status exam score (a measure of cognition) was 18/30 (less than 23 indicates cognitive impairment). He was given a depression exam and scored 0/20 (no depression): this isn't surprising since he was on Paxil®. His wife reported that while under the care of another physician, he was prescribed Paxil® 40 mg/day for "yelling and demanding behavior." When she noticed no improvement, his dose was increased to 40 mg twice daily (max recommended dose is 50 mg/day). Subsequently, she noticed more yelling and confusion, and thus Haldol® (an older anti-psychotic plagued with many side effects) was prescribed. Both he and his wife denied any history of depression or suicidal thoughts.

While his stroke contributed significantly his decline in mental status, a Paxil® taper was initiated since there was no clear indication for use, it contributed to his confusion, and it caused many undesirable effects. After a 2 week stay, he was discharged home, free of Paxil®. His last 2-day average BP was 118/60 and pulse was 65. Aside from his existing dementia and inability to self-modulate his behavior, the patient produced less outbursts and yelling and actually did fine without Paxil®.

Paxil® is a once-daily SSRI (Selective Serotonin Reuptake Inhibitor) anti-depressant. Although newer and safer, it still has side effects, which are especially pronounced in the elderly. While the SSRI's are safer than tricyclic anti-depressants, it's important to recognize that they still pose a significant risk to elderly patients if dosed improperly or prescribed impetuously.

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Body Weight Supported Gait Training in Poststroke Hemiparetic Patients Undergoing Treatment with Serotonin Reuptake Inhibitors: A Pilot Study

Background and Purpose: This pilot study examined serotonin selective reuptake inhibitors (SSRIs) in association with partial body weight treadmill training (PBWTT) to improve locomotion post stroke. Serotonin is thought to play a role in recovery of motor function such as locomotion on a treadmill eliciting the central pattern generators (CPG's) identified from animal models. There would be benefits in knowing if serotonin combined with PBWTT influenced motor recovery. The purpose of the study was to determine if patients undergoing treatment with an SSRI would improve in locomotor function to a greater degree than patients not receiving an SSRI.

Subjects and Methods: Non clinically depressed post stroke patients (N=4) and clinically depressed post stroke patients on SSRI's (N=4) were assigned to two groups of convenience. Initial baseline performance was established at two evaluation points using functional gait tests, balance tests, and electomyographical analysis during performance of locomotion over an eight week period (Pre 1 & Pre2). Intervention of PBWTT was introduced for eight weeks and subjects were evaluated again (Post 1). Subjects returned four weeks later for a follow up evaluation (Post 2). The intervention included training three days a week for eight weeks utilizing PBWTT. Data was analyzed using non parametric statistics.

Results: All subjects improved in gait velocity, distance covered and assistance needs as it relates to the PBWTT. Functional gait, balance and gait characteristic improved in both groups with significant differences noted in the "timed up and go test" and Tinetti Assessment in the group undergoing treatment with SSRI's. Weight bearing squat scores improved in both groups with a greater significance at 0 and 30 degrees of knee flexion in the subjects under the influence of SSRI's. The limits of stability scores (LOS) and sensory organization test (SOT) improved in both groups without significant differences. Electromyographical data supported visual observations for improvement of gait deviations and improved on-off timing during the gait cycle in both groups.

Conclusion: This study would indicate comparing SSRI therapy and specific functional movement learning for further study.

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Poster Session II, Poster Board No. 12

Secondary Production and Biomass of Aquatic Insects and Seed Availability in Flooded Agricultural Fields of the Southern San Joaquin Valley, California

The Tulare Basin in the Southern San Joaquin Valley of California is one of the most important waterbird areas in North America, but has suffered a disproportionate loss of wintering waterfowl when compared to other areas in the state. This project analyzes the waterbird habitat value of flooded agricultural land by measuring the productivity and biomass of aquatic invertebrates, across multiple crop types and discing treatments.

Aquatic invertebrate production was measured using traps constructed to collect emergent adult aquatic invertebrates. Traps were deployed using a stratified random distribution in order to accurately sample between and within field variation. Temperature loggers were attached to each trap to monitor daily water temperature fluctuations. Trap contents were collected every three days and preserved in alcohol for later analysis in the lab.

