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CDC Arms With Behavioral Science In War on Disease and Injury

Efforts to prevent and control chronic as well as infectious disease necessitate sophisticated understanding of human behavior

Of the ten leading causes of death in the United States today, seven are directly tied to human behavior (e.g., tobacco smoking, poor eating habits, lifestyle). What is more, half of all premature deaths are also attributable to human behavior, according to research. This is the modern landscape of morbidity and mortality in the United States today, and it is vastly different than that of 50 years ago when the US Government established the Centers for Disease Control and Prevention (CDC) to combat the primary killers of that era, infectious diseases. In response, the focus is changing a bit at CDC, especially at the top levels of management, as behavior's role becomes increasingly understood.

SEE CDC ON PAGE 5

White House Convenes Conference on Childhood

Two APS members join Clintons to spotlight research on brain development

President and Mrs. Clinton met with a dozen researchers and child experts April 17, to explore child development issues at the *White House Conference on Early Childhood Development and Learning: What the Newest Research on the Brain Tells Us About Our Youngest Children*.

Spotlighting recent research findings, especially those dealing with the period from birth to age three, the conference featured two APS Fellows among its participants: Patricia Kuhl, who discussed how children learn language, and Deborah Phillips, who addressed the effect of child care on early development.

In announcing the event, President Clinton expressed hope that the conference



First Lady Hillary Clinton invited APS Fellow Patricia Kuhl (pictured above) to appear with her in a *Today Show* segment to publicize the White House conference. APS Fellow Deborah Phillips joined Kuhl as a conference participant.

SEE WHITE HOUSE ON PAGE 24

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Toward a Free Market in Research Ideas

Sandra Scarr
APS President



Stephen Toulmin, the philosopher of science, called a free market of ideas the best safeguard against intellectual tyranny and dishonesty in science. When scientific theories and research reports compete, the best theories and the most robust findings eventually win over the majority of scientists and eliminate weaker and erroneous research. New ideas emerge to challenge the old in a free market.

Without the free competition of ideas, popularly favored paradigms dominate research funding, journal publications, and scientific meetings. Unchallenged, the dominant theories become arrogant ideologies that suppress dissenting ideas and stifle advances in research. Power, not truth, becomes the prevailing value that guides inquiry. Examples that come readily to mind are Lysenkoism in the former Soviet Union, which retarded their genetic and agricultural research for decades, and Aryan mythology in Nazi Germany, which facilitated the Holocaust.

Psychological science has had its share of uncomfortable examples, such as those dating from the late 1950s through the 1960s, when learning theorists fought vainly to retard the Cognitive Revolution. Concurrently and beyond, extreme environmentalists fought to prevent biological psychology and behavior genetics from becoming mainstream. Ah, but this is the past, you say. Let us ponder how closely psychological science today resembles a free marketplace of ideas, lest we be condemned to relive the past.

At a recent scientific meeting, a colleague remarked sadly that none of the papers he submitted was accepted for the program. Of the hundreds of papers and symposia, none was on his line of infant research (classical conditioning). A decade ago, classical conditioning was a respectable topic. These days, it seems, infants learn only conceptually. Has the Cognitive Revolution become representational tyranny? At the same meeting, poverty and socialization were still treated as pure environmental causes by some, but there was healthy competition from others in sessions on genetic variation in parental characteristics and behaviors. Parents may yet be granted enduring personalities and create environments for their children.

In a free marketplace of ideas, all intellectual vendors have the right to compete to be heard and to persuade others of the virtue of their ideas. At any one time, there are many theories and research paradigms competing for attention (e.g., conditioning *and* cognition; nature *and* nurture). Competitions for funding, space in meetings and journals, and even media attention are all part of the intellectual marketplace. Some psychological scientists focus on questions that require cognitive answers, while others attend to behaviors more conducive to conditioned responses.

Rarely is there only one leading edge in a science. Monopolist theories are dangerous to the future of a science, because they retard the development of new leading edges, which usually arise from quite different conceptual orientations. When intellectual competition is eliminated, one leading edge has a monopoly in the market and suppresses competition for research funding and publication (e.g., molecular biology, to the detriment of evolutionary, developmental and behavioral biology, botany, and taxonomy). There is no Anti-Trust Division of the US Department of Justice to protect endangered ideas.

Politically correct ideas are especially dangerous to the intellectual marketplace, because their adherents feel morally justified to suppress dissent. Research, as any

SEE COMPETITION ON PAGE 33

APS Is in the (US) House

Testimony presented to NIH appropriations committee states APS priorities

Question: Which of the following statements is true?

- (a) Many of the nation's most pressing health and social problems are behavioral in nature.
- (b) Psychologists are grantees at virtually every one of the National Institutes of Health (NIH).
- (c) NIH should support more behavioral science research and training than it already does.

Answer: All of the above. (But then you knew that.)

These were the basic messages from APS to Congress in the first round of public hearings on the FY98 budget for NIH. APS Executive Director Alan G. Kraut conveyed them in testimony to the committee in the House of Representatives that oversees the annual appropriations for NIH, which funds hundreds of millions of dollars in grants to psychologists.

"I'm here on behalf of scientists from the nation's leading universities and scientific institutions [that] conduct research on the behavioral science aspects of physical and mental health," Kraut told the legislators.

Noting that much of this research is supported by NIH, he went on to describe the variety of topics that scientific psychologists are investigating, including: the relationships between the brain and behavior; human development and aging; mental illness; drug and alcohol addiction; chronic pain; health in communities and families; cancer; disease prevention; heart disease; and AIDS.

Psychology's Presence

Kraut also described the significant presence of psychologists at NIH. "You will find psychologists as principal investigators on grants from every ... Institute. In fact, psychologists receive more grants than any other type of investigator from the National Institute of Mental Health (NIMH), the National Institute on Drug Abuse (NIDA), and the National Institute on Alcohol Abuse and Alcoholism (NIAAA)," he said.

But in a statement that many legislators might find surprising, Kraut pointed out that "psychologists also have a significant presence at other Institutes."

For example, "In FY 1995, the National Institute on Aging (NIA) supported the grants of 160 psychologists, totaling \$50 million," he told the legislators. "Similarly, the National Institute on Neurological Disorders and Stroke supported 160 psychologists with \$36 million in grants. And psychologists are also among the leading grantees from the National Institute on Child Health and Human Development, where 20 percent of NICHD's budget supported more than 200 psychologists."

APS joined the majority of others in the health research community in asking Congress to increase the NIH budget as a

whole by 9 percent. This figure was developed by the Ad Hoc Group for Medical Research, a coalition of more than 200 organizations. Kraut serves on its Executive Committee.

In addition, Kraut asked the legislators to support specific behavioral science initiatives at NIH that are either planned or just beginning. Some of these are discussed below.

Progress in Training

APS's testimony highlighted two behavioral science training initiatives that enjoy some degree of congressional "ownership." Over the past several years, APS has pressed Congress to support training for new behavioral science investigators. These efforts led to the establishment of the B/START (Behavioral Science Track Awards for Rapid Transition) mechanism of small grants that provide seed money for young investigators to pursue their research ideas. Today, B/START programs are in full swing at NIMH and NIDA, while a similar program is getting under way at NIA. Other institutes may soon follow suit.

APS also stirred congressional interest in the recommendations of the National Academy of Sciences (NAS), which, every few years reports on the nation's research training needs. In its most recent report in 1994, NAS called for a large increase in the number of training grants, known as National Research Service Awards (NRSA), for behavioral science researchers while at the same time indicating that the NRSA's for biomedical researchers should be held at the current level.

Initially, it appeared that NIH was not planning to implement the NAS findings, which was taken as yet another sign of NIH's resistance to increasing behavioral research. APS brought this to the attention of both the House of Representatives and Senate, which resulted in strong messages from both to NIH. This year, the NIH Office of Behavioral and Social Sciences Research (OBSSR) has launched a \$700,000 initiative to fund NRSA's for behavioral researchers.

In his House testimony, Kraut characterized the progress in B/START and the NRSA's as "an encouraging initial NIH commitment to increasing the supply of behavioral researchers." But, he added, "the future is far from certain. This Committee's support is still essential to these programs, which will build the nation's capacity to address some of the most profound issues facing us today." His statement on training concluded by asking Congress to support expansions of B/START and NRSA training grants at NIH, adding that funds for these initiatives should not be allocated from existing behavioral research activities.

Mental Health Research

The fact that NIMH is the largest single supporter of psychology researchers at NIH means that the status of behavioral science research there is especially critical. Congressional interest in improving behavioral science at NIMH dates back to the late

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1980s, when, at APS's urging, the Senate sought to reverse NIMH's narrowing of its mission away from behavioral science.

In the interim, many things have occurred. In addition to originating the B/START program, NIMH has established a program of behavioral science research centers, has reorganized in ways that increased the visibility of behavioral science, and is taking steps to ensure that as the NIMH peer review system is merged with the NIH system, there will be sufficient sensitivity to behavioral science grants.

NIMH also sponsored two behavioral science research plans that should be used to guide future research directions at the Institute. One, *Reducing Mental Disorders: A Behavioral Science Research Plan for Psychopathology*, was developed under the APS-initiated Human Capital Initiative, and is aimed at reducing depression, schizophrenia, and other severe disorders through increased research in psychopathology, combining the perspectives of a variety of traditional behavior-based research disciplines.

The other plan, *Basic Behavioral Science Research for Mental Health: A National Investment*, was developed by a blue-ribbon task force under the auspices of the NIMH Advisory Council. It outlines research priorities in a variety of areas where fundamental knowledge on the behavioral aspects of mental disorders has the most potential to lead to effective treatment and prevention.

"While these plans represent important milestones in NIMH's behavioral science program," Kraut said in his testimony, "we are concerned that NIMH has not yet developed a timetable and plan for implementing the important recommendations presented in the plans, despite being [repeatedly] asked to do so by Congress.

"Given the importance of behavioral research in treating and preventing mental disorders," Kraut asked the committee to direct NIMH to implement the plans as part of the continued strengthening of behavioral science at the institutes.

He also asked the House committee to support the creation of clinical research opportunities for basic behavioral science researchers at NIMH in order to "increase the links between basic and clinical behavioral science and bring behavioral research to bear on the full range of mental disorders."

Drug Abuse Behaviors

The APS statement to Congress further highlighted behavioral research at NIDA, where the director is APS Member Alan Leshner. Under Leshner's leadership, Kraut told the House committee, NIDA is expanding its portfolio "to investigate the many behavioral aspects of drug abuse and addiction."

In addition to launching a B/START program, NIDA is encouraging behavioral researchers to look at the factors that place individual young people at risk for starting to take drugs, factors that lead some individuals to become heavy abusers or dependent on drugs, and factors that allow people to quit or reduce their drug abuse behaviors. "The understanding of basic behavioral processes, from craving to peer pressure, is fundamental to curbing drug abuse and addiction," Kraut told the legislators.

Behavioral research also is an important part of NIDA's research on AIDS, said Kraut. "Intravenous drug use is a

common mode of transmission of the AIDS virus," he told the committee, "but behavioral research is showing that drug dependent individuals can change the behaviors that put them at risk for the virus."

NIDA received special attention in this year's budget proposal from the Clinton Administration, in the form of a \$30-million (9 percent) increase to expand its role in combating the nation's drug problems. No other entity at NIH was given this kind of increase.

In urging Congress "to support the proposed budget expansion for NIDA in whatever final NIH budget is agreed to," Kraut told the legislators that "NIDA-sponsored investigations provide the basis for drug abuse treatment and prevention strategies for individuals, families, communities, and public health organizations," but that "much remains to be done to realize the potential of this research."

Alcohol and Behavior

NIAAA awards a significant number of grants to psychologists. Behavioral research supported by NIAAA includes basic behavioral research on brain damage in children exposed to alcohol in the womb, research on the effects of chronic alcohol abuse on an individual's ability to learn and remember information (which has enormous implications for treatment effectiveness), research on effective behavioral therapies for alcoholism, and health services research.

APS has been stressing the need to expand the range of behavioral science perspectives being pursued by NIAAA.

"NIAAA's solid behavioral science program, which includes behavioral genetics, decision-making, behavioral neuroscience, a broad array of topics within cognitive psychology and clinical psychology, has produced important findings," Kraut said in his testimony. "However," he continued, "there is a need for expansion in other areas, such as developmental psychology and social psychology, where research can provide critical information about the developmental and group processes that contribute to problem drinking.

"Research in these areas is increasingly focussing on the interplay between behavior and biology and between behavioral science and policy, making them even stronger candidates for NIAAA research," Kraut pointed out. He asked Congress to encourage an expansion of NIAAA's behavioral science portfolio "as a means of bringing a broader array of perspectives to bear on the nation's alcohol-related public health problems." He also sought congressional support for the establishment of a B/START program at NIAAA, a move that the Institute is currently considering.

The House hearing was the first step in the legislative process that in the fall will produce a final budget for NIH and the rest of the federal budget. Watch future issues of the *Observer* for updates on the congressional response to the issues raised in APS testimony. **S.B.**

APS's testimony highlighted a number of other aspects of behavioral science research at NIH in addition to those reported here. For the full text of the APS testimony, visit our home page at <http://www.hanover.edu/psych/APS>.

CDC FROM PAGE 1

The current-day line-up of primary killers and robbers of health are behavioral in origin. Word to this effect is spreading from numerous well-documented reports issued by the Institute of Medicine as well as more than one US Surgeon General, among other sources in the federal public health service agencies. These reports all attest to the integral role of that ever-modifiable phenomenon we call "behavior." Within their pages lies an attempt to correct our national bias toward naively attributing most all disease exclusively to traditional factors (e.g., our genes, our individual physiology) that are, in practical terms, often beyond our control and that are treatable only by what medical philosopher Lewis Thomas called expensive "palliatives."

Change at CDC

To date, these reports and related behavioral/psychological research also serve to reveal just how close the link is between behavioral factors and one's health or propensity to illness. Further, they are creating an intellectual environment that is facilitating changes at CDC. "CDC is making a special effort to create an environment conducive to behavioral and social scientists' pursuit of research that will advance CDC's mission," says CDC's director, David Satcher. (Satcher was appointed CDC director by HHS Secretary Donna Shalala in November 1993.)



David Satcher is Director of CDC.

One way in which Satcher hopes to achieve this goal is through CDC's establishment of the Behavioral and Social Science Working Group, whose goals are to: (1) further the understanding and use of behavioral and social sciences; (2) promote and ensure excellence in such research; (3) facilitate communication, collaboration, and partnerships among CDC behavioral and social scientists and with outside organizations; (4) encourage CDC's recruitment and retention of behavioral and social scientists; and (5) further professional development and advancement of these scientists within CDC.

Behavioral and Social Sciences Coordinator

A second major step CDC has taken to foster a behavioral scientist-friendly environment is its recent appointment of a senior-level psychologist, Marjorie Speers, in the office of the CDC director to guide and encourage high-quality science at the agency. Speers, an experimental psychologist and epidemiologist by training (at Yale University), is the first behavioral scientist to hold this newly created position in the CDC. Appointed in November 1995, Speers is the Behavioral and Social Sciences Coordinator in her broader role as Deputy Associate Director for Science.

Last year, Congress became convinced of the potential importance of behavior in the fight against chronic as well as infectious diseases and mandated that a status report be completed by CDC on efforts being made by that federal agency in

Components of the Centers for Disease Control And Prevention

Centers

- The National Center for Chronic Disease Prevention and Health Promotion
- The National Center for Environmental Health
- The National Center for Health Statistics
- The National Center for HIV, STD, and TB Prevention
- The National Center for Infectious Disease
- The National Center for Injury Prevention and Control

Institute

- The National Institute for Occupational Safety and Health

Programs

- The Epidemiology Program Office
- The International Health Program Office
- The National Immunization Program
- The Public Health Practice Program Office
- The Office of Minority Health
- The Office of Women's Health

the areas of behavioral and social science research. Speers is spearheading the drafting on that report.

As the nation's lead agency within the US Public Health Service (PHS) in the Department of Health and Human Services (HHS), CDC is responsible for promoting health and preventing disease, injury, and premature death.

Efforts that increase our level of sophistication in understanding the degree to which individual behavior can both determine illness onset and influence the course or severity of illness have tremendous potential for reducing healthcare expenditures. Further, since its mission has been broadened (see accompanying box on historical highlights) over the past decade to include injury prevention and control, women's health, and a behavioral science coordinator, CDC has become a potentially powerful focal point for influencing the "health" of behavioral science research and its contribution to alleviating the incidence and prevalence of preventable illness and injury.

Evolving Mission, Health Through Prevention

Operating with a \$2-billion-plus annual budget, CDC consists of six centers, an institute, and six program offices (see accompanying box). Three primary aspects distinguish it from the other health agencies (e.g., the National Institutes of Health) that *Observer* readers often encounter in these pages. First, its emphasis is on primary prevention, rather than treatment, of a

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Correction

In the list of Psychologist Principal Investigators funded by the National Institute on Aging featured in the March 1997 *Observer*, Joseph C. Stevens, of the John B. Pierce Laboratory, was inadvertently omitted. His grant titles are: Chemical Senses and Aging; and Cutaneous Sensitivity and Aging.

FROM PREVIOUS PAGE

wide variety of health problems; second, CDC concentrates on effecting its mission through populations rather than individual patients and therefore epidemiology is central to its activities; and finally, CDC works very closely with a wide range of agency partners (e.g., state and local governments, other federal agencies) and utilizes collaborative agreements more than grants or contracts to accomplish these collaborations.

The focus of CDC has necessarily had to keep pace with the ever-shifting primary causes of premature death and disability. So, while malaria, typhus, and plague were the impetus for CDC's birth (as the Communicable Disease Center) in 1946, the CDC has had to adjust its focus to meet the ever-shifting primary causes of illness, injury, and death.

Our nation's penchant for more traditionally biological explanations and approaches to disease is understandable, given that a few short decades ago, communicable diseases—while still an ever-present, continuing threat—once were our primary health concern. But as these diseases have come under control, health science has been forced to become more sophisticated in its understanding of the modern complexities in disease vectors and illness origin and their maintenance in human populations. Consequently, the centrality of behavior as a key component in disease transmission and in injury is becoming more commonplace.

For example, as drug researchers race to keep antibiotics a step ahead of microbial adaptations to formerly powerful medicines, the role of doctors' drug education and knowledge and prescription practices have come under scrutiny as have patient attitudes toward medicine, including their inappropriate demands for drugs to treat any and all illness, and their treatment compliance behaviors. (See the January 1997 *Observer* article on the National Institutes of Health November 1996 symposium on patient self-report in relation to healthcare delivery and epidemiology.)

Similarly, as heart disease has become the leading cause of death in the United States, associated medical costs eat up some \$48 billion per year, but behavioral change (e.g., learning to control one's fat intake, exercising, reducing other risk factors in one's lifestyle) becomes a pivotal component in terms of potential to influence our national healthcare expenditures.

The public's underutilization of the many cost-effective vaccines for preventable disease causes some 50,000 to 70,000 adults lives annually, but behavioral science has a key role to play in helping the public achieve a higher level of appreciation for the value and importance of these treatments, as well as their safety and efficacy.

The vision of CDC (Healthy People in a Healthy World Through Prevention) is achieved, according to CDC, by promoting health and quality of life, and by preventing disease, injury, and disability. Eight primary activities—in collaboration with CDC's partners throughout the nation and the world—are used to achieve this vision:

- ◆ Monitoring health status and trends;
- ◆ Detecting and investigating health problems;
- ◆ Conducting research to enhance prevention;
- ◆ Developing and advocating sound public health policies;
- ◆ Implementing prevention strategies;
- ◆ Promoting healthy behaviors;
- ◆ Fostering safe and healthy environments; and
- ◆ Providing leadership and training.

To provide readers with a better sense of CDC's current thinking about its mission, in relation to behavioral science, *Observer* Editor Lee Herring interviewed Speers. Her remarks begin on the next page. (See also the accompanying article on page 9 on CDC's efforts to combat sexually transmitted disease. It features the research program of APS Fellow Martin Fishbein, a CDC psychologist and professor at the University of Illinois-Urbana-Champaign.) **L.H.**

Historical Highlights at CDC

1946 - 1949

PHS establishes the Communicable Disease Center (CDC) from the core of the Office of Malaria Control in War Areas in Atlanta, Georgia.

1950 - 1959

CDC broadens its disease prevention role by focusing on polio and developing working relations with states.

1960 - 1969

The monitoring publication, *Morbidity and Mortality Weekly Report*, is transferred to CDC along with tuberculosis control, and the Foreign Quarantine Division.

1970 - 1979

CDC heads a national campaign to immunize 5 million children against measles, mumps, rubella, polio, diphtheria, tetanus, and whooping cough.

1980 - 1989

In 1981 CDC receives its first reports of what was later identified as AIDS.
CDC reports 100,000 cases of AIDS in 1989.
CDC establishes the position of Associate Director for Minority Health.

1990 - 1995

CDC establishes the Behavioral and Social Science Working Group (see article above).
CDC establishes the position of Behavioral and Social Sciences Coordinator (see article above).
CDC creates the National Center for Injury Prevention and Control to deal with the problem of injuries.
Congress mandates a name change to the Centers for Disease Control and Prevention but retained the CDC acronym.
CDC establishes the Office of Women's Health.

Conversation With Marjorie Speers, Deputy Associate Director for Science at CDC

Congress asked the Centers for Disease Control and Prevention (CDC) to provide a status report this year on its efforts to enhance behavioral and social science research within that agency.

CDC's Behavioral and Social Sciences Coordinator, Marjorie Speers, (who also serves as Deputy Associate Director of Science) a psychologist and epidemiologist is working on this status report within the office of the CDC Director.

Prior to becoming the CDC Behavioral and Social Sciences Coordinator, Speers was the Director of the Division of Chronic Disease Control and Community in the National Center for Chronic Disease Prevention and Health Promotion, where she oversaw public health programs in cardiovascular health, aging, physical activity promotion, and health education.

Other positions she has held at CDC include Chief of the Aging and Statistics Branch and Epidemiologist in the Cancer Prevention and Control Branch. Prior to joining CDC Speers was an assistant professor in the Department of Preventive Medicine and Community Health at the University of Texas Medical Branch-Galveston and an instructor in the Department of Psychology at the University of Connecticut.

Speers has published widely and is a consulting editor for the *American Journal of Public Health* and the *Journal of Behavioral Medicine* and regional editor for *Health Promotion International*.

APS Observer Editor Lee Herring spoke with Speers at length about the role of behavioral and social science in disease prevention. The text of that interview is presented below.

What besides the congressional report are you working on?

There are a number of activities. One example is my involvement with the Tuskegee Syphilis Study. My role relates to the legacy that's been left from that study, a legacy of distrust of the government. Trust is a psychological concept, so what I've been trying to do—as we think about trust and what it is and how one builds trust—is to bring behavioral scientists to the table to discuss that topic. Trust of government-funded research is an essential ingredient in being able to conduct solid ethical research on serious health issues that will be used to design effective public health programs. In essence, what I do is to make sure that behavioral scientists are involved in setting policy, making decisions, designing programs, and so on.



Speers

How long have you been at CDC and what do you do?

I've been here for nine years. As Deputy Associate Director for Science I assist in coordinating science policy at CDC. The position involves not so much overseeing grants but rather has oversight for science policy.

Can you give an example of science policy this office has dealt with?

For example we produce the *Morbidity and Mortality Weekly Report* (MMWR). I read the MMWR every week and make recommendations about how a behavioral or social science message fits into each article.

The Institute of Medicine recently reported on electromagnetic radiation exposure and health ... communicating risk to the public, lay people, nonscientists.... The public's trust is involved in getting lay people to understand and accept scientific findings regarding such issues (e.g., cell phones and brain cancer, risks associated with irradiation of food for sterilization) ...

Yes, the agency for Toxic Substances and Disease Registry has an entire division here that works on risk communication, though they are not necessarily psychologists.

Will the congressionally mandated status report relate to your policy work?

Yes, Congress commended CDC's director for setting up a position for assistant director for behavioral science and recognizing the importance of behavior to public health." Congress asked for a report on the status of behavioral and social science research at CDC.

The report is an opportunity to educate Congress about the role of behavior in public health and then to talk about the kinds of research that we *are* doing here and what the needs for the future will be.

Covering the entire gamut from AIDS/HIV and STD prevention to ...

Everything. Everything for a couple of reasons. Public health basically started out as control of infectious diseases and it wasn't until about 45 years ago (basically at the time that penicillin was discovered) that we really got infectious diseases under control and then moved into a period where we examined chronic diseases, injuries, and environmental problems, which are our major health problems today.

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wide variety of health problems; second, CDC concentrates on effecting its mission through populations rather than individual patients and therefore epidemiology is central to its activities; and finally, CDC works very closely with a wide range of agency partners (e.g., state and local governments, other federal agencies) and utilizes collaborative agreements more than grants or contracts to accomplish these collaborations.

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For example, as drug researchers race to keep antibiotics a step ahead of microbial adaptations to formerly powerful medicines, the role of doctors' drug education and knowledge and prescription practices have come under scrutiny as have patient attitudes toward medicine, including their inappropriate demands for drugs to treat any and all illness, and their treatment compliance behaviors. (See the January 1997 *Observer* article on the National Institutes of Health November 1996 symposium on patient self-report in relation to healthcare delivery and epidemiology.)

Similarly, as heart disease has become the leading cause of death in the United States, associated medical costs eat up some \$48 billion per year, but behavioral change (e.g., learning to control one's fat intake, exercising, reducing other risk factors in one's lifestyle) becomes a pivotal component in terms of potential to influence our national healthcare expenditures.

The public's underutilization of the many cost-effective vaccines for preventable disease causes some 50,000 to 70,000 adults lives annually, but behavioral science has a key role to play in helping the public achieve a higher level of appreciation for the value and importance of these treatments, as well as their safety and efficacy.

The vision of CDC (Healthy People in a Healthy World Through Prevention) is achieved, according to CDC, by promoting health and quality of life, and by preventing disease, injury, and disability. Eight primary activities—in collaboration with CDC's partners throughout the nation and the world—are used to achieve this vision:

- ◆ Monitoring health status and trends;
- ◆ Detecting and investigating health problems;
- ◆ Conducting research to enhance prevention;
- ◆ Developing and advocating sound public health policies;
- ◆ Implementing prevention strategies;
- ◆ Promoting healthy behaviors;
- ◆ Fostering safe and healthy environments; and
- ◆ Providing leadership and training.

To provide readers with a better sense of CDC's current thinking about its mission, in relation to behavioral science, *Observer* Editor Lee Herring interviewed Speers. Her remarks begin on the next page. (See also the accompanying article on page 9 on CDC's efforts to combat sexually transmitted disease. It features the research program of APS Fellow Martin Fishbein, a CDC psychologist and professor at the University of Illinois-Urbana-Champaign.) L.H.

Historical Highlights at CDC

1946 - 1949

PHS establishes the Communicable Disease Center (CDC) from the core of the Office of Malaria Control in War Areas in Atlanta, Georgia.

1950 - 1959

CDC broadens its disease prevention role by focusing on polio and developing working relations with states.

1960 - 1969

The monitoring publication, *Morbidity and Mortality Weekly Report*, is transferred to CDC along with tuberculosis control, and the Foreign Quarantine Division.

1970 - 1979

CDC heads a national campaign to immunize 5 million children against measles, mumps, rubella, polio, diphtheria, tetanus, and whooping cough.

1980 - 1989

In 1981 CDC receives its first reports of what was later identified as AIDS. CDC reports 100,000 cases of AIDS in 1989. CDC establishes the position of Associate Director for Minority Health.

1990 - 1995

CDC establishes the Behavioral and Social Science Working Group (see article above). CDC establishes the position of Behavioral and Social Sciences Coordinator (see article above). CDC creates the National Center for Injury Prevention and Control to deal with the problem of injuries. Congress mandates a name change to the Centers for Disease Control and Prevention but retained the CDC acronym. CDC establishes the Office of Women's Health.

Conversation With Marjorie Speers, Deputy Associate Director for Science at CDC

Congress asked the Centers for Disease Control and Prevention (CDC) to provide a status report this year on its efforts to enhance behavioral and social science research within that agency.

CDC's Behavioral and Social Sciences Coordinator, Marjorie Speers, (who also serves as Deputy Associate Director of Science) a psychologist and epidemiologist is working on this status report within the office of the CDC Director.

Prior to becoming the CDC Behavioral and Social Sciences Coordinator, Speers was the Director of the Division of Chronic Disease Control and Community in the National Center for Chronic Disease Prevention and Health Promotion, where she oversaw public health programs in cardiovascular health, aging, physical activity promotion, and health education.

Other positions she has held at CDC include Chief of the Aging and Statistics Branch and Epidemiologist in the Cancer Prevention and Control Branch. Prior to joining CDC Speers was an assistant professor in the Department of Preventive Medicine and Community Health at the University of Texas Medical Branch-Galveston and an instructor in the Department of Psychology at the University of Connecticut.

Speers has published widely and is a consulting editor for the *American Journal of Public Health* and the *Journal of Behavioral Medicine* and regional editor for *Health Promotion International*.

APS Observer Editor Lee Herring spoke with Speers at length about the role of behavioral and social science in disease prevention. The text of that interview is presented below.

What besides the congressional report are you working on?

There are a number of activities. One example is my involvement with the Tuskegee Syphilis Study. My role relates to the legacy that's been left from that study, a legacy of distrust of the government. Trust is a psychological concept, so what I've been trying to do—as we think about trust and what it is and how one builds trust—is to bring behavioral scientists to the table to discuss that topic. Trust of government-funded research is an essential ingredient in being able to conduct solid ethical research on serious health issues that will be used to design effective public health programs. In essence, what I do is to make sure that behavioral scientists are involved in setting policy, making decisions, designing programs, and so on.



Speers

How long have you been at CDC and what do you do?

I've been here for nine years. As Deputy Associate Director for Science I assist in coordinating science policy at CDC. The position involves not so much overseeing grants but rather has oversight for science policy.

Can you give an example of science policy this office has dealt with?

For example we produce the *Morbidity and Mortality Weekly Report* (MMWR). I read the MMWR every week and make recommendations about how a behavioral or social science message fits into each article.

The Institute of Medicine recently reported on electromagnetic radiation exposure and health ... communicating risk to the public, lay people, nonscientists.... The public's trust is involved in getting lay people to understand and accept scientific findings regarding such issues (e.g., cell phones and brain cancer, risks associated with irradiation of food for sterilization) ...

Yes, the agency for Toxic Substances and Disease Registry has an entire division here that works on risk communication, though they are not necessarily psychologists.

Will the congressionally mandated status report relate to your policy work?

Yes, Congress commended CDC's director for setting up a position for assistant director for behavioral science and recognizing the importance of behavior to public health." Congress asked for a report on the status of behavioral and social science research at CDC.

The report is an opportunity to educate Congress about the role of behavior in public health and then to talk about the kinds of research that we *are* doing here and what the needs for the future will be.

Covering the entire gamut from AIDS/HIV and STD prevention to ...

Everything. Everything for a couple of reasons. Public health basically started out as control of infectious diseases and it wasn't until about 45 years ago (basically at the time that penicillin was discovered) that we really got infectious diseases under control and then moved into a period where we examined chronic diseases, injuries, and environmental problems, which are our major health problems today.

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What about healthcare professionals creating problems for public health (e.g., physicians not knowing or understanding how to appropriately prescribe antibiotics and other drugs, thereby doing more harm than good in terms of creating resistant microbes)? Is this out of your realm?

No. Initially infectious disease control was done by environmental control like cleaning up the [public] water supply, and sewage treatment. Now, the role of behavior is becoming more and more obvious in infectious disease control, as it is in chronic disease control. You noted one of the issues [antibiotics] that is a behavioral problem and a social problem as much as it is an infectious disease control problem, and that is the issue of resistance to antimicrobial agents. If we only followed the traditional infectious disease model to combat these problems we would be trying to develop more and more potent antibiotics [to deal with increased resistance]. But the bugs keep getting stronger. We need to view resistance as a behavioral and social health problem; providers readily prescribe them, patients demand them, and we have a pharmaceutical industry that markets them.

So, from this new perspective, there's the need to change individual behaviors of physicians and patients. You need to make systemic changes in the healthcare system and we need to explore ways to work with industry. That's a very different approach from the way we would have dealt with it before.

Let me give another example of an infectious disease, malaria. Now, malaria is not a big problem in the United States, but worldwide it's a leading cause of death; millions of people get malaria in the world. What we are trying to do now is to recognize that malaria control in some way has a behavioral component to it. What you need to do is reduce the sources where these mosquito larvae live. And individual people can do that.

What is the documentable evidence that reducing these non-point household sources is sufficient to curb exposure? What about natural bodies of stagnant water harboring the ... larvae?

We did a study on dengue fever caused by a different kind of mosquito in Puerto Rico that was very well evaluated, and, yes, there is good evidence that it works.

What about the behavioral aspects of chronic diseases?

Clearly with the chronic diseases (e.g., heart disease, stroke, diabetes, certain cancers), smoking, diets high in saturated fats,

physical inactivity—those three behaviors are the major determinants of those diseases and by reducing these unhealthy behaviors, we prevent the diseases. Approximately 50 percent of the premature deaths that occur in this country could be prevented by changes in lifestyle. And those include cigarette smoking, unhealthy eating, physical inactivity, unsafe sexual behavior, and alcohol—those are the five big ones.

So, chronic disease control and prevention clearly is related to changing behavior. STD [sexually transmitted disease] prevention and HIV prevention both are clearly related to changing behavior. Certain types of birth defects can be prevented by behavior. A good example is neural tube defects. At least 50 percent of the neural tube defects that are preventable can be prevented if women would consume 400 micrograms of folic acid each day. That is, a dietary change could prevent it.

What are the implications for prevention then?

Since a behavioral component exists in the etiology of most diseases, when we start to look at prevention strategies or interventions that one might undertake to reduce the incidence of disease, one's looking generally at changing behavior and

therefore one's looking at behavioral and social interventions.

What do you see as the pressure points of influence over these issues?

There are at least two avenues for change. The first is changing the social environment—the environment in which people live—so that we create an environment that is supportive of healthy

[N]o matter what disease you look at, no matter what risk factor you look at, there is a behavioral component to it.... It's important enough that it needs to be acknowledged, particularly for diseases where we've done a fairly good job of controlling them in the general population and we see now pockets, places where there are high rates of incidence. In those cases, we need to go beyond what we've done traditionally and look at some of these other factors.