Results to date indicate that flooding depth has a significant ($r=0.954$) impact upon aquatic insect productivity, perhaps mediated by the large difference in thermal fluctuations with depth. Production was highest in water 1m deep, and had a daily temperature fluctuation of 5°C. Production was lowest in water 0.05m deep which had daily fluctuations of 15°C. Further analysis will elucidate the effect of crop type and discing treatment on the amount of insect production.

The temperature fluctuation results from the first field season have spawned a laboratory experiment component to this study, which will investigate the effects of daily temperature fluctuation on aquatic invertebrate production. This research has the potential to affect yearly management practices on 10,000 acres of agricultural land. This conjunctive effort between farmers and biologists will be paramount in the recovery of declining bird populations, and will likely be a model for future joint-use partnerships.

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Laboratory Studies of Aqueous Organic Species

Organic compounds are present in aerosols at high mass loadings, and are believed to contribute to their toxicity. Water-soluble organic compounds may partition into the water present in these particles according to their Henry's law constants. However, the aerosols also contain high concentrations of inorganic salts, which may affect their solubility.

The uptake of water-soluble organic compounds by solutions containing inorganic salts has been investigated by bubbling a vertical stream of air through liquid solutions contained in a chamber. Gas chromatography and flame ionization detection was utilized to quantify the equilibrium gas phase concentrations of acetone, ethanol, and 1-propanol as a function of KNO3 and (NH4)2SO4 salt concentration, water, and temperature. The organic concentrations were measured in the aqueous salt solutions at three selected temperatures of 298K, 303K, and 308K to determine the Henry's law solubility constant for acetone, ethanol, and 1-propanol.

Uptake measurements for the organic samples with concentrations of 1, 0.5, 0.25, 0.125, 0.0625, and 0.03125 M were conducted in deionized water, (1 – 2M) of KNO3, and (0.5 – 2M) of (NH4)2SO4. The apparatus was calibrated once with a pure sample of each organic. Linear regression analysis of the aqueous solution concentration versus the experimentally measured gas phase partial pressure of the organic yielded Henry's law constants of 209.62 – 38.577, 155.70 – 33.024, and 29.02 – 4.6901 for ethanol, 1-propanol, and acetone, respectively.

Overall, the results for the organic species were in good agreement (within 10 – 30%) of the published values. These studies indicate that the concentrations of water-soluble organics in aerosols are lower than currently believed.

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Calibration and Biological Imaging of a Bioprobe Atomic Force Microscope

This presentation is to show off the capabilities of a Bioprobe Atomic Force Microscope (AFM) being used at Fresno State. Atomic Force Microscopes are one of the most powerful imaging technologies in use. High end AFMs can even take images of individual atoms. This microscope is used for imaging of cells, and other similar sized objects. Another capability of Atomic Force Microscopes is that they can take measurements of forces on cellular scales. This microscope is being used to test the strength of nematodes; preliminary data on this project will be presented. We are testing for differences between parasitic, and free living nematodes. We hypothesize that pathogenic nematodes will have harder surfaces, than free living ones. In order to get these images we must calibrate the microscope. Calibration images are being shown to show how accurately the microscope can image samples on the micrometer (millionth of a meter) level. Also images are being shown of biological samples, such as bacteria, plant stomata, and nematodes. These samples scan most of the microscopes imaging ability. They range in size from bacteria at only a few micrometers, to nematodes at a few hundred micrometers.

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Poster Session II, Poster Board No. 15

Autism in Fresno County: Educational Programs and National Research Council

Autism is a pervasive, developmental disability that generally has life long effects on how children learn to be social beings, to take care of themselves, and to participate in the community. The cause of autism has yet to be determined; however, UC Davis MIND institute has verified that autism has increased in California 634% since 1987. This increasing population offers several challenges to the educational system due to the intensity and specificity of instruction needed to combat the behavioral and cognitive deficits of the disorder. Fresno County Office of Education reported a 30% increase in students with autism from 2001 to 2002. The following research summarizes current literature on the best practices of educating children with autism and examines the current number and quality of autism programs in Fresno County. Cost benefits of early intervention are discussed.