MARJORIE SPEERS
CENTERS FOR DISEASE CONTROL AND PREVENTION

behaviors. The second is to change individual behavior. Different types of intervention strategies may be used for either avenue. When one is trying to change the environment, intervention strategies aim to change, or implement policies or regulations that lead to an environmental change. For example, taxation on cigarettes, clean indoor [air] legislation, restricting the access of minors to cigarettes—these are policy interventions that change the environment and lead to one that is much more supportive of not smoking or one that makes it more difficult to smoke.

How do you accomplish policy changes?

There are several ways. One example is mass media campaigns; particularly campaigns targeted at advocating for a certain position. Grass roots efforts, forming coalitions within communities, the combination of getting a group that's inter-

CDC, Prevention, and Psychology

Centers for Disease Control and Prevention employs many psychologists

“There’s been a big change at the Centers for Disease Control and Prevention,” according to Martin Fishbein, an APS charter member who will wind up his fifth year at CDC and return to academia in the fall.

“I think that putting the word ‘prevention’ into the name of [this federal] agency was essentially a recognition of the importance of behavioral science in protecting and maintaining the public health. There’s been a real attempt to actively increase and recruit for a variety of behavioral science positions,” Fishbein said.

“There are some very good psychologists here,” Fishbein said. “One of the most important new appointments is David Holtgrave, Director of the Division of HIV Prevention: Intervention Research and Support. It’s a very senior position, and having it filled by a psychologist is an important advance for the behavioral and social sciences,” Fishbein claimed. Holtgrave is an APS charter member.

Other senior-level psychologists at CDC include Janet Collins, Chief of the Surveillance and Evaluation Branch in the Division of Adolescent and School Health; and Lynda Doll, Chief of the Behavioral Intervention Research Branch in the Division of HIV Prevention, Fishbein pointed out.

“And, as a matter of fact, one of my most important accomplishments down here was to help convince Janet St. Lawrence to come as Chief of the Behavioral Intervention Research Branch in the Division of Sexually Transmitted Disease Prevention. So psychologists are starting to play a much bigger role,” Fishbein said.

Working Group of Psychologists

Psychologists and other social scientists are scattered throughout CDC, he said, and their role in disease prevention has been further recognized with the formation of a Behavioral Science Working Group, an organization in which social scientists can share views and promote their profession with CDC.

Even before joining CDC five years ago on an IPA (an Intergovernmental Personnel Act mobility assignment), Fishbein was a consultant on a multisite CDC street outreach project called the AIDS Community Demonstration Projects. It became his first major project when he moved to

Atlanta. It focused on commercial sex workers (prostitutes), injecting drug users, female sex partners of injecting drug users, men who have sex with men but don’t gay identify, and youth at high risk, many of whom are living in the street.

Testimonials

Fishbein got involved with the project because CDC wanted to develop a theory-based intervention. The basic methodology was to identify ways in which to gain access to these populations in five cities (Dallas, Denver, Long Beach, New York, and Seattle) and recruit members of each group to serve as volunteers to develop and

distribute small media materials such as community newsletters, specific to each population, featuring testimonials or role-model stories about real people in the community who had changed critical health behaviors—increased use of condoms or clean needles, for example. For each treatment area there was also an independent comparison area that permitted treatment vs. comparison analyses.

The testimonials were focused on particular theoretical variables, Fishbein said. In one, for example, a woman reported that she used to think that if she asked her drug injecting partner to use a condom he would get extremely angry and upset. But after several of her friends died she decided she had to do something to protect herself and finally got up the courage to ask her partner to use condoms. To her surprise, she found that he too wanted to use condoms to protect her but had felt she would be the one to get angry or upset. “Significant increases in condom use were found in the treatment areas vs. comparison areas,” Fishbein said.



Fishbein

Behavior Change Affects Biomedical Outcome

Fishbein was also called upon to help develop a randomized control trial to evaluate different HIV counseling interventions in initial steps to develop an enhanced counseling program. STD clinic patients in five cities (Baltimore, Denver, Long Beach, Newark, and San Francisco) self-reported on condom use and provided biomedical data that permitted Fishbein and his colleagues to determine whether they had reduced the incidence of STDs or HIV through the various counseling approaches. The analyses have shown both a significant increase in condom use behavior and significant reductions in STDs, Fishbein said.

“I think this is one of the first studies of HIV and STD prevention counseling that actually has been able to show that behavior change can reduce a biomedical outcome,” he said.

Fishbein recently accepted a chaired professorship in the Policy Center at the Annenberg School for Communication at the University of Pennsylvania, to start in the fall. But he will continue to work on “a number of exciting CDC projects,” he said.

Working with CDC gives him opportunities to participate in multisite projects that would be difficult to find elsewhere, he said. “Single-protocol projects in five or seven cities—that kind of approach really allows the researcher to examine generalization and technology transfer issues. When something works in one area but not in another, you can start to understand what is really going on. And the opportunity to have an impact on public health and health policy is something the CDC offers that academia usually doesn’t,” he said. **D.K.**

... putting the word ‘prevention’ into [CDC’s] name ... was essentially a recognition of the importance of behavioral science in protecting and maintaining the public health.

MARTIN FISHBEIN

CENTERS FOR DISEASE CONTROL AND PREVENTION

OBSSR Gets Experienced Advocate

APS government relations director embarks on a two-year IPA to assist the NIH office

Formally established by Congress in 1993, and officially open for business since July 1995, the Office of Behavioral and Social Sciences Research (OBSSR) at the National Institutes of Health (NIH) recently took a significant step in actualizing its strategic plan in the form of Susan Persons, most recently APS's Director of Government Relations. Persons has joined OBSSR as part of a two-year assignment under the Intergovernmental Personnel Act (IPA).

"We are delighted and fortunate to have someone of Susan's experience and competence working with the OBSSR," said OBSSR Director (and APS Member) Norman Anderson. "Susan brings a wealth of experience in government relations, communications, public policy, coalition building, and a background in working with a broad cross-section of behavioral and social scientists. These qualifications make her ideal for helping us meet the three principal goals of the office: (1) enhancing behavioral and social sciences research and training, (2) integrating a biobehavioral perspective across the NIH, and (3) improving communication between health scientists and the public."

Persons will most directly be involved with the third part of the OBSSR plan and hopes to use her experience from Capitol Hill and with the media to further bolster understanding among the general public of the integral nature of behavioral and social factors in health.

OBSSR was established by Congress in response to the historic under-funding of scientific research on behavioral and social factors relative to their contributions to health and illness and compared with NIH funding for biomedical sciences. (See the July/August 1995 *Observer*.) Anderson came on board as the office's first director in the summer of 1995 and saw OBSSR as an opportunity to encourage NIH to more fully adopt the philosophy that health is determined by the interaction of biological, behavioral, and social factors. Persons, he says, fits well into that objective.

While the office strives to capitalize on the strengths and expertise of each staff person, the small size and unique nature of OBSSR keeps each member of the staff—which numbers in the single digits—involved, to some degree, in everything the office undertakes.

"We will certainly capitalize on Susan's expertise in

government relations. One of her responsibilities will be to assist me in better informing policymakers on the activities of OBSSR and on the exciting discoveries that are occurring in the behavioral and social sciences by NIH-funded researchers," said Anderson. "Another major responsibility for Susan will be in helping shape some of our communications activities. In particular, she will develop approaches for improving the dissemination of findings from NIH-funded behavioral and social sciences research to the public."

Central to her mission at OBSSR is a new conceptualization at NIH: a shift in thinking in which behavioral, social, and

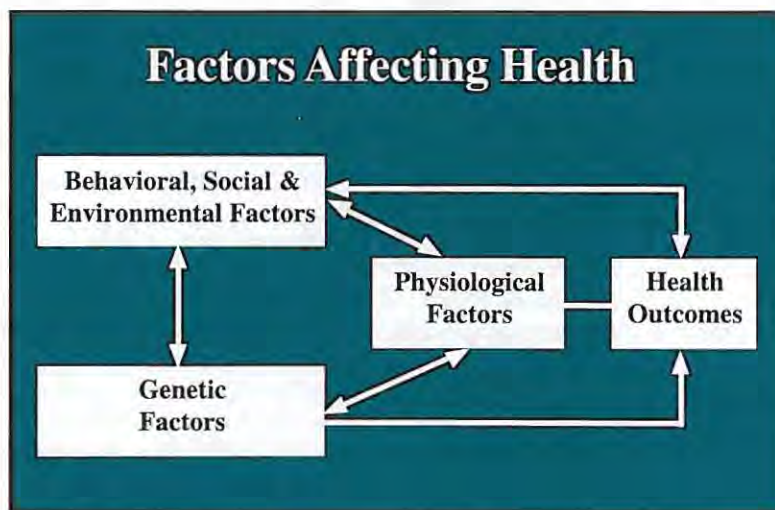
environmental factors—as well as genetic and physiological factors—are automatically incorporated into the examination of health issues and outcomes. (See the accompanying schematic figure to the left diagramming the relations between these variables.)

"I want everyone—researchers, health care providers, policymakers, and the general public—to think automatically in terms of this framework and to recognize that valuing each of these factors is critical to good

health," said Persons. "I believe NIH will not succeed in its mission unless this schema becomes an inherent part of the way it conducts its research."

As for what she hopes to accomplish during her two years at OBSSR: "I hope that there will be institutional changes at NIH—they may be small—but I am hoping, for example, that newsletters at NIH, press releases, and testimony by any and all of the directors including [NIH Director] Dr. Harold Varmus, will reflect all of these factors and that this way of looking at health becomes the norm. Society generally looks for a quick fix, but our world is getting—in every aspect, and in health, especially—more and more complex and so we have to take a more complex approach to health. This is not difficult, but it does involve a new way of thinking and increased attention to behavioral and social science research."

Person's past experience on Capitol Hill, and in the non-profit and federal venues make her an excellent fit for the NIH office. While completing her graduate degree in public policy at George Washington University in Washington, DC, she won a national competition for a Congressional Fellowship. After



This flow chart illustrates a modern conceptualization of factors affecting health as promoted by OBSSR.

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completion of the fellowship, she served an additional two years as a legislative staffer for then-Representative Bill Green of New York. She has worked on bridging the science and public policy gap since 1992 through three organizations: APS, the Consortium of Social Science Associations, and the Society for Research in Child Development. She has worked not only with NIH, but with other federal agencies including the National Science Foundation and the Centers for Disease Control and Prevention, among others. In addition, she has worked closely with many national coalitions including the Ad Hoc Group for Medical Research Funding, National Organizations Responding to AIDS, and the Friends of the National Institute on Child Health and Human Development, which she has led since January 1996.

"There is no question that she is exactly the kind of person who could be effective in that office," said APS Executive Director Alan Kraut. "I think she is going to bring a Capitol Hill experience to that office in a way that they haven't had before. She has been an effective advocate, she is non-bureaucratic, and she knows what is happening on the Hill and in the federal agencies. That would be a welcome expertise to have in that office. She was very good for rounding out the advocacy of APS and helping us expand our niche from an organization that is often out there all by itself to an organization that developed consensus statements about advocacy for the behavioral sciences."

Persons' work with OBSSR is part of the IPA program, which provides temporary assignments of personnel between the federal government and non-federal organizations, including nonprofit organizations like APS, colleges, and universities



Susan Persons joins the staff of the NIH Office of Behavioral and Social Sciences Research.

among other institutions. The mobility program was established in 1970 and has been a key factor—especially among the behavioral sciences—in furthering the public-private partnership that is integral to progress. IPA assignments generally last up to two years, but they can be extended beyond that limit under certain circumstances. Anderson, in fact, came to OBSSR by way of an IPA.

"An IPA such as Susan's brings current thinking about what is going on in psychology to NIH in a way that long-term bureaucrats—even the best of bureaucrats—can't," said Kraut. "An IPA takes people who have been in the trenches, whether it is in advocacy, like Susan, or whether it is in the front lines of basic behavioral and social science research, and it brings them to Washington direct from their trench experiences. That, I think, energizes NIH and gives it more currency and maintains the cutting-edge nature of its work."

Kraut continued: "OBSSR has to build itself up enough to have influence within NIH. That is important for all of us. But it can't build itself or its budget up so much that it becomes the core of behavioral activity for NIH. That is for the individual institutes—an important distinction that Norman and Susan both appreciate." Kraut added that he has no doubts that OBSSR will continue to be an important office in defining the line between advocacy and research promotion/support.

"Needless to say, we are pleased with this latest collaboration between the OBSSR and APS," said Anderson. "APS has, from the opening of the office, been very supportive of its work. Without question, Susan's activities with the OBSSR will help move the office to the next level of functioning, which, we hope, will have long-term benefits for the field." **E.R.**



Norman Anderson is director of the Office of Behavioral and Social Sciences Research.

NIH Journal Shows Good Form

Anyone who has received a grant from the National Institutes of Health (NIH) is familiar with the *Journal of NIH Research*, an independent monthly magazine sent to NIH principal investigators. Widely read in and around NIH, the 30,000-circulation journal presents news about NIH and various areas of science.

In December, the journal declared a psychology article as having achieved "landmark" stature. The article was written by psychologist Jay McClelland and dealt with the topic of competence. A number of APS members relayed their considerable delight at the recognition of McClelland, also an APS Member, but their elation attenuated somewhat when they noticed that the journal's subscription renewal form did not include "psychology" on the checklist of research specialties. Even though the journal is independent of NIH, the temptation was to interpret the omission as symbolizing the continuing lack of recognition of psychology at those institutes. "I guess we're still known as 'Other,'" said one psychologist.

But we are pleased to report that when APS Executive Director Alan Kraut brought the omission to the editor's attention, there was swift and positive action. Saying that they were "taking [our] message to heart," Executive Editor Keith Haglund reported that all relevant parties at the publisher had been made aware of the issue and that any forms indicating specialties will now include psychology.

True, it's a small point. But, then again, maybe the world is just a little bit safer for psychology as a result.

Member Profile

Healthcare's Redefinition Drives Research On Relation Between Health and Wealth

Nancy Adler heads UCSF's health psychology research/training program and MacArthur-funded Network on SES and Health

Bucking the Trend Toward Scientific Fragmentation

Mimicking meiosis itself, many university biology departments are dividing along natural lines as molecular and cellular biologists split off to form separate departments from their ecological and environmental biology brethren. The fragmentation of science more generally seems to be fulfilling some Kuhnian fate, as emerging scientific frontiers redefine the scientific paradigms of the times.

But a counter trend of interdisciplinary scientific teams is also part of the modern scientific paradigm, as economics force scientists to examine important issues in new ways. One example in which multiple scientific perspectives and levels of analysis are essential is healthcare delivery, an area undergoing a paradigm shift of its own here in the United States, as healthcare providers migrate increasingly to managed care.

At the forefront of this interdisciplinary counter trend is psychologist Nancy Adler, a Lifetime APS Member who is director of the health psychology program at the University of California-San Francisco. Adler is heading a consolidation that is uniting psychologists, sociologists, anthropologists, biologists, and other scientists and steering them into some very productive research and revolutions in curriculum related to health and illness. The significance of this multidisciplinary endeavor lies in the link between health and behavior, which has taken on a renewed impor-

tance as the nation overhauls and redefines its healthcare delivery systems to be more in tune with the economic incentives to promote illness prevention.

Integrating Scientists

This new integration of researchers is bringing social and behavioral scientists who are interested in issues of health and illness closer together. By next year, many of them will be together under the same roof, in a 100,000-square-foot building now being renovated at the cost of over \$20 million, according Adler, who is directing the move that Wall Streeters might classify as a "merger." And already their combined focus on issues of health and illness is generating advances in health knowledge and care.

"With the advent of managed care, health systems are being charged with keeping people well and not in need of services," says Adler.

"To do that today you need to

We're in a unique position here at UCSF because this is a health sciences campus where all of the social scientists are interested in health issues.



Nancy Adler directs UCSF's multidisciplinary health psychology program focused on examining the link between health and behavior.

Unique Position and Curriculum

"We're in a unique position here at UCSF because this is a health sciences campus where all of the social scientists are interested in health issues. We have a really strong cadre of people, but we've been in different schools. Sociologists are in the School of Nursing, and the psychologists and anthropologists, while both in the School of Medicine, have been in Psychiatry and in Epidemiology, respectively. So we have not worked closely together. Consequently, we've all been somewhat marginal. Now that is changing."

The academic side of the UCSF program is also being modified to reflect the real-world health system changes. Adler explains that "in a few years we will have a more integrated curriculum for the health professional

understand people's behavior, their economic status, and a lot of other things that are psychological and sociological. These factors may differ for different ethnic and cultural groups, so it's also an anthropological issue," she adds.

NANCY ADLER
UNIVERSITY OF CALIFORNIA-SAN FRANCISCO

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schools. For example, in the School of Medicine, where I will be chairing the curriculum committee for the medical students, the curriculum is changing dramatically." Elaborating on some primary changes deriving from the UCSF curriculum, Adler explained that future physicians are getting much more patient exposure early on. In addition, "they are being trained to be generalists, not just specialists. And now we are considering the social and behavioral sciences to be the 'new basic sciences' for the practice of medicine." Implications for research training, Adler indicated, include an increasing "overlap in the training for our medical sociologists, medical anthropologists, and health psychologists."

And, Adler said that UCSF program-inspired changes in research practice will allow "more of the large-scale types of studies that cut across the disciplines and permit us to do more comprehensive analyses of major health problems."

Joint Research

Some joint working groups already have begun. For example, a group on work and health just participated in designing a statewide poll concerning work environments and socioeconomic influences on health. Another group is focusing on women's health, and a third is working to develop a health survey research unit.

"We have been doing some interdisciplinary examination of issues like outcomes, which is a focal area in health care now. Psychologists and other social scientists study health outcomes, and we are experts on how to measure functional status and mental health. But we don't think of ourselves as outcomes researchers." But, at the same time, Adler laments, health outcomes researchers have needed to broaden their measures, which historically have been very narrow. They might simply have asked, for example: Did the patient live or die? And how much money was spent on hospital treatment? "Today's systems," explained Adler, "are much more interested in answering questions such as whether the patient returned to work and

how well they are functioning."

Other interdisciplinary research is in the planning stage. At a staff retreat, four researchers from different departments happened to discover they were all interested in infertility, each from a different perspective, said Adler. "One was an epidemiologist, another was interested in economic costs, another in decision making (in questions like how many cycles of in-vitro fertilization

should you expect to do, given the 15 to 20 percent chance of success in any cycle). And, the fourth was interested in stress and coping. So now they are putting together a research project proposal that will bring all of these perspectives together to provide a comprehensive understanding of the experience of infertility," said Adler.

MacArthur-funded Network on Economic Status and Health

The Economics of Good Health and Poor Health

Spearheading this UCSF interdisciplinary health research, Adler also is the principal investigator in a major new study on the links between socioeconomic status (SES) and health. The Network on SES and Health project was launched in January with a four-year \$4.6 million grant from the John D. and Catherine T. MacArthur Foundation.

The project's research network includes 10 other scientists—physicians, epidemiologists, neuroscientists, a sociologist, an anthropologist, and four psychologists—and stretches far beyond this core group. Norman Anderson, director of the Office of Behavioral and Social Science Research at the National Institutes of Health (see related article in this issue), is an advisor to the network, particularly on SES-health issues closely tied to race and ethnicity. Besides Adler, the three other psychologists in the network are Karen Matthews of the University of Pittsburgh, and APS Charter Fellows Sheldon Cohen of Carnegie Mellon University and Shelley Taylor of the University of California-Los Angeles.

Goals

The network's goals are at least twofold. One is to reach a clearer understanding of the mechanisms that may explain why the people with the lowest social status in any group tend to have the poorest levels of health, well-being and longevity.

A second goal is to suggest what can be done about it—to produce policy recommendations, based on the better

understanding of SES-health links, which may help in the development of interventions to counter the negative effects.

Today's prevention-minded healthcare institutions appear ready to capitalize on the Network's eventual findings, Adler believes. In a recent *New York Times* article, Richard A. Shweder said that the SES-health link has become "one of the hottest areas in epidemiology, medical sociology and health psychology," adding that, "politics aside, no one knows precisely why people with high status are more healthy and less crazy."

Adler points out that we don't know precisely how social status affects health; studies published in Great Britain and America since the 1980s suggest that it is not due to one single factor. It isn't simply poverty that affects health, since differences occur even between the middle- and upper-middle classes. Nor is differential access to healthcare the main culprit. Further, the gap cannot be attributed mostly to hazardous work or living conditions, or to lifestyle differences such as diet or smoking. Nor do biological factors explain the differences, though all of these appear to play some role, Adler says.

Health Class

Adler was drawn into this study from her participation in an earlier MacArthur Foundation network on health promotion and disease preven-

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Spotlight on Research

Getting from Point A to Point B

Kent forum examines how humans, animals, and machines chart a course

What do baseball outfielders, echolocating bats, and robots at a quaint and cozy inn in the midst of Ohio's Amish country have in common? Location, location, location—and all three of these topics had found their way into the latest convocation of the Annual Kent Forum in this distraction-free rural venue this past April.

Addressing the topic of "finding one's location" within the conference's theme of "Bats, Flies, and Baseball Outfielders: Navigational Principles Used by Humans, Animals, and Machines," this year's forum, like most of the previous eight, derived its uniqueness in part from being held in an out-of-the-way place (two hours from the nearest airport) and in part by bringing together disparate researchers who would appear on the surface to have little in common.

While bringing this assemblage of researchers from such wide-ranging fields into a single location for an intensive three-day conference might appear to be sure-fire ingredients for a disastrous and disjointed affair, the Kent conferences have instead coalesced into quite the opposite: effective, thoughtful, and focused exchanges on theory and research in areas with potential applications. And each year, the Kent Forum hosts a different organizer, different speakers, and a different theme.

This year's chapter of the Kent Forum brought about 30 people, including scientists, practitioners, engineers, and graduate students, together at the Inn at Honey Run to discuss the perceptual and cognitive aspects of multisensory navigation together with applied aspects.

"[Navigation] has been one of my central interests," said this year's forum chair (and APS Member) Michael McBeath, a Kent State faculty member. "I did some work on baseball outfielders, and I became interested in navigational literature and realized that I am naive about a lot of things myself. Some of the speakers here may think that their area of study is rather different from the others, but I intentionally selected

some animal researchers, some who work with robots, some human vision scientists, and some audition people, for example, with the hope that in brainstorming, and talking and listening to each other, we would learn a little bit more about some of the underlying themes that help determine what is going on in navigation." McBeath appears to have succeeded in keeping faithful to the Forum's "uniqueness" requirement: "I thought if we invited people from disparate backgrounds, it wouldn't be the same kind of conference as people are used to attending."

Point A

The Kent Forum, hosted by the Kent State University

Applied Psychology Center, evolved from an academic challenge grant awarded to the psychology department by the Ohio Board of Regents in 1985. In addition to computerizing the department and establishing the Applied Psychology Center, the grant provided funding for an annual conference in applied psychology.

The first conference, in 1987, addressed the topic of assessment in behavioral medicine. It was held on the campus of Kent State University and was structured much like a standard academic conference. The next year it was taken in a new direction.

"It was transformed into

what has become the Kent Forum: a small think tank-like group at an isolated place where there are few distractions," said APS Charter Fellow Joseph Danks, dean of the College of Arts and Sciences at Kent State. "We are pretty isolated here and this was quite by intent: to bring together some of the leading academic researchers on a problem that had some applied aspects to it, to bring in some applied people who do work in the field on this particular problem, and to put it together with Kent faculty and graduate students."

The small and isolated nature of the forum provides a more thorough opportunity for both formal and informal examination



APS Members Dennis Proffitt, Jack Loomis, and Michael McBeath were three of the participants in the Ninth Annual Kent Forum. McBeath organized this year's conference on "Bats, Flies, and Baseball Outfielders: Navigational Principles Used by Humans, Animals, and Machines."

of a topic than is provided at larger, broad-topic academic conferences. In addition, Danks said, researchers from different backgrounds and subject areas are brought together to look at a common idea.

Thematic Clusters

"The forum brings together people who are studying the same phenomena, but looking at it from different perspectives," he said. "You don't often have these same people all attending the same meeting, and getting the opportunity to examine a topic like they are able to here."

The conference is organized by a different Kent State psychology department faculty member each year. The forums are in clusters of three (one each year) with a broader topic tying the individual forum subjects together. This year's Navigation forum is third in the series on Cognitive Skill. The previous topics in this series were cognitive processes in translation and interpreting, and biomedical implication of model systems of complex cognitive capacities.

McBeath says he developed this year's topic partly as a result of on-going arguments he was having with physicists.

"I have done some work on baseball outfielders—figuring out where the ball is, and how you determine where it will land—and a lot of people in the scientific community were framing it as a physics problem, while I thought of it more as a navigational problem where you weren't doing a bunch of math and calculus in your head," he said. "I thought of the analogy of the elephant and the blind people in which several blind people are arguing over what an elephant looks like. One person, holding on the elephant in the middle, says it looks like a barrel. Another, holding its leg, says it looks like a tree, etc. In the end they are all right but they just have different perspectives and I thought that this was what I wanted to shoot for in navigation."

Generally a mix of theoretical and applied research, McBeath says he structured this year's forum to include evening talks by applied researchers, "to introduce you to some of the questions they are interested in, as well as what all of this looks like on their side of the fence."

By no means exhaustive, below is a sampling of the



APS Fellow Joseph Danks heads Kent State's College of Arts and Sciences.

I have done some work on baseball outfielders—figuring out where the ball is, and how you determine where it will land—and a lot of people in the scientific community were framing it as a physics problem, while I thought of it more as a navigational problem.

MICHAEL McBEATH
KENT STATE UNIVERSITY

presentations by participants in this year's Kent Forum on navigation.

Do the Locomotion

APS Member, Jack Loomis, of the University of California-Santa Barbara, kicked off the forum with "Complex Locomotory Behavior: Its Control by Stimulation and Internal Representation," in which he covered both locomotion controlled by concurrent perceptual information and navigation to remote unperceptible locations. McBeath chose Loomis to open the forum, "because he seems to know ... about a whole lot of areas that I think might tie together the different areas of research."

Loomis said that understanding complex behavior in the real world has been his motivation throughout his career. "I started out in color vision so I have had training in sensory psychology," he said. "I also spent a good part of my early career on the sense of touch, but I have always been interested in space perception—even as a grad student at the University of Michigan."

Loomis discussed a variety of working concepts and competing conceptions of perceptually controlled locomotion. He then examined a variety of locomotory behaviors and how they might be explained with the competing conceptions. Following his early research with Ken Nakayama and recent collaborations with Andrew Beall in examining optical flow as an explanatory concept, Loomis believes he is now able to

apply optical flow concepts to understanding visually controlled locomotion. Work by colleagues Walter Gogel and John Foley on visual space have convinced Loomis that explanations of complex spatial behavior require consideration of both the phenomenal world and elements of J.J.

Gibson's ecological theories. And, Loomis believes that almost all research on the perceptual guidance of locomotion is the legacy of but one person, Gibson. Other influential collaborations with Roberta Klatzky and Reginald Golledge have educated "me about the importance of other internal representations in the control of locomotion," said Loomis. An example of one important type of internal representation is "plant dynamics," a personal feel for or sense of the relation between the available motive forces and the consequent kinematics (e.g., linear and angular accelerations, and linear and angular velocities).

"I have always had an appreciation for some philosophi-

SEE KENT ON PAGE 32

Electromagnetic Fields and Health

IOM report and psychologists weigh in on the issue. Is there a genuine health risk or merely a health scare?

Sparked by an ongoing international scientific controversy concerning possible adverse health effects of the electric and magnetic fields generated by the everyday electric power we use in our homes, researchers in government, industry, and academe have conducted numerous studies in recent years on this somewhat elusive topic. And, as is its habit regarding scientific matters affecting the public, the National Research Council (NRC), in response to a congressional request to investigate the matter, recently released a report summarizing the findings.

Contained in a 314-page book, *Possible Health Effects of Exposure to Residential Electric and Magnetic Fields*, the Institute of Medicine (IOM) report is one of the latest efforts to inform the scientific community and the public in a definitive manner.

Inconclusive

The IOM's conclusion? There is a small but apparently reliable statistical association between living close to electrical power transmission lines and increased rates of childhood leukemia. However, the scientific explanation for this link remains a mystery—and a direct causal link between power-frequency electromagnetic fields and cancer or other diseases or disorders is not supported by the available evidence.

But in the context of an apparently very small health risk—involving about a 50 percent increase in an extremely rare disease—with a causal mechanism as yet undefined by any scientific theories (and arising from something ubiquitous and of great social and economic importance), there has been a lot of room for scientific and non-scientific speculation about potential risks.

Not Convinced

Indira Nair is Professor of Engineering and Public Policy at Carnegie Mellon University. Trained as a physicist, she researches the biology of ELF (extremely low frequency radiation), as well as what people understand about it. Her work is prominent in the field and is cited by the IOM report.

The impetus for current studies of low-level ELF fields, she explains, comes from an epidemiological study by Wertheimer and Leeper in 1979, who found elevated leukemia in children living in houses close to power lines in Denver.

For many technical people who follow this issue, there is still a shadow of doubt. Why should the public lose all interest in the topic, while the scientific community is still sorting things out and the stakes are potentially very high?

BARUCH FISHHOFF
CARNEGIE MELLON UNIVERSITY

Nair is still concerned about several issues the NRC report dismisses as unconvincing. She said she is “not willing to put the issues aside. The biological effects might not be bad, but the research still might lead to an understanding of fundamental cellular mechanisms.”

Melatonin

There is no generally accepted theory of the biological effects of ELF, but one of the leading hypotheses involves melatonin. Melatonin is a hormone whose functions involve mood and sleep. The daily cycle of its production is tied to the circadian clock, the fundamental principle of which is not understood. Melatonin is secreted at night by the pineal gland, and repeated experiments on lab rats have established that “after two weeks continuous exposure [to] AC

fields, the normal night-time rise in melatonin is suppressed.”

“There is something that an oscillating [electromagnetic field] can tell us about time and biology,” said Nair. And what is the possible connection with cancer? “Melatonin is an antioxidant and an oncostat, especially for endocrine-regulated tumors like breast cancer.” (An oncostat can suppress tumor growth.) And, while most laboratory experiments on electromagnetic fields (EMFs) have been unable to demonstrate biological effects below 0.1 Gauss (100 milliGauss), certain breast cancer cells in culture are

rendered insensitive to the cytostatic effects of melatonin by AC fields as low as 12 milliGauss. (Cytostats retard or stop cell growth.)

How could the fields be tied to cellular responses in the first place? There is evidence that EMFs of specific frequencies can change the rates of reactions involving the calcium ion, a major mediator of intracellular signals.

Still, if these effects are small, and hard to detect, might they not be too small to merit public policy attention? Is there a discrepancy between the magnitude of the risks, and the attention given to this issue? “I wouldn't say they were big, or small. I would prefer to leave the question open at this time,” said Nair. The effect of EMFs is thought to operate as a promoter of cancers, not an initiator. If EMF only enhances specific rare cancer rates by 50 percent, that is one thing. But what if its actions apply to many cancers? “Does it contribute [along with whatever other lifestyle factors] to the epidemic rise of breast cancer in countries that use a lot of electric power?” Nair wondered.

Risk Analysis

APS Fellow Paul Slovic, a member of the NRC panel that wrote the report, is

CONTINUED ON NEXT PAGE

FROM PREVIOUS PAGE

professor of psychology at the University of Oregon and President of Decision Research. He wonders whether the biological effect of EMFs is so small that epidemiology is perhaps not capable of detecting it. Further, he notes that while

the experimental evidence fails to convince scientists of the presence or absence of an effect, the proliferation of studies needlessly elevates public concern.

"Even if scientists don't have a mechanism [to explain the effect], lay people do," he finds. Subjects he has

interviewed have volunteered the idea that EMFs exert electrical interference on the body," he said. The lay person reasons that "The body has vitally important electrical signals in the brain and heart; EMFs interfere in much the same way as

SEE RISK ON PAGE 35

Background What Is This Risk All About?

Electric power is transmitted and used in the form of 60Hz* alternating current (AC) in the United States, and 50Hz in Europe. The transmission lines, home wiring, and all electrical appliances generate oscillating magnetic and electric fields, at 60Hz and at whole number multiples of this fundamental frequency. The strength of these fields varies with the current, voltage, and the geometry of the wiring, and decreases with distance from the sources.

Natural Exposure

There are natural sources of electric fields. For example, atmospheric electric fields vary depending on electric charges that develop between clouds and the ground. Such charges can build to the point of lightning discharges associated with thunder storms.

Similarly, the earth itself has a stationary magnetic field of 0.5 Gauss. The alternating magnetic fields generated by home wiring and appliances average 10 milliGauss or less, although field strengths as high as 1 Gauss can be measured very close to some devices.

Electric fields, on the other hand, are measured in terms of volts per meter. The electric fields in homes are often around 5 volts per meter. But if you were standing under a power line, you might be exposed to as much as 10,000 volts per meter. If a person became part of a conducting path under such a power line (i.e., a spark jumped from the wire through the person to the ground) the result would be a rather powerful zap. (The chances of this happening are rather remote, since the power lines are elevated so high off the ground and out of the way of people.) The ubiquitous high-rise high-voltage power lines may carry several 100,000 volts (depending on the length of the line), though neighborhood lines may carry around 7,000 volts. A mere 50-volt electrical source is sufficient to drive enough current through a person to stop one's heart. But recent public and congressional interest in electricity relates not to these familiar dangers of electric shocks (i.e., burns and arrested or disrupted heart electrical activity). Instead, it is the less obvious potential health effects that are the focus.

Weaker Natural Fields

What is at issue, for example, is the fact that tiny and momentary ion currents are induced in the body by electric

power sources. These ion currents are much too small to cause any known damage. Because the electric fields associated with electricity are very easily blocked, most scientific attention is focused on the magnetic fields, which are much more difficult to shield. The net effect caused by the electric fields and oscillating magnetic fields in the body is an induction of small currents. The normal operations of brain, nerve, and muscle also generate ionic electric currents in the body, and these physiological currents are usually about 1,000 times as great as the currents induced by the fields from electrical equipment in the home. Some of these electrical events, particularly in the brain, have regular frequencies. Thus, it is difficult even to posit a theory on how fields from AC power, weaker than the natural fields of the earth and of the body, could harm or interrupt normal cellular or physiological processes.

Ionizing vs. Low Frequency Radiation

But, one obvious unique aspect of the fields from electric power is their characteristic frequencies. Oscillating electromagnetic fields comprise electromagnetic radiation. Because the energy of electromagnetic radiation is packaged in discrete quanta, and the energy per quantum is proportional to the frequency, the most dangerous radiation is of high enough frequency that the energy in a single quantum is powerful enough to break a chemical bond.