School districts in Fresno County were contacted to determine if programs for children with autism were provided. The Autism Program Inventory (TAPI) and classroom observations were used to evaluate programs. Program curricula were compared to National Research Council (NRC) recommendations for educating children with autism.

Thus far, results indicate that most programs in Fresno County are delivering moderately appropriate educational practices for children with autism. However, the number of programs in Fresno County are low for this growing population.

Services in Fresno County for children with autism are of moderate quality, however the number of programs to serve this population are low compared to the growing demands. Implications of the lack of services will be discussed along with long term financial ramifications.

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An Investigation of tfdR/S Promoter Activity

For decades, pesticides, herbicides, and insecticides have been instrumental in weed and pest control, revitalizing agricultural economics by allowing cultivators to produce crops with increased marketability. 2,4-dichlorophenoxyacetic acid (2,4-D) is extensively used in broadleaf plant control. Numerous soil microorganisms have evolved unique catabolic pathways, converting potentially harmful synthetic chemicals into harmless carbon dioxide and water. This project will investigate the promoter regions of the regulatory genes, tfdR and tfdS in the model organism Ralstonia eutropha JMP134, to further investigate the evolution of catabolic pathways, the expression of the regulatory elements of the 2,4-D pathway, and groundwork for future bioremediation studies.

Methods:

1. Amplification the promoter regions of tfdR/S, by Polymerase Chain Reaction (PCR).
   2. Cloning of amplified target regions into a TOPO plasmid vector for screening purposes.
2. Digestion the TOPO plasmid and subcloning of insert into pKRZ1 plasmid
3. Analysis of promoter region activity under induced and uninduced conditions by means of a Beta-Galactosidase Assay.

Results: DNA has successfully been extracted from strain JMP134, the promoter region of tfdS was successfully amplified and has been cloned into the TOPO plasmid vector.

Conclusions: The findings of this study will yield insight into the mechanisms of evolution for regulatory elements in catabolic pathways. Questions that will be answered include: Is expression of tfdR/S regulated? If so, then how? As more is understood about the metabolic pathway, and how it can be induced, this knowledge can be put to practical use for bioremediation and therefore allow disease-causing herbicides to be efficiently removed from the environment.

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Soil Moisture Patterns within Canopy Gaps in Sierra Nevada Mixed Conifer Forest, Sequoia National Park, CA

This research is intended to quantitatively describe temporal (seasonal) and spatial (horizontal and vertical) variation in soil moisture content and how these patterns are related to solar radiation and aspect (directionality) of canopy gaps. Soil moisture is an important factor in determining understory vegetation species richness and density within the Sierra Nevada mixed conifer forest. Our experimental design has been designed to test the following hypotheses: 1. Lower elevation forest plots will have lower overall soil moisture compared to upper elevations. 2. Early season soil moisture will be evenly distributed in the soil column, and as the season progresses, the moisture content in the surface soil layer will draw down more quickly than deeper soil layers. 3. Surface soil moisture will be greatest in the center of canopy gaps and will decrease toward the edge of the gap. 4. Surface soil moisture under the canopy will draw down earlier in the growing season than surface soil in the center of canopy gaps. 5. Light availability to the understory will be asymmetrically zoned from least light under the canopy along the southwest edge to the brightest light under the canopy along the northeast edge.

Twelve experimental plots have been established at elevations from 1600m to 2200m in Sequoia National Park. Six canopy gaps (two size classes) and six sets of linear transects in the forest understory will be sampled to quantify the patterns of light and soil moisture availability. Sample points will be characterized for light using hemispherical photography and for soil moisture using Time Domain Reflectometry (TDR). TDR rods will be installed in the sample gaps at four depths (10-100cm) in a radial array and in the linear transects at 5m intervals. Sample points will be monitored every two weeks throughout the snow-free season.