However, such ionizing radiation, which can cause cancer by damaging DNA, begins at frequencies of about 10¹⁵Hz (i.e., ultraviolet light, with a frequency of about a million billion per second). The concern with lower frequency radiations, including infrared, microwaves, radio waves, and the so-called extremely low frequencies (ELF) below 300Hz, which are the frequencies at issue here, is that the absorption of large amounts of total energy will cause heating. The standard answer to the question of the safety of ELF has always been that as long as the alternating electromagnetic field is too weak to result in a detectable temperature increase in the body, it is perfectly safe; the total energy transmitted by residential electromagnetic fields is far too little to heat a body detectably.

* "Hz" is an abbreviation of "Hertz," an expression meaning cycles per second.

MISCELLANY

According to APS Member Robert F. Bornstein, men with dependent personalities are more likely to have a significantly higher grade-point average than men with non-dependent personalities. Author of the book, *The Dependent Personality*, Bornstein, a professor at Gettysburg College, completed a 1994 study of the topic of Interpersonal Dependency and Academic Performance, which was published in the *Journal of Personality Disorders*. "Dependent persons are more willing than non-dependent persons to seek help and guidance when confronted with a challenging task," said Bornstein. "They also are highly motivated to please figures of authority and are particularly sensitive to negative evaluations by others."

A recent National Institute on Drug Abuse study indicated that an individual's heredity heavily influences whether that person will have positive or negative sensations after smoking marijuana. The study, conducted by Michael Lyons, Ming Tsuang, and their colleagues at the Harvard Medical School, demonstrated that identical male twins were more likely than non-identical twins to report similar responses to marijuana use, indicating a genetic basis for their sensations, since identical twins share all of their genes, and fraternal twins share about half. According to NIDA Director and APS Member Alan I. Leshner, "the finding that genetic factors contribute to how an individual feels after using marijuana opens new avenues for prevention and treatment research. And it further emphasizes that drug use and addiction are not simply social problems, but are health issues affected by an individual's biological state."

Senators Tom Harkin (D-IA) and Arlen Specter (R-PA) introduced the National Fund for Health Research Act (S. 441) to the Senate Finance Committee in March. The aim of the bill is to improve healthcare quality and reduce costs by establishing a national fund for health research that would significantly expand the national investment in medical research. In the last Congress, Harkin and Sen. Mark Hatfield (R-OR) had introduced similar legislation, which gained broad bipartisan support in both the House and Senate. The senators hope to provide additional resources for health research over and above those provided to the National Institutes of Health in the annual appropriations process. Said Harkin to the Committee: "To finance the fund, health plans would set aside approximately 1 percent of all health premiums and transfer the funds to the Department of the Treasury.... Treasury would then transfer the money to the national fund for health research. Each year under our proposal, amounts within the national fund for health research would automatically be allocated to each of the NIH Institutes and Centers.... The set aside should generate sufficient funds to provide for a nearly 50-percent increase in funding for the NIH." The text of the bill is available at <http://www.aamc.org/adhocgp/>.

NSF Adopts New Merit Review Criteria

The National Science Board (NSB), the governing body of the National Science Foundation (NSF), has approved new criteria for evaluating research grant funding proposals submitted to the NSF (see the January 1997 *Observer* for details). The Board took the action at its March meeting after a public comment period during which draft criteria were published and their merits debated.

NSF received 325 responses from the scientific community. Of these, some 60 percent expressed a "clear opinion," with the majority (56 percent) indicating they believed the revisions were going in the "right direction," and 44 percent indicating they believed the revisions were going in the "wrong direction." Many suggestions are incorporated into guidance that will accompany the new criteria. The NSB approval culminates several months of discussion with the research and education communities and analysis by an NSB task force. This is the first change in NSF merit review criteria since 1981 and will be implemented beginning Oct. 1, 1997.

NSF receives nearly 30,000 new proposals for funding each year, and funds about one-third of them. Funding decisions are made largely through the process of merit review, including expert evaluation by selected peers. More than 170,000 such reviews are completed each year.

The need to reexamine the current criteria was prompted, according to NSF, by changes in NSF programs since 1981, including: a stronger focus on broad educational initiatives, the integration of research and education, and partnered research activities. It was also prompted by the adoption in 1994 of a new NSF strategic plan and an attempt to address the concerns of the science and engineering community. But as NSF Director Neal Lane had indicated, when the draft revision was released in December 1996, "Nothing is broken."

Current procedures ask reviewers to comment on four aspects of a proposal:

- 1 researcher performance competence,
- 2 intrinsic merit of the research,
- 3 utility or relevance of the research, and
- 4 effect on the science and engineering infrastructure.

Under the new criteria, reviewers are asked to answer two questions regarding proposals for funding:

- 1 What is the intellectual merit and quality of the proposed activity? and
- 2 What are the broader impacts of the proposed activity?

Readers can find related documents on NSF's merit review changes (e.g., the March 1997 *Merit Review Task Force Final Report* and the February 1997 *FY 1996 Report on the NSF Merit Review System*) on NSF's world-wide web site at <http://www.nsf.gov/home/special/notices.htm>. ♦

PSYCHONOMIC SOCIETY PUBLICATIONS

Journals in Experimental Psychology: 1997

Psychonomic Bulletin & Review

Editor: Henry L. Roediger III, *Rice University*

This journal provides coverage across a broad spectrum of topics in experimental psychology, including sensation and perception, animal learning and behavior, memory, psycholinguistics, psychobiology and cognitive neuroscience, social cognition, and cognitive development. Most papers published in the journal are devoted to theory, opinion, or review, and brief reports of outstanding experimental work are also published.

Quarterly. \$105, Institutions; \$46, Individuals;
\$24, Students* \$7 postage outside U.S.

Animal Learning & Behavior

Editor: Robert A. Rescorla, *University of Pennsylvania*

Specific topics include classical and operant conditioning, discrete-trial instrumental learning, habituation, exploratory behavior, early experience, social and sexual behavior, imprinting, and territoriality. This journal covers the broad categories of animal learning, motivation, and emotion, as well as comparative animal behavior.

Quarterly. \$97, Institutions; \$44, Individuals;
\$22, Students* \$7 postage outside U.S.

Psychobiology

Editor: Raymond P. Kesner, *University of Utah*

This journal encompasses all of the allied fields of the neurosciences that relate directly, or potentially, to behavior and experience. Experimental, review, and theoretical papers from many disciplines—psychology, biology, pharmacology, anatomy, physiology, electrophysiology, clinical neurophysiology, neuroendocrinology, and autonomic functions—are included.

Quarterly. \$92, Institutions; \$44, Individuals;
\$22, Students* \$7 postage outside U.S.

Behavior Research Methods, Instruments, & Computers

Editor: Robert W. Proctor, *Purdue University*

This journal publishes articles in the areas of methods, techniques, and instrumentation of research in experimental psychology. The journal focuses particularly on the use of computer technology in psychological research. An annual special issue is devoted to this field.

Quarterly. \$125, Institutions; \$55, Individuals;
\$28, Students* \$8 postage outside U.S.

Perception & Psychophysics

Editor: Myron L. Braunstein, *University of California at Irvine*

This journal publishes articles that deal with sensory processes, perception, and psychophysics, especially reports of experimental investigations in these content areas. Articles that are primarily theoretical are also included, as are integrative and evaluative reviews and studies employing either human or animal subjects.

Eight issues. \$180, Institutions; \$79, Individuals;
\$40, Students* \$13 postage outside U.S.

Memory & Cognition

Editor: Geoffrey R. Loftus, *University of Washington*

This journal covers human memory and learning, conceptual processes, psycholinguistics, problem solving, thinking, decision making, and skilled performance, including relevant work in the areas of computer simulation, information processing, mathematical psychology, developmental psychology, and experimental social psychology.

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New Staff at APS . . .

APS Welcomes . . .

Shelley Clay As Receptionist and Membership Assistant

Shelley Clay joined the American Psychological Society in March as the newest addition to the Society's Membership Department. As the receptionist/membership assistant, Shelley's voice will often be the one members hear when calling APS. In addition to addressing members' questions and concerns, Shelley's responsibilities include entering membership data into the APS member database, responding to and sorting incoming membership-related e-mail, and assisting in APS mailings.

Shelley comes to APS from the American Gas Association, where she worked as a data entry/subscription clerk. Born and raised in nearby Alexandria, Virginia, and a graduate of Mt. Vernon High School, she spent a year managing her own daycare business she started with her best

friend. Calling it a "mom-and-pop-type daycare," Shelley said it gave her a good chance to spend time with her three young boys, who are now five years old, two years old, and 11 months old.

Shelley said she is pleased to be a part of the APS team and adds that she is looking forward to meeting members face to face. "I am happy to be a part of APS and I eagerly anticipate the challenges and responsibilities that await me," she said. "I am also looking forward to meeting and helping some of our members in person at the upcoming APS convention."



and . . .

Melanie Weiner As Meetings Manager

Melanie Weiner comes to APS from the B'nai B'rith Youth Organization (BBYO), where she worked for one and a half years in the international office in Washington, DC. While at BBYO Melanie planned all their meetings, including the annual staff conference and the BBYO University program, a staff training program in conjunction with Brandeis University. She updated their summer program guides and was also editor of two newsletters: *Monday Morning* and *The Commish*.



Prior to working at BBYO, Melanie spent one and a half years with Fairfax County Alcohol and Drug Services (ADS). She began with ADS as their payroll clerk and was promoted to work at one of their adolescent outpatient sites where she was the office manager. In this capacity she had direct contact with the adolescent clientele, revised all admission forms, and reorganized the office. She was also responsible for planning a monthly meeting of the advisory board.

Before joining the "9-5" working world, Melanie

worked for clothing retailer Limited Express. She began with Express as a sales associate and within two years she managed her own store. It was here that Melanie learned the art and importance of customer service. Melanie believes, "after working in retail a person can work *anywhere*." Express taught her many skills that she uses in meeting planning such as budgeting, time management, organizing, and always doing things with a smile. It was also here that Melanie first learned that the client (or member) always comes first!

Melanie grew up in Teaneck, New Jersey. She graduated from George Washington University in 1990 with a BA in psychology and a minor in Spanish. During her college years Melanie spent a semester abroad in Nottingham, England. "It was one of the best experiences of my life," she told us. She still has many friends in Great Britain. She also had the opportunity to travel throughout Europe while she studied abroad.

Melanie lives in Washington, DC: "I never left after college." Her latest adventures have included rock climbing and white-water rafting, which she took up with some of her BBYO co-workers. As the Meetings Assistant, Melanie will be in charge of convention registration. She is excited to be one of the newest additions to the staff and looks forward to meeting and welcoming its members to the APS convention in Washington in May.

New Staff at APS ...

Diana Green Joins APS as Deputy Director

Diana B. Green, an association businesswoman from Lawrence, Kansas, joined APS as Deputy Director last month. Green brings to APS more than 20 years of association business experience, including staff supervision, membership promotion, association finances, office site creation, and convention planning. She even has done international association work in Singapore and Bangkok.

"I think Diana is exactly the person who will work with the modest resources we have and get the most out of them," said Alan Kraut, APS Executive Director. "She's a terrific match for us at this time. We've expanded so quickly (and we should continue to expand), but we need to consolidate and strengthen APS's structure. So I'm looking to Diana for solid leadership in this area."

Asked why she feels the match is good, Green responded, "I think the fit between APS and myself is especially good because of my experience working for a small association—with 4,000 members, 11 staff, and \$200,000 in equity—and helping it grow to a large international group of 12,600 members, 70 employees, and a budget of more than \$10 million. I participated in all aspects of that growth."

Green joined the staff of the Golf Course Superintendents Association in 1975 and was promoted to deputy CEO under the title of Senior Director of Operations in 1987, remaining until 1993, when she started her own business. During the years 1987-1993 she managed the construction of an 80,000-square-foot office building for the association and launched its operations in Asia, where golf is still an elitist sport but is beginning to attract players from broader sectors of society.

She set up an international golf conference in Singapore after opening an office in that city for the Superintendents Association. The event, called the Pacific Rim Conference and Show, won the American Society of Association Executives' International Management Achievement Award for 1993.

In 1993, she established her own international management

consulting and event management firm with offices in Lawrence, Kansas; Grosse Pointe Woods, Michigan; and Bangkok. Thailand's most prestigious golf club, Navatane, was managed under contract with her firm. On joining the APS staff, Green sold her interests in the business.

Even over golf, membership marketing ranks as Green's preferred sport. She recalls with excitement in her voice, "The Superintendents Association wasn't promoting membership before I came on staff. Only 20 percent of the profession were members, and this was not enough to be truly representative of the field. We were able to convince the board of directors that even though the association had existed for 50 years, it was time for some changes.



Diana is exactly the person who will work with the modest resources we have and get the most out of them. She's a terrific match for us at this time. We've expanded so quickly (and we should continue to expand), but we need to consolidate and strengthen APS's structure. So I'm looking to Diana for solid leadership in this area.

ALAN KRAUT
EXECUTIVE DIRECTOR
AMERICAN PSYCHOLOGICAL SOCIETY

"So I developed a membership master plan, and the board adopted it. Then I compiled a data base of potential members, obtained lists of all the golf courses in the United States and made a database of those, and established a telemarketing plan to call each golf course and get the name of each superintendent and assistant superintendent. Then we began a targeted direct mail campaign soliciting memberships, and the results were remarkable."

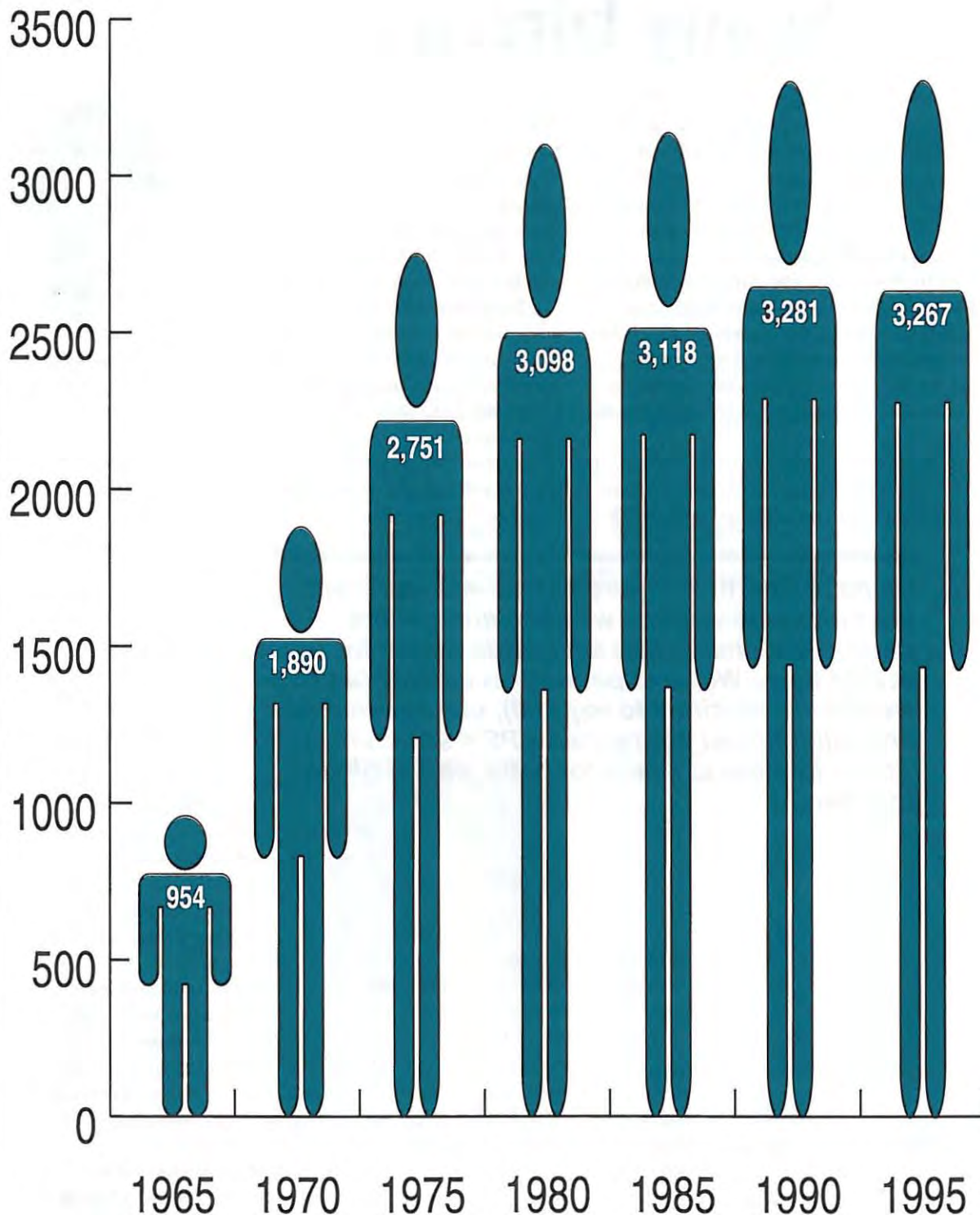
Green received her bachelor of science degree from Kansas State University in Counseling, Community Service and Social Work, an area that included many psychology courses, she notes. She believes this background gave her "a good understanding of people, of what motivates people, and what it takes to get people motivated and interested in an organization."

She is very happy to be back in the association business, she says, because "I like the association business environment and feel that I can make positive contributions to APS."

Psychology Doctorates in Perspective

Psychology Doctorate Recipients for Selected Years, 1965-1995

Data from P.H. Henderson, J.E. Clarke, and M.A. Reynolds. (1996). *Summary Report 1995: Doctorate Recipients from United States Universities*. Washington, DC: National Academy Press



APS Meets in DC in May

From May 23-26, 1997, the world's leading scientific psychologists will meet in Washington, DC, for the Ninth Annual APS Convention. They will convene to discuss major issues and trends in the field, bridging gaps between the subfields of the discipline and making the field of psychology stronger as a whole.

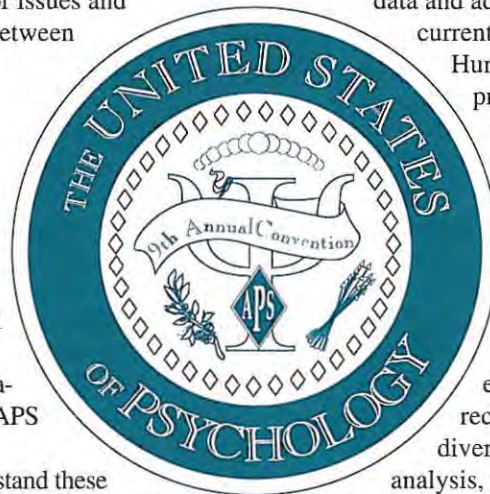
"The issue of psychology's unity and disunity seems particularly timely these days as exciting developments within and outside our discipline create powerful centrifugal forces threatening to pull us apart, and attract significant chunks of our membership to alternative scientific configurations," said APS Convention Program Chair Arie Kruglanski. "Will psychology withstand these winds of change? Do we want it to withstand them? These issues and others will be dealt with at the convention."

The APS Convention program strongly emphasizes

cutting-edge research and features many of the best and most interesting scientific psychologists. Select integrative talks and symposia synthesize data and address important topics in current psychological research.

Hundreds of diverse poster presentations highlight specific research questions and findings.

What makes the 1997 APS convention special is its integrating theme, "The unity of psychological science: Connections and interfaces." This precisely embodies APS's objective to recognize that despite our diverse levels of conceptual analysis, theoretical languages, and empirical methods and techniques, we represent a meaningful and coherent discipline with a set of core problems to resolve.



1997
APS
Convention

1997 Annual Convention Program Highlights

(As of April 1997)

THURSDAY, MAY 22, 1997

- 1-5 PM Registration
- 1-5 PM APS Board Meeting—Day 1

FRIDAY, MAY 23, 1997

- 8 AM-6 PM Registration
- 8:30 AM-NOON APS Board Meeting—Day 2
- 9 AM-4:45 PM 4th Annual APS Institute for the Teaching of Psychology
- 9 AM-4:45 PM Conference on the Biological Basis of Behavior
- 5-6:30 PM Opening Ceremony
- 6:30-7:30 PM Opening Reception

SATURDAY, MAY 24, 1997

- 8 AM-5 PM Registration
- 9 AM-3 PM Concurrent Addresses and Symposia
- 9 AM-5 PM Exhibit Hall & Poster Sessions
- 3-5 PM Presidential Symposium
- 5-6 PM Presidential Symposium Reception
- 8-9 PM Bring-the-Family Address, Sponsored by Psi Chi

SUNDAY, MAY 25, 1997

- 8 AM-5 PM Registration
- 9 AM-4 PM Concurrent Addresses and Symposia
- 9 AM-5 PM Exhibit Hall & Poster Sessions
- 2-3:50 PM APSSC Student Research Competition Symposium
- 4:30-6 PM APS Distinguished Fellows Panel Discussions
- 6-7 PM APS Distinguished Fellows Receptions

MONDAY, MAY 26, 1997

- 8-10 AM Registration
- 9 AM-3 PM Concurrent Addresses and Symposia
- 2:30-3:30 PM APS Business Meeting

WHITE HOUSE FROM PAGE 1

would make the latest scientific research more accessible and understandable to the general public. "Our goal is to take this information and explore how it can be translated into everyday actions and activities involving children," he said.

In the morning session of the conference, the Clintons, Kuhl, and Phillips were joined by experts discussing topics including prenatal services, brain growth and development, child health, and the cognitive, emotional, and social development. The afternoon session was highlighted by discussions of model programs from across the country that are supporting parents and enhancing early childhood development.

"We're excited that so many people will be able to take part in this event," said the First Lady. "We all have a role to play in making sure parents have the tools they need to do the best job they can. We believe this conference can make a valuable contribution."

In addition to her participation in the conference, Kuhl had been personally invited by Mrs. Clinton to join her in a *Today Show* broadcast from the White House to kick off the event.

Eager to Learn

According to Kuhl, chair of the Department of Speech and Hearing Sciences at the University of Washington, infants are born to learn. "One of the most striking characteristics of human beings is their passion for learning," she said in a paper she presented at the conference. "Signs of language learning occur in the first months while the infant is still in the crib."

Additionally, the first sign of language learning that occurs does not involve words or grammar, but the phonetic units of language—the consonants and vowels that make up words. This process, she indicated, may mirror learning at higher levels of language.

"I like to refer to infants as 'Citizens of the world' at birth," she said. "Newborns are ready to acquire any of the world's languages."

Regardless of where on the planet a child is born, it will pass through the same timetable of language development milestones, regardless of the language they learn to speak. This infant "Citizen of the World" becomes what Kuhl refers to as a "Culture-bound Language Specialist" when he or she discovers the specific sound structure used in their particular language.

"American English doesn't use the same set of sound contrasts as Japanese," said Kuhl, who is vice president of the Acoustical Society of America. "Mastery of the sound system of language involves an intricate mapping of the speech infants hear. We previously thought that this mapping began with the learning of words, but recent research confirms the fact that learning begins in the first six months of life." But while this capacity for language learning is vast in infancy, it begins to narrow as the child passes through puberty, indicating that secondary language learning would be more usefully taught at a young age, rather than at the high school/junior high age when foreign language instruction usually begins.

Additional research highlighted by Kuhl includes studies that indicate infants imitate what they see people do and say. "Laboratory studies show that after short periods of listening to simple sounds, very young infants will begin to duplicate the sound patterns they hear," she said. "Speaking to an infant

seems to prompt them to take turns and talk back. Infants thus master the give and take of conversation very early in life."

This emphasizes the important role parents and caregivers have in speaking out loud to infants. "Natural language input to children in normal social context causes language development, and infants like the interaction," she said. "We should acknowledge our role in this, and the central importance of the social context, and take pleasure in the fact that we are causing our children's brains to change and their minds to develop."

Who's Watching the Kids?

According to research funded by the National Institute of Child Health and Human Development, 80 percent of US infants experience some regular nonmaternal child care by the time they reach 12 months, and most of these children experience child care by their fourth month. Recent developments in society, including the growing presence of women in the work force, limited availability of family leave, and welfare reform, indicate that many more children—including infants—spend much of their preschool life in child care settings.

Deborah Phillips, a psychologist at the Institute of Medicine, addressed some of the issues associated with early development and child care. While research on child care has affirmed that placing a baby in child care does not interfere with the mother-infant attachment relationship, she said, the quality of that child care—especially in infant care—can affect the early development of that child.

"The quality of the child care environment significantly affects the cognitive, linguistic, and social development of young children," she said in her conference statement. "We've known this for a while with respect to 3- and 4-year-olds; now we know it about infant and toddler child care.... Young children, including babies, thrive in child care when it is of good enough quality."

That quality, she said, depends on the caregiver: "Children show significantly better cognitive, language, and social development ... when they are cared for by adults who engage with them in frequent, affectionate, responsive interactions—who are attentive, know how to read the baby's signals and respond appropriately."

Touching on what Kuhl said, Phillips noted that "language stimulation appears to be an especially critical aspect of these caregiver-child interactions.... It may be especially true for infants and toddlers who are so utterly dependent on their adult caregivers to meet their needs."

In describing the importance of quality in child care and in achieving this quality, Phillips stressed the importance of small adult-to-child ratios in child care situations; training and education of care givers; and the stability of care givers in terms of staff turnover. "Wages predict turnover—it's that simple—yet we pay child care workers among the lowest wages of any workers in this country," she said.

"Employers, government, and parents themselves all share a responsibility for meeting the needs of America's children for high-quality child care," said Phillips. "Parents need real choices, starting with the choice about when to start using child care—a matter of family leave policy. Parents also must be able to avail themselves of high-quality child care. This requires that parents know what to look for, how to look for it, know what questions to ask, have the time to look for it, and then, equipped with all of this, have real options of high-quality, affordable arrangements to choose among." ♦

People

Recent Promotions, Appointments, Awards...

APS Member **Michael McCloskey**, of Johns Hopkins University, has been named Program Director for Human Cognition and Perception (HCP) in the National Science Foundation's (NSF) Division for Social, Behavioral and Economic Research (SBER). Effective January 27, 1997, McCloskey is on loan from Hopkins to direct SBER's funding of theoretically oriented basic research in normal human cognition and its development. He also will contribute to the development of NSF's new research initiative in Learning and Intelligent Systems, a multidisciplinary approach to studying how learning and intelligent behavior occur in humans, other living creatures, and artificial systems. At Hopkins, McCloskey is Professor and Chair of the Cognitive Science Department, a member of the Mind-Brain Institute, and head of the undergraduate Neuroscience Program. He holds a PhD in cognitive psychology from Princeton University, and has served on the editorial boards of several journals, including *Cognition*; *Journal of Experimental Psychology: Learning, Memory and Cognition*; *Memory & Cognition*; and *Cognitive Neuropsychology*.



McCloskey's temporary assignment at NSF allows former HCP director **Joseph Young** (an APS Charter Member) to fully assume his new position as SBER Information Director. In this position, Young will assess current science policy issues and positions in developing a strategic plan for SBER. He will also assist SBER Director William Butz in keeping abreast of developments in the scientific, professional, and political arenas that affect the social, behavioral and economic sciences.

APS Fellow **Peter Suedfeld** was recently named President-Elect of the Canadian Psychological Association (CPA), which, last fall, bestowed upon him the 1996 Donald O. Hebb Award for Distinguished Contributions to Psychology as a Science. Suedfeld, a professor at the University of British Columbia since 1972, studied at Queens College in New York and received his doctorate from Princeton University in 1963. He served as head of the psychology department at the University of British Columbia from 1972-1984, and Dean of Graduate Studies from 1984-1990. His research focuses on the ability of human beings to cope with



novelty, challenge, stress, and danger. Among environmental psychologists, he is best known for his pioneering research on restricted and extreme environments, including polar sojourners. Research methods include archival analyses of the thinking processes of eminent leaders and artists, laboratory experiments on the effects of restricted stimulation, field research in the Arctic and Antarctic, and interviews with survivors of the Holocaust. The CPA was established in 1940 and currently boasts 28 sections and about 4,000 members.

Charles M. Super, a professor in the Department of Human Development and Family Studies at Pennsylvania State University, has been named dean of the School of Family Studies there. Super's priorities will include promotion of diversity in curriculum, faculty and staff; support of collaborative efforts across the university; integration of theory-driven research with need-driven application; and strengthening of administrative accountability and integrity. Super joined Penn State in 1988 and served as head of the Department of Human Development and Family Studies from 1988-1991.



APS Members **Keith Kluender**, a professor at the University of Wisconsin-Madison, and **Richard Ivry**, of the University of California-Berkeley, have been named as recipients of the National Academy of Science's Troland Research Award. The Award, established by a bequest of Leonard T. Troland, include a sum of \$35,000 given annually to each of the recipients to be used to support their research within the broad spectrum of experimental psychology. Kluender was recognized by the Academy "for his empirical and theoretical contributions to our understanding of the perception of speech." Ivry was commended "for his innovative work with normal humans and neurological patients, showing the importance of the cerebellum for computations related to sensory and motor timing." The awards were presented at an April 28 ceremony in Washington, DC, during the Academy's 134th annual meeting. Past recipients include Joseph E. Steinmetz and Steven G. Yantis (1996), Michael S. Fanselow and Robert Nosofsky (1995), Donald D. Hoffman and David G. Lavond (1994), Steven A. Pinker (1993), Martha Farah (1992), Daniel L. Schacter (1991), Robert Desimone (1990), John T. Cacioppo (1989), Eric I. Knudsen (1988), Laurence T. Maloney and Brian A. Wandell (1987), Roger Ratcliff (1986), Keith D. White (1985), and Edward N. Pugh (1984).



People News Welcomed . . .

The Editor invites submissions of announcements of noteworthy promotions, appointments, etc., for possible publication in the **People** news section of the *Observer*. Send with photo to: *APS Observer*, 1010 Vermont Ave., NW, #1100, Washington, DC 20005-4907; Email: LHerring@APS.Washington.DC.US

Correction

The March 1997 *Observer* description of Michael McCloskey's appointment as Program Director of Human Cognition and Perception at the National Science Foundation contained some errors. The correct announcement is published above.

Teaching Tips

TEACHING TIPS provides the latest in practical advice on the teaching of psychology. TEACHING TIPS is aimed at current and future faculty of two- and four-year colleges and universities.

Complementing the Annual APS Institute on the Teaching of Psychology, TEACHING TIPS will inform teachers about the content, methods, and profession of teaching. Chief editor Baron Perlman and Co-editors Lee McCann and Susan McFadden, all of the University of Wisconsin-Oshkosh, welcome your comments and suggestions.

Send article ideas or draft submissions directly to Barry Perlman, TEACHING TIPS Editor, Dept. of Psychology, Univ. of Wisconsin-Oshkosh, Oshkosh, WI 54901-8601; Tel.: 414-424-2300; Fax: 414-424-7317, Bitnet: PERLMAN@OSHKOSHW; Internet: PERLMAN@VAXA.CIS.UWOSH.EDU

Teaching With Overheads: Low Tech, High Impact

Neil Lutsky
Carleton College

Do you covet thy neighbor's multimedia classroom presentation but lack the expertise to prepare your own? Is your administration unlikely to provide that state-of-the-art LCD (lighted crystal display) system that every *other* teaching psychologist seems to be using to project dynamic 3-D animations from their fancy laptop computer? Well, stop fretting!

In all likelihood, you already possess a powerfully effective technology: the lowly and commonplace overhead projector. While you may suffer anxiety attacks whenever your lecture depends on the performance of a machine that requires a cable, you can still aspire to be the perfect teacher—informative, stimulating, witty, and captivating!

Ready-Made vs. Do-It-Yourself

What can a simple overhead projector do? Most obviously, it can project transparencies from sets accompanying basic textbooks. Some textbook publishers even make overheads available for downloading from the world wide web (e.g., see the Gleitman *Psychology* site, <http://www.wwnorton.com/norton/grip.html>),

and these professionally prepared transparencies are worth using. Colorful and informative, they help students better understand important material. But textbook overheads often only repeat figures from the book, and may not address what an instructor wants to cover in a particular class.

The alternative this column promotes is a highly accessible do-it-yourself approach to transparency construction and use. Any instructor can create compelling and helpful overheads using two or three common machines: a computer, a photocopier, and a transparency maker (which could be a dedicated machine, photocopier, or laser printer). Of course, access to a digital camera, slide and image scanners, multimedia stimuli, multimedia editing and presentation programs, and an LCD panel would be helpful, but none of these resources is necessary to produce the highly effective teaching overheads described below.

Three Reasons to Use Overheads

Why might instructors want to invest even the modest amount of time required to prepare tailored overheads? What might overheads contribute to a classroom presentation? Here are three reasons to add overheads to your teaching.

1. **Attention.** Effective teaching depends, fundamentally, on capturing and channeling students' attention. Overheads can help accomplish that throughout the class period. The moment the instructor puts a transparency on the projector, almost invariably students attend to the overhead and the instructor. Their attention will be brief if the overhead is unreadable or packed too densely with material. Student attention will be more intense if the overhead is engaging. The mere act of placing or changing an overhead on a projector usually interrupts the talk of a teacher, and that alone alerts students and prepares them to be influenced by the contents of an overhead. And you won't lose your students in the dark. Most conventional overhead projectors and some LCD systems for computer and video do not require dimming lights to achieve a visible display. Present a new overhead every five minutes or so and observe the positive effect on students' attention.

2. **Effective communication.** The words, pictures, and graphics constituting overheads can help teachers communicate more effectively. First, overheads accommodate diverse student learning styles, because pictures and graphics may better convey a concept, finding, or model

than an "equivalent" verbal description and because individuals can process words on a screen at their own pace. Second, overheads facilitate and almost demand clarity of expression. Words and other stimuli on an overhead make explicit the overall purpose of a presentation, the structure of an argument, the definition of a concept, the description of a phenomenon, or the procedures and findings of a study.

Overhead presentations that demonstrate phenomena (see "Illustrative Uses" below) represent a particularly effective means to describe psychological effects and to convince students that those effects in fact occur. Moreover, teachers who use overheads model a means of public communication that students themselves are likely to employ in later professional roles.

3. Active learning. Overheads can easily elicit active intellectual involvement in course material. Overheads may explicitly pose questions to students or present stimuli that questions address. For example, an overhead could describe the procedures of a study, and students could be asked to predict the study's results. Or an overhead could help demonstrate a phenomenon, which students could then explain. Overheads could present a quotation from a reading or other source, or a newspaper headline or photo, and students could explain the events or ideas depicted. Such stimuli also serve as a *common* focus for a teacher and students and may help both become less self-conscious and more involved in *shared* problem-solving.