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X-ray Diffraction of Compressed Powders

The Tel-X-Ometer is an X-ray diffractometer designed to familiarize students with X-ray analysis. For safety reasons it produces a very low flux of X-rays. This makes it difficult to get X-ray scans of powder samples in a timely manner. In research grade X-ray diffractometers powder samples are dusted on to microscope slides and the high incident X-ray flux gives scans of good resolution. In this experiment we made compressed pills of NaCl and KCl powder samples and then used the Tel-X-Ometer to analyze them. The resolution of the X-ray scans was much better than those taken of powders dusted on microscope slides in the Tel-X-Ometer. The powder pill samples were also compared to X-rays of single crystals rotated about one axis and show many more peaks, as is expected.

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Poster Session II, Poster Board No. 19

Alcohol Instruments Used for Measurement in Psych Info

The objective of this study was to determine the number of alcohol instruments used in Psych Info from 1997-2002 and their frequencies. These instruments were used to measure such effects as comorbidity, addition, and craving.

The titles and acronyms to all alcohol instruments were found by limiting the search to alcohol, measurement, and instrument. The results that were found included that a total of 151 diverse alcohol instruments were used for the purpose of measurement on human subjects during this time period with the majority reported in the United States.

By utilizing this study researchers are able to view the wide variety of alcohol measurements utilized. In addition, the frequency each instrument was used is reported with a limit of 50. The top five instruments showing a frequency over 50 are described according to their areas of focus.

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Susceptibility of Mycothiol Deficient Mutants to Antibiotics, Oxidative and Nitrosative Stress, and Toxins

Glutathione is a low molecular weight thiol found in eukaryotes and most prokaryotes. It plays important roles in the human body such as protecting cells against highly reactive oxygen and nitrogen species and xenobiotic agents. Mycobacteria, like Mycobacterium tuberculosis, the bacterium that causes tuberculosis, do not make glutathione (GSH) but instead produce another low-molecular weight thiol, mycothiol (MSH). The biosynthetic pathway of mycothiol consists of four reactions catalyzed by MshA, a N-acetylglucosamine transferase, MshB, a mycothiol deacetylase, MshC, a ligase, and MshD, an acetyltransferase in that order. To examine whether mycothiol serves similar functions as glutathione in mycobacteria, we have generated mutants disrupted in the Mycobacterium smegmatis genes coding for MshA, MshB, MshC, and MshD. Mycobacterium smegmais is a nonpathogenic, fast growing mycobacteria that serves as a model organism for biochemical studies of M. tuberculosis. The susceptibility of these mutants to various stresses was then examined. We present data indicating that mutants in all four biosynthetic genes are sensitive to oxidative stress, various antibiotics, and toxins indicating that like GSH, MSH plays an important protective role in mycobacteria. Since no MSH or enzymes involved in MSH biosynthesis are present in mammals, MSH and reactions involving MSH are potential targets for drugs directed against mycobacteria.

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Seed Producing Ability in Selected Populations of the USDA Limnanthes Germplasm Collection

Meadowfoam (Limnanthes sp., Limnanthaceae), a native to California and Oregon plant species, emerged as a new industrial crop due to its high concentration of long chain fatty acids, with an outstanding oxidative stability. The seed oil may be used in lubricants, rubber additives, plastics and cosmetics. Current estimates indicated a growing demand for meadowfoam oil. To sustain the meadowfoam oil industry, development of new cultivars with high and uniform seed yields is needed. The objective of this study was to characterize seed producing ability of selected Limnanthes accessions conserved by the National Plant Germplasm System.

In 2002, transplants from 10 different accessions (L. alba, L. floccosa, L. gracilis and L. striata) were planted in field in a randomized complete block design in 4 replications (50 plants/replication). Data were analyzed by ANOVA, using Duncan's multiple range test for mean separation at 5% level (SPSS, 2001). The trial was carried out at the NALPGRU, Parlier, California.

The average number of seeds developed in individual flowers varied from 0 (PI 420132) to 3.5 (PI 283703). Limnanthes flowers have the potential of developing 5 seeds/flower; the highest number of plants with 5 seeds/flower was in PI 283703. The seed yield varied from 0 to 16.0/plot (2,218 kg seeds/ha). The span between maturity of seeds on first and the last plants was from 19 (PI 374800) to 39 days (PI 283722). The time to first seed maturity varied from 182 (PI 283728, and PI 374791) to 215 days (PI 374800).