Finally, preparing overheads may promote a teacher's active learning when they require that teacher to identify overarching topical themes, to define terms precisely, to operationalize research procedures for a demonstration, to represent concepts and conceptual relationships visually, or to accomplish any of the other intellectual tasks necessary for overhead preparation.

Preparing Overheads

It is easy and enjoyable to prepare overheads. Simply invest a few minutes

of your time and follow these simple tips:

Start saving raw materials. Cartoons, quotations, newspaper headlines and articles, pictures, caricatures, results sections from noteworthy articles, the detritus of everyday life (ticket stubs, fortune cookie messages, children's drawings) all may serve as elements in overhead preparation. Anything that can be photocopied can be resized by a copier and then cut and pasted on an overhead master.

Harness computing power. Any word-processing program will allow you to type and print out items such as overhead labels, important terms and their definitions, outlines of a lecture or section of a talk, demonstration stimuli, and other verbal content. Use a presentation package to prepare professional-looking slides, a graphics package to portray important research findings, an outlining program to construct a flow chart representing steps in a procedure or conceptual model, a painting program to create or manipulate images or models, an equation typesetting program for quantitative material, or a computerized snapshot program to capture instruction windows on your computer screen. (Those snapshots make your overhead machine into a virtual computer and prove especially useful when teaching students about hardware and software use.)

Make the overhead readable! Use large type (i.e., 1/4-inch in height at a *minimum*—fonts of 24 to 48 points) and a readable font (e.g., the sans serif Helvetica or Swiss fonts). Remember that **FEWER WORDS = BIGGER TYPE**.

The more concise your wording, the larger the type size you can use. Similarly, cartoons with short, direct captions (or none at all) will work much better than those with long captions, no matter how humorous the lengthy captions might seem. And don't forget to give viewers ample time to scan each overhead. For additional reinforcement of these points, see Estes (1993). And don't forget to give viewers ample time to read each overhead.

Keep it simple. Do not represent more than a single concept on each

overhead. Keep overheads visually simple with ample white space around the focal pictorial or verbal elements. Busy and complicated overheads can overwhelm viewers. It is best to use layered or consecutive overheads to present more complicated or structured content.

Add some color. Color may be original to an overhead source (and captured by a color photocopier) or added to a black and white overhead by attaching transparent colored plastic wrapping paper or commercially available color adhesives to the underside of a transparency.

Direct viewers' attention. Highlight or organize material using a pointer placed on an overhead or an overhead pen with colored washable inks. Keep in mind that viewers will naturally gravitate toward the upper left segment of an overhead; orient diagrams in light of that and don't place your focal element in the dead center of overhead plane. Use overhead masks (see the following tip).

Create suspense. Use opaque masks to progressively and selectively unveil the content of an overhead to induce audience anticipation and control attention. Trimmed manila file folders can serve as effective masks, and their translucency permits you to see the entire transparency even though viewers cannot. Portions of an overhead can be masked by PostIt™ notes or by smaller manila masks with PostIt™ Glue Stick applied to one edge of the mask.

Illustrative Uses

One of the pleasures of working with overheads is that their production and use offers a rich venue for teacher creativity. What follows briefly identifies common applications of this basic technology.

Create dynamic demonstrations. Overheads can contribute to compelling demonstrations of basic psychological phenomena (so much so that introductory texts often provide

CONTINUED ON NEXT PAGE

Letters to the Editor

Dear Editor:

I appreciated Michael Wertheimer's recent TEACHING TIPS article on integrating history into the teaching of all psychology courses (March 1997 *Observer*). I would just like to alert teachers to a wonderful text not mentioned in Wertheimer's list of further readings that is a valuable tool for anyone wishing to

include psychology's scientific history into their courses in an accessible and engaging way. The reference is Roger R. Hock's 1995 book titled *Forty studies that changed psychology: Explorations into the history of psychological research* (published by Prentice Hall).

MARY BRYDON-MILLER
NEW ENGLAND COLLEGE

FROM PREVIOUS PAGE

transparencies specifically for demonstration purposes). For example, it is simple to overlay duplicate overheads of an image designed to illustrate the relationship of perceived size and distance and then to move the top overhead to demonstrate the difference or equality of actual image sizes.

Even illusions of visual motion can be created on an overhead. Cowan (1974) describes how the phi phenomenon, for example, can be demonstrated by moving a vertical window back and forth to expose light coming from two small holes in a manila or other mask sitting on the projector. And Reed and Pusateri (1996) review uses of overheads and masks to simulate a tachistoscope or memory drum, or to present stimuli for reaction time and other cognitive studies.

Apply psychology broadly.

Overheads can help convince students that psychological principles and findings have larger applicability in the "real" world. Newspaper stories, quotations from literature, cartoons, and even letters in advice columns can all be used as grist for a budding psychologist's intellectual mill. Ask students to apply a theory or finding to the events described or to contrast what a particular psychological perspective might suggest to the account or response given in the overhead stimulus. Often we share personal or other stories with students to serve this same purpose. Why not enrich that storytelling with an overhead of materials associated with the events described?

Enhance lecture organization and appeal. Teaching remains an activity in

which we primarily talk to and with our students, but overheads can enhance that interaction. Use overheads to organize a talk by presenting an agenda, guiding questions, or basic themes and points at the beginning of a class session. Return to those overheads at the end of class for review purposes and to show students what they have learned over the class period. Use overheads to highlight important names and terms (and their correct spellings), definitions and formulae, major theoretical claims and empirical findings, and elements of a structured argument.

Let overheads help create a positive classroom climate. Cartoons, in particular, may enliven a talk and add those dashes of humor that may not come naturally to your speaking style. Remember, although students may not always recognize what it takes to prepare a class presentation, they will notice and appreciate the concrete visual evidence your overheads provide of your investment in teaching.

Promote focused discussions.

Orient discussions around readings and course content by posing questions about important text quotations or findings presented on an overhead. Compile lists of student ideas, responses, and questions on a blank overhead. Ask students to work in small groups to create their own overheads, which could then be shared with the class as a whole. For example, groups could sketch out a model of a psychological process, generate a research proposal to investigate some issue, identify and clarify confusing concepts or topics, or summarize the central points of

an argument or claim. The entire class could then compare and contrast, critique, and address the materials presented by these groups.

So stop using that overhead projector as a coat rack! Flip that switch (but bring an extra bulb) and use the projector to inform your audience, energize your talk, demonstrate your claims, set a positive tone in class, compensate for some of your shortcomings as a teacher, and, most of all, aid your students' learning of psychology.

Recommended Readings and Resources

- Cowan, T.M. (1974). Creating illusions of movement by an overhead projector. *Teaching of Psychology*, Vol. 1, pp. 80-82.
- Davis, B.G. (1993). *Tools for Teaching*. San Francisco: Jossey-Bass.
- Estes, W.K. (1993). How to present visual information: What will we see in Chicago? *APS Observer*, Vol. 10, No. 2 (March), pp. 6-9.
- Gribas, C., Sykes, L., & Dorochoff, N. (1996). Creating great overheads with computers. *College Teaching*, Vol. 44, pp. 66-68.
- Head, J.T. (1992). New directions in presentation graphics: Impact on teaching and learning. *New Directions for Teaching and Learning*, Vol. 51, pp. 17-31.
- Reed, S.K., & Pusateri, T.P. (1996). *Instructor's manual for Reed's Cognition: Theory and applications* (4th ed.). Pacific Grove, CA: Brooks/Cole.
- Tufte, E.R. (1990). *Envisioning information*. Cheshire, CT: Graphics Press.

Neil Lutsky is Professor of Psychology at Carleton College in Northfield, Minnesota. He received a BS degree in economics from the University of Pennsylvania and his PhD in social psychology from Harvard University. He currently serves as a Consulting Editor of the journal *Teaching of Psychology* and chairs the Long Range Planning Task Force of the Society for the Teaching of Psychology. He can be reached via e-mail at nlutsky@carleton.edu.

Teaching Tips

Book Review



Science Teaching Reconsidered: A Handbook

Baron Perlman, Lee McCann, Susan McFadden
University of Wisconsin-Oshkosh

If you choose to read only one book this year, consider this useful handbook, published by the National Academy of Sciences (NAS). The best practical guide to teaching science these reviewers have ever read, *Science Teaching Reconsidered: A Handbook* is authored by NAS's Committee on Undergraduate Science Education.* It emphasizes ways to enhance students' learning of science, presents a multitude of successful teaching practices, and encourages the reader to integrate creativity, imagination, and innovation.

The guide will be true to its intended purpose, which is to help new faculty and graduate teaching assistants, and it will be useful to "anyone interested in teaching undergraduate science, whether it be in a research university, liberal arts college, or community college."

Handbook Highlights

Chapter 1, *How Teachers Teach: General Principles*, emphasizes the simple but often forgotten notion that teaching is not successful unless someone else has learned. Students in science should not merely learn content, but they must participate in the process of moving from their initial state of knowledge and understanding to at least the level desired by the instructor. This chapter supports the conclusion that many students switch from undergraduate science majors, not because of the complexities of the field, but

Our colleges and universities will graduate approximately two million students next year, only about 15% of whom will receive bachelor's degrees in science or engineering. All the rest will become the citizens who determine—by their understanding and appreciation for the nature and values of science—both the vitality of our nation and the future of our scientific enterprise.

SCIENCE TEACHING RECONSIDERED:
A HANDBOOK

because of poor teaching.

Is the primary goal of a course for each student to gain specific information, or for each student to master how to organize and apply new information independently to new situations?

The answer to this fundamental question depends on the course being taught, students' science backgrounds, and the instructor's values and goals. The issue is balance: emphasizing specific content information as compared to critical thinking and the process of doing science. Because science curricula are vertically structured, a base of factual knowledge is imperative before students take more advanced courses. On the other hand, in teaching general education courses to the non-major, additional emphasis may be placed on "the essence of what science is and the nature of the scientific enterprise."

In either case, both goals should be kept in mind when

designing a class—the next step once the course's primary goal has been decided. Three fundamental guidelines recommended for course design are: (1) being aware of the students' prior knowledge and taking it into account, (2) identifying the major and minor concepts and the connections between different concepts, and (3) relating new information to a context the

student understands.

The first chapter also urges integrating active learning into science courses whenever possible. Research on science education concludes that "students learn best if they are engaged in active learning, if they are forced to deal with observations and concepts before terms and facts." The handbook addresses supporting such active learning within the financial and time constraints of a *real* course.

* Committee on Undergraduate Science Education. (1997). *Science Teaching Reconsidered: A Handbook*. National Academy Press, 2101 Constitution Ave., NW, Washington, DC 20055. Call toll-free: 1-800-624-6242. Available on-line at <http://www.nap.edu>.

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APS Members In the News . . .

The news media in recent weeks has featured interviews with, or mentioned, several APS members on various research-related topics. The members are listed here along with their affiliation, the name of the publication/broadcast in which they were quoted/mentioned, and a brief description of the topic. The list is merely a sampling of the media coverage of members.

The *Observer* editor welcomes readers to submit such news item summaries for publication in future issues of this column. Send a copy of the original published story. Or, in the case of TV/radio broadcasts, send a description of the program, broadcast station name and city, interviewee and his/her affiliation, and date of the broadcast.

Hal R. Arkes, Ohio Univ., *Science*, Jan. 24, 1997: Eliciting probability judgments

Richard C. Atkinson, Univ. of California, *The New York Times*, Mar. 7, 1997: Appointments of new chancellors to two University of California campuses

Linda Bartoshuk, Yale Univ., *The Washington Post*, Feb. 18, 1997: Genetic differences in taste

Jay Belsky, Pennsylvania State Univ., *The Washington Post*, Feb. 5, 1997: Children's peer groups

Garrett L. Berman, Roger Williams Univ., *The Philadelphia Inquirer*, Feb. 23, 1997: Deliberations in the John E. DuPont trial

Bennett Bertenthal, National Science Foundation, *Science*, Feb. 14, 1997: NSF program encouraging universities to broaden the training of graduate students

Frances Brennan, Wilkes Univ., *Allure*, Mar. 1997: Music and immune system health

Patricia A. Carpenter, Carnegie Mellon Univ., *Science*, Feb. 14, 1997: Brain activation and sentence comprehension; *Science*, Mar. 14, 1997: Working memory and language comprehension

Stephen Ceci, Cornell Univ., *The Economist*, Jan. 18, 1997: Reliability of a child's memory versus an adult's; *The Chronicle of Higher Education*, Mar. 14, 1997: Teacher enthusiasm and the reliability of student evaluations

Joan C. Chrisler, Connecticut College, *Woman's Day*, Mar. 31, 1997: Irritability

Michael Coles, Univ. of Illinois, *Science*, Jan. 10, 1997: Neurons and reaction times

Paul T. Costa, Jr., National Institute on Aging, *The Washington Post*, Feb. 10, 1997: Memory and changes in the brain associated with age

Keith Davis, Univ. of South Carolina, *Parade*, Feb. 16, 1997: Suddenly ending a friendship

Paul Ekman, Univ. of California-San Francisco, *The Chronicle of Higher Education*, Mar. 14, 1997: Ability to tell when someone is lying or telling the truth

Joseph R. Ferrari, DePaul Univ., *The Testifying Expert*, Mar. 1997: Effective time management; *Discover*, May 1997: Antecedents and consequences of chronic procrastination

John Gabrieli, Stanford Univ., *Science*, Mar. 14, 1997: Reasoning and working memory abilities

Howard Gardner, Harvard Univ., *Science*, Feb. 28, 1997: Relying on different emotional cues in making decisions; *Science*, Mar. 14, 1997: Cognitive science

Allan Geliebter, St. Luke's-Roosevelt Hospital (NY), *The Sunday Capital* (Annapolis, MD), Mar. 18, 1997: Relationship between obesity and consumption of majority of daily calories at night; *Fitness*, Mar. 1997: Overeating at night and stomach expansion

Diane Halpern, California State Univ.-San Bernardino, *The Chronicle of Higher Education*, Mar. 14, 1997: Students' conceptual understanding versus their professors' conceptual understanding

Seppo E. Iso-Ahola, Univ. of Maryland, *The Oregonian*, Mar. 2, 1997: Sports fan behavior

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cal ideas that related to representative realism: the recognition that the world we encounter in everyday life is not the physical world itself but an amazingly good representation of the world that bears such correspondence with the physical world that we can act upon these representations as if they *were* the physical world," said Loomis. "Most people live out their entire lives without even realizing this, but I think it is absolutely fundamental in understanding a lot of what is going on—especially now in connection with virtual environments. So this has always been a major point with me and provides a lot of the underlying motivation for the kinds of things I do."

Playing the Field

McBeath, who admits his outfielding "peaked in Little League," addressed "The Navigational Principles Used by Baseball Players," and described the physics of baseball trajectories and the optical strategies used by players to navigate toward and intercept balls traveling through the air.

"I have been interested in the problem of how players catch baseballs from the perspective that so many amateurs can do with relative ease. We tend to make more errors [than professionally trained players], but people are pretty good about getting near where the ball is going to land without an awful lot of practice. So it seemed like a task that was interesting and that maybe we have some natural predisposition to do."

While many physicists have looked at this phenomenon from a mathematical perspective, McBeath, related baseball tracking behavior to vehicular, nautical, and ballistic tracking algorithms that utilize perceptually invariant properties.

"We might figure out things like trajectory and ball angles computationally, and in that case you would expect a good engineering-type of person to be able to solve these problems better than a natural athlete, though, in reality, that is not" how humans operate, he said. "It is interesting that when we locomote around the world, we have a really accurate internal representation of space and motion and that it serves us well—particularly for near viewing. What is intriguing is that when we move around, even though our optical view is changing quite a bit, it doesn't seem like the world is changing."

McBeath explained that humans seem to rely on a kind of world coordinate-based internal representation of space and that some scientists speculate that when we are trying to determine something like the trajectory of a ball, we actually have a representation of where the ball is in space. "It feels like that when you are in the outfield. And yet, we really don't have the optical information to tell us what is going on" to the level of detail required, he said.

Frames of Reference

Dennis Proffitt, an APS Member at the University of Virginia, analyzed spatial orientation/navigation from the perspective of separating the frame of reference for perceiving objects from the frame of reference for acting within the environment (i.e., moving about).

Proffitt said that reference frames provide a locational structure within which the spatial position of objects and events

is specified. Proffitt and colleagues Maryjane Wraga and Sarah Creem have developed a hierarchical organization of reference systems based on their experiments, which incrementally increase the availability of spatial referent information to the subject. Within this structure, Proffitt defined gravitational, egocentric, environment-relative and object-centered reference frames. One way to elucidate differences between these two spatial frames is to relate them to distinctions in visual processing, he added. Researchers M. Goodale and A.D. Milner had defined the functions of environment-relative vs. object-centered spatial frames of reference relative to two visual systems: one subserving visually guided action and the other subserving object recognition and identification. Proffitt reviewed neurophysiological evidence revealing brain-related underpinnings of these spatial referent systems, and he clarified the role of spatial frames relative to the two functionally and anatomically distinct visual pathways.

"What motivated us to clarify this were two things," he said. First, Proffitt noted, the literature contains a lot of misleading uses of terms. "What you see frequently in the literature is that scientists make a distinction between egocentric and allocentric as a basic" defining characteristic of spatial frames. "Plus, most allo- (i.e., environmental) reference frames don't have a center at all, so, to call them centric is very misleading," he said. "Second, we and others are beginning to look at the capabilities of immersive technologies such as virtual technology, and this allows for representations of egocentric reference frames that simply haven't been available in workstation types of environments. We want to look at what kinds of paths are best afforded by immersive technologies as opposed to a workstation. This often seems to break down into what are the preferred frames of reference."