The high seed bearing ability and the variation in the time of seed maturity indicated that the evaluated germplasm is a valuable genetic resource for development of meadowfoam cultivars.

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Single Nucleotide Polymorphism (SNP) and Random Amplified Polymorphic DNA (RAPD) Based Genetic Linkage Map of Garlic (*Allium sativum*)

Garlic has been propagated exclusively by asexual means since time immemorial. The recent discovery of male fertile garlic accessions allowed studies on genetics and garlic improvement. Single nucleotide polymorphism (SNP) and random amplified polymorphic DNA (RAPD) based genetic linkage map was developed for garlic using a segregating population derived from one plant of PI 540316. Progenies segregated for male fertility and other morphological characters. Distortion of segregation was observed for most of the markers. This was expected due to the segregation of recessive deleterious alleles present in the garlic genome. The map contained 23 loci distributed on 5 linkage groups. It covered 319 cM with the average of 18 cM between loci. Linkage with the male fertility (Mf) locus was established with SNP marker AOB155 (26.7 cM). This is the very early stage in our construction the genetic map of garlic. Research is in progress to identify more markers to saturate the map.

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Poster Session II, Poster Board No. 23

Military Correspondents on Empire and Democracy

This research paper seeks to address whether views toward empire and democracy have changed between the time of democracy's birth in ancient Attica and the latter days of modern imperialism during the 19th and 20th centuries. It will emphasize the realities of these forms of government as considered by writers who both observed and wrote through a collective lense focused on major wars and related political episodes.

Thucydides' Peloponnesian War and selected writings by Sir Winston Churchill and Theodore Roosevelt will form the corpus of material considered in this inquiry. From this will be drawn depictions of attitudes toward democracy and empire during times of crisis and change.

From an analysis and discussion should emerge the identification of common behaviors by individuals regardless of the period of history. Accordingly, we should be able to conclude that political structure involves human nature, regarding how we think government should work - for ourselves versus others.

A conclusion should be indicated that illustrates how democracies have come to be associated with empires during these two pivotal times in history. Ultimately it should be clear that we cannot separate the innate characteristics of individuals' human nature from how political structures tend to evolve, and either succeed or fail with respect to society and the individual. Democracies potentially benefit the individual more than empires can. Empires benefit fewer individuals at the expense of many.

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Homeless Women-Listening to Voices from a Strengths Perspective

In recent years the feminization of poverty has emerged as women are increasingly represented among the poor. The 'new' poverty experienced by women has important implications for the gendered nature of social policies. The gender dimension of poverty has directed concern towards the differential experience of poverty between men and women. These experiences have highlighted the gender blindness that traditionally framed poverty research and analysis.

Alongside the feminization of poverty there has been an increased presence of women and children among the homeless. Homeless women largely experience poverty alone as single parents outside of the traditional household. Under these circumstances women are often positioned within traditional understandings of homelessness as individual pathology and failure.

A qualitative research study was conducted to explore perceptions and strengths of homeless women who reside in a shelter setting. How do homeless women perceive their situation? What do they perceive as their strengths? This small scale study provides some insight into the experience of homelessness and more importantly, the experience of women who are homeless from a feminist perspective. The findings of this research study indicate that women face many barriers such as lack of affordable housing and transportation. However, the narratives of homeless women made reference to inner strengths of hopefulness and determination to overcome their present circumstances.

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Distribution of Tardigrade Species at the McKenzie Preserve with a Description of Two New Species of *Echiniscus*

A survey of the distribution of tardigrades was conducted at the McKenzie Table Mountain Preserve from April 2001 to September 2002. Tardigrades were collected from two species of moss (Grimmia leibergii and G. reflexidens) at the top and the bottom of granitic rocks, and were identified to genus and/or species. Numbers of tardigrades in the top and bottom samples were compared, and greater numbers were found in the bottom samples. Representatives of five genera were found, four of which were Eutardigrada: Adorybiotus, Hypsibius, Macrobiotus, and Ramazottius. Specimens of Heterotardigrada collected were exclusively members of the genus Echiniscus. These specimens were identified to species and included one previously described species, Echiniscus blumi (one specimen), and two previously uncharacterized species, Echiniscus sp. A (86 specimens) and E. sp. B (three specimens).

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Distribution of Elevated Carboxylesterases in Culex Pipiens Complex Mosquitoes of California

Culex pipiens complex mosquitoes are important vectors of disease. This study was initiated to document the occurrence of resistance to organo-phosphate insecticides in members of the Culex pipiens complex. Mosquitoes, in samples taken along a north south axis from Shasta to Riverside counties in California during 1999-2002, showed the presence of the elevated carboxylesterases A2B2 and B1 in all populations except one. These populations represented three members of the Cx. pipiens complex based on morphology and behavior, suggesting that gene flow between them has occurred, resulting in the spread of the genes encoding resistance. All populations with high levels of elevated esterase had A2B2 and B1 allele frequencies that did not differ significantly from those predicted by Hardy-Weinberg equilibrium. This suggests that the genes coding for these esterases do not differ greatly in their selective advantage. These data suggest that resistance to organophosphate insecticides is either present, or may be rapidly selected for with the past and continued use of OP's.

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The Association between Reciting Bible Verses and Decreased Agitation in Patients with Dementia of the Alzheimer's Type: Description of Case Series

Objectives: Few data are available on the effects of Bible beliefs on the improvement of agitation in patients with Dementia of the Alzheimer Type. These case series describe the effects of reciting Bible verses on decreasing agitation in Bible believing patients with Dementia of the Alzheimer's Type.

Method: Sixteen DSM-IV patients with Dementia of the Alzheimer's type, who resided in a Christian nursing home in Egypt, were retrospectively assessed with collateral history obtained from treating clinicians, family members and reviews of medical and psychiatric records. Special emphasis was placed on the possible relationship between reciting Bible verses, and the subsequent remission of agitation.

Results: Decreased agitation was observed in 37.5% (6/16) of the cases during the reciting of the Bible verses. All of the patients who experienced remission of agitation had a pre-dementia history of memorizing Bible verses.

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Field Responses of Nitrate Reductase to Elevated CO2

This study examined the response of nitrate reductase activity (NRA), the first step in the assimilation of nitrate (NO3-), and carbohydrate storage to elevated atmospheric CO2 concentration in field grown plants. It is hypothesized that increased growth produced by elevated CO2 will (i) enhance plant carbon balance, (ii) increase NRA; and (iii) increase root NRA preferentially over foliar NRA. Fine root and foliage tissue were assayed for NRA using an in vivo technique and foliage carbohydrate (soluble sugars and starch) concentration was determined using an enzymatic method. Measurements were performed on site at two Free Atmosphere CO2 Enrichment (FACE) sites with different target species: a deciduous tree (Liquidambar styraciflua) at Oak Ridge National Laboratory, and a C3 (Agropyron repens) and a C4 (Andropogon gerardii) grass at the University of Minnesota. An ANOVA for CO2 (ambient vs. elevated) and tissue (foliage vs. fine root) effects on NRA in L. styraciflua indicated no significant CO2 effect ($p=0.967$), but a significantly ($p=0.031$) greater foliar NRA than fine root NRA. In A. repens and B. gracilis, CO2 effects on NRA were not significant ($p=0.385$; $p=0.844$, respectively), but tissue effects indicated foliar NRA was significantly greater than fine root NRA ($p=0.005$; $p=0.008$, respectively). In L. styraciflua, elevated CO2 appeared to significantly enhance soluble sugar (+14.7%) and starch (+13.0%) concentrations in foliage. A. repens foliage responded similarly to L. styraciflua, elevated CO2 caused an increase in starch and soluble sugar concentrations (+12.3% and +35.8%, respectively), but in the C4 species, B. gracilis, foliar carbohydrates declined at elevated CO2 (-15.4% and -23.3% for soluble sugars and starch respectively). Elevated CO2 generally, but not universally, increased foliar tissue carbohydrate levels. However, these increased carbohydrate levels do not necessarily result in increased NRA or shift the balance of NRA between foliage and fine roots.