Next Forum Series

The next Kent Forum series will look at understanding the contextual influences on child development, with individual forums being planned on the associations between peer and family relationships; African-American children in context; and Latino children and families in the United States.

Each year's forum culminates as a book with a chapter provided by each invited speaker. The forum organizer serves as editor of the book and as an assistant editor on the books resulting from the other forums in that particular series. The book on this year's forum will be published by Sage Publications early next year. **E.R.**

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COMPETITION FROM PAGE 2

other enterprise, is guided by the values and perspectives of the investigators. Science is protected by multiple, competing values and perspectives. A few examples from my experience of politically correct monopolies of the research agenda include:

- ◆ Victimization theory—the idea that disadvantaged members of society are oppressed and cannot be held responsible for improving their lives—is orthodoxy in contemporary social sciences, although rejected by the vast majority of American voters and policymakers. Research on potential benefits of personal responsibility, self-help, and employment is not encouraged.

- ◆ The documented role of substance abuse in high rates of infant mortality and premature births among African-Americans is ignored. Research on equally poor Latinos shows good delivery outcomes, no different from those of more affluent whites. But advocates call for income supplementation and more access to prenatal care rather than mandatory drug rehabilitation.

- ◆ Head Start, as it is currently implemented, does not prevent school failure, close the gap in reading or math scores, or improve adult achievements, but researchers recommend expanding it, starting earlier, and extending it into primary school. Competing programs, such as vouchers for parental choice of preschool, are not suggested as alternatives.

- ◆ A darling variable of the 1970s, father absence, was eclipsed by “alternative family forms” when feminists decided fathers should not be given special status. Fathers became generic parents. Research on child care in the early years produced no bad effects. With the majority of middle-class mothers in the labor force, a rear-guard action, supported by widely held cultural ideology, is still being fought for the touted benefits of care provided exclusively by mothers. My prediction for the next PC ideology: children will be said to be deprived of child care experience, if they do not attend preschools. Exclusive mother care in the preschool years will be seen as developmentally suspect.

- ◆ Racial segregation may yet be construed to support ethnic pride, if

enough politically correct spokespersons can be found. There are surely many other examples of biased research agendas in other areas of psychological science.

Political correctness is the enemy of intellectual honesty and productive scientific discourse. Research funding agencies and investigators know in advance what outcomes are politically acceptable. Temptations to explain away and suppress results abound. The current theoretical orthodoxy, whatever it is, needs to be challenged from many directions—openly and with everyone’s support for a diversity of perspectives. A free marketplace of ideas is the best protection for the integrity and productivity of psychological science. ◆

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SPEERS FROM PAGE 8

ested and motivated—coupled with giving them the knowledge that they need—often can lead to the implementation of a policy that changes the environment. Some of it depends on what condition you are dealing with as to what set of strategies should be used.

What is a population-based strategy?

It's a strategy that will have an impact on a group of people as opposed to an individual. Mass media campaigns are a population-based strategy as compared to, say, patient education activities, which tends to be one-on-one instruction or one teacher with 20 patients.

Another example of attempting to make system-wide changes would be getting insurance companies to cover certain types of clinical preventive services. For example, if we wanted to increase the use of mammography, one of our intervention strategies would be to work with states to have them pass laws requiring insurance companies to pay for mammograms, because if mammograms are paid for, and the cost is not a burden, utilization will increase.

System-wide changes seem to work particularly well when you are talking about the healthcare profession, and it's a good way to change healthcare provider behavior.

You can change an environment, educate people and give them knowledge, but ... people have to have the skills to carry through with the desired behavior. There probably isn't a person in this country 12 years or older who doesn't know how one gets infected with HIV. However, to understand what unsafe sex is and to know how to actually practice safe sex are two different things.

MARJORIE SPEERS
CENTERS FOR DISEASE CONTROL AND PREVENTION

What about individual-oriented efforts?

The main type of intervention strategy we undertake is to build skills. You can change an environment, educate people and give them knowledge, but we find increasingly that people have to have the skills to carry through with the desired behavior. There probably isn't a person in this country 12 years or older who doesn't know how one gets infected with HIV. However, to understand what unsafe sex is and to know how to *actually practice* safe sex are two different things. For example, you have to learn the skill of deciding whether to be sexually active and the responsibilities that go along with that. And so we undertake a number of strategies, like peer counseling programs, to build the necessary skills.

Why did [CDC Director] Satcher decide to create the behavioral office and your position?

I would express it in terms of his seeing the importance of behavior and the importance of community-based programs and also his knowing that we needed to add a focus on the behavioral and social sciences. For a long time, public health has basically operated from a model that if we give people information, if they have knowledge, then that will be sufficient to bring about behavior change. And, for a long time, what we saw in public

health were health education efforts simply aimed at educating people. But those weren't successful. We know from the psychological literature that there is a fairly low correlation between level of knowledge and behavior. We need to focus on giving people the necessary skills to successfully execute the behavior. Sexual behavior is an excellent model. The approach is to create a supportive environment with the knowledge and skills to change one's behavior. When we start to approach health problems as behavioral in nature, then we ask different questions, like what would motivate that behavior?

How would you summarize CDC's investment in behavioral and social sciences in its arsenal against disease, illness, and injury?

To summarize, no matter what disease you look at, no matter what risk factor you look at, there is a behavioral component to it. That's not to suggest that there's *only* a behavioral component, but it's there. It's important enough that it needs to be acknowledged, particularly for diseases where we've done a


fairly good job of controlling them in the general population and we see now pockets, places where there are high rates of incidence. In those cases, we need to go beyond what we've done traditionally and look at some of these other factors (e.g., cultural factors, social factors, and the behavioral patterns)

With a behavioral component in every

disease and risk factor, the sciences we use to study the conditions and the sciences we use to design interventions have to include the behavioral and social sciences. No longer can we simply rely solely on the laboratory sciences or epidemiology; we need to use laboratory, epidemiological, behavioral and social sciences. It's really the combination of using all those sciences and all the knowledge that we can bring to bear on this that's going to allow us to promote health. ♦

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RISK FROM PAGE 17

an electric motor interferes with a nearby TV or radio," explained Slovic. "Having such a theory enables people to assimilate any positive findings and makes the findings seem credible and consistent. Scientists, without such a theory, are suspicious of positive results and believe that it is necessary to keep doing further studies, searching for a definitive answer that never seems to occur. Thus, the scientific studies seem better able to frighten the public than to reduce scientific uncertainties."

One of the problems all the researchers in the EMF field agree on is that they don't know exactly which parameters of the fields are relevant; this fact contributes greatly to the inconclusive nature of the results. Although discussion tends to center on the strength of oscillating fields arising from continuously operating equipment, many people believe that some aspect of the "transients" is more relevant. Transients are the momentary spikes and hiccups caused by switching things on and off. Not only do these often entail stronger EMFs than continuous operation, but also they include a complex mix of signals at much higher frequencies. With so many variables involved, it may not be surprising that no one has been able to find one that correlates strongly with the biological effects being investigated.

Slovic wishes that the researchers would worry more about the impact of all of their studies on public anxiety; they might avoid doing studies that might likely produce false positive results. Yet, this would mean demanding big and expensive studies or none at all, and he says in the next breath that you can't censor science in such a way. How to deal with the public concern, then? Slovic says the standard procedure of risk assessment by a panel of scientists is not a good way to satisfy the public that their concerns are being addressed. The way to do that, he says, is to democratize the process of risk assessment and risk management. "We need better informa-

tion, education and communication on all sides of the issue; especially concerning the strengths and the limitations of the studies being done."

Public Policy

Is there an imbalance between the real risk and the level of public concern? Carnegie Mellon psychologist Baruch Fishhoff does not think so: "For many technical people who follow this issue, there is still a shadow of doubt. Why should the public lose all interest in the topic, while the scientific community is still sorting things out and the stakes are

We need better information, education and communication on all sides of the issue; especially concerning the strengths and the limitations of the studies being done.

PAUL SLOVIC
UNIVERSITY OF OREGON

potentially very high? It's not as though people are disconnecting their electricity or toppling transmission lines. It's easy to criticize the public for being hysterical about risks, especially when they are getting in one's way. However, all the public has to go on for these technical issues is what they see. In the case of EMF, the communication has left something to be desired."

There has been poor communication, with unbalanced statements emanating from all sides of the argument, claimed Fishhoff, who has a joint appointment in Engineering and Public Policy, and Social and Decision Sciences. And, when this happens, people have reason to question the legitimacy of the process, Fishhoff believes. On one side, some were guilty of making unsubstantiated leaps from "biological effects" to "adverse health effects," and on the other side, "well-credentialed physicists dismissed the problem by saying that health effects were absolutely impossible because fields don't have the energy to disrupt atomic bonds, while the biological story had to do with other sorts of regulatory mechanisms," said Fishhoff.

"You pay the price if you don't handle the issue well. As I understand the science, if there is some sort of immune system disruption, then EMFs could have risks that are both socially unacceptable and undetectable." With respect to keeping the public informed about EMF-related health research, Fishhoff maintains that "When a new issues show up on the horizon, which someone reputable seems worried about, it is natural for people to get concerned. However, if you level with them, and you feel they can trust you, then most people should get to an appropriate level of concern."

Meanwhile, the Department of Energy (DoE) has recently announced it is getting out of the business of funding EMF-related health research. Some projects DoE had jointly funded with the National Institute of Environmental Health Sciences (NIEHS) will have to be assumed entirely by NIEHS, if they are to be continued at all.

This fact does not mesh well with the NRC report's recommendation for further research, to answer some of the many questions that remain in the field. The problem seems to be that there is no clear direction for the research to take.

Paul M. Rowe

Paul Rowe is a free-lance science writer based in Washington, DC.

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Florida Atlantic University

Electrophysiological (Event-Related Potential) Evidence of Cognitive Change in HIV Infected Children

Otto MacLian

University of Nevada-Reno

The Effects of Adaptation on the Ability to Recognize Faces

Lesley Teitelbaum

Syracuse University and Syracuse Veterans Administration Medical Center

The Validity of the MAST in Psychiatric Settings: A Meta-Analytic Integration

Wei Huang

West Virginia University

Reasoning About Conventional Time as a Function of Conventional Time Systems

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King College

Time Tagged Cue Words Flatten the Second Peak of Autobiographical Memory

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REVIEW FROM PAGE 29

Lean on Learning

Chapter 2 and subsequent chapters provide specific suggestions and examples of increasing student learning in our science courses. One wants to

teach scientific ways of thinking, actively involve students in their own learning, help students to develop a conceptual framework as well as to develop problem-solving skills, promote student discussion and group activities, help students experience science in varied, interesting, and enjoyable ways, and assess student understanding at frequent intervals throughout the learning process.

These chapters offer practical advice about lecturing, asking effective questions, teaching a large class, using demonstrations, and engaging students in discussions.

The suggestions for developing a successful laboratory experience for

students are especially helpful, given the historically low ratings given by students to lab sections. The authors highlight the long-needed improvement of labs but stress the importance of committing significant amounts of

time and energy in designing and implementing labs. Without a database of what it takes to ensure a successful lab, the authors warn the aspiring innovator with the sobering question "Are you prepared to go through all of this and still get mediocre student evaluations?"

Teaching and Learning

Chapter 3 links teaching with learning and acknowledges the failure felt when some students do not learn basic concepts of science. A section titled *Scientific Research as a Teaching and Learning Model* addresses making better use of traditional formats to help students gain knowledge

and understanding. Advice covers engaging students, establishing a context for scientific exploration, proposing explanations, and using reading and writing to enhance understanding. For example, the *Pair Problem Solving Technique* in which "one student of the pair attempts to solve a problem while the other listens and tries to clarify what is being said," helps students learn to apply difficult concepts, and become aware of their thought processes and errors in reasoning.

Chapter 4 discusses the problems that students' preexisting misconceptions about science cause for students and teachers. The suggestions given help identify and begin to correct the types of misconceptions your students have about psychology or scientific methodology in general.

Evaluating Teaching and Learning

Frequent feedback on what your students are learning lets you know if your teaching is meeting the goals you have set, and gives you an opportunity to revise your approach and improve teaching during the semester. Determining what students know in order to assign them grades is only one small part of this more complete assessment. A more thorough approach to assessment enables you to

teach so that fewer students are lost to the discipline, or to the specific course content.

The same emphasis on student learning appears in chapters on tests and grading, and choosing and using instructional resources, from texts to the Internet. Knowing one's students on a personal level is emphasized to help raise their confidence about studying science and lower mathematics anxiety. The appendices provide a helpful list of organizations offering information, as well as names of journals that address science education.

The *Handbook* is a concise, clear, insightful, helpful, and stimulating guide. ♦

Effective science instruction is an art involving creativity, imagination, and innovation, along with planning, practice, decision making, and evaluation. Teaching is a scholarly activity, benefiting from research, collective experience, and critical thinking throughout.

SCIENCE TEACHING RECONSIDERED:
A HANDBOOK

ADLER FROM PAGE 13

tion headed by Judith Rodin. In preparation for the present study Adler convened an interdisciplinary group "to see if we could come up with a biobehavioral battery that will predict who will stay well and who will fall ill."

Leonard Syme, a well-known social epidemiologist, opened that meeting by saying, "You just need to ask one question: What is your social class?" He presented data from the classic Whitehall studies from University College, London, that showed a gradient within each class of British civil servants. Starting from the top, at each lower notch downward in the Civil Service, where all employees had access to the National Health service, there was more cardiovascular disease, more diabetes and other illnesses, and greater mortality over a 10-year period.

When Adler asked Syme "What explains this?", he replied, "I don't know." That, Adler says, was what launched the whole new approach to investigate the mechanisms that underlie the SES-health gradient.

"There seems to be something about social ordering—about being higher or lower on the social hierarchy—that affects health status," Adler says. You see it no matter what indicator of SES you use—whether it's income, occupation, or education."

"You might see it as relative deprivation—it could be psychological. It could also be hard-wired. That's why we've held a meeting on animal models," said Adler, because animals on the low end of their hierarchy also display worse health than higher-ranked animals."

Working Groups

At present, the research network has organized itself into three working groups in different domains. One group is focusing on the social environment, that is, on how to characterize the health effects of SES-related differences in work environments and in the communities and neighborhoods in which people live.

A second working group is focusing on psychosocial factors that are associated with SES and that also predict health problems. This working group is developing a battery of measures including some

of the "usual suspects," Adler says—for example, hostility, which is linked to low SES and is also a risk factor for cardiovascular disease—and anxiety, depression, low levels of self-efficacy, and other psychological variables that look backward toward the social environment and also forward to health effects. They are also developing new measures of psychological factors that may mediate the impact of SES on health.

The third working group is trying to validate an allostatic load measure developed and pioneered by some of its core members. (Allostasis is defined as the regulation of body functions within a set operating range.) There is a cumulative biological toll of adverse effects or "wear and tear" on the body and brain (e.g., to the hypothalamo-pituitary-adrenocortical axis, and metabolic and immune systems) that results from heavy demands on the physiological systems of individuals who are subjected to repeated adaptation to environmental challenges. Such chronic challenges often characterize poorer neighborhoods.

Some daunting challenges also face the research network. Adler says, "One of the big challenges is how to jump levels of analysis from the socioeconomic and social levels to the individual level. We need to understand what there is about the social environment that gets translated into individual psychological factors, and to be sophisticated enough to figure out the biology, and understand what really makes a difference. We can wax rhapsodic about different psychological factors; but then we have to think hard about" the physiological mechanism that spawns an adverse effect on health. "One of our big challenges has been that there are not very good measures of health—we have good measures of disease, but don't have good measures of health."

Real-world Problems

At the end of the day, Adler says, "What I like about what I'm doing is that I feel I'm equally balanced in my excitement about wanting to test theory and my excitement in dealing with real-world problems."

But, in fact, her day does not end with the SES-health network nor her lead

role in the reorganization of the UCSF health faculty into an interdisciplinary team under one roof.

A third major project on Adler's plate is her own core studies concerned with teenagers' decision making about safe or unprotected sex or no sex relations at all, which is a health area attracting more and more attention. She played an important role in the 1996 Institute of Medicine (IOM) report, *The Hidden Epidemic: Confronting Sexually Transmitted Diseases*, for which she served as a committee member, having been an IOM member since 1994. The report has become something of a best seller, as IOM reports go.

Adler sees some fairly clear connections between her graduate studies at Harvard University in the early 1970s and the large projects she directs today, give or take some serendipity along the way. At Harvard, Adler's dissertation advisor was Herbert Kelman, who had an interesting theoretical model about reactions to discrepant actions, she explained. Adler tested this model with women's post-abortion responses in a counseling service. Abortion qualified, in Adler's mind, as a real-life situation in which women were taking a discrepant action that should induce cognitive dissonance. At the time, however, Kelman was also working on solutions to international conflicts like those in the Middle East, Adler says.

"By comparison with his work, mine actually looks very simple," she says. **D.K.**

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Organizational Profile

Society for Chaos Theory in Psychology and the Life Sciences

Origins and Purpose

The Society for Chaos Theory in Psychology and the Life Sciences was organized in San Francisco, in 1991 by a group of psychologists interested in exploring the use of the newly emerging study of chaos to problems in psychology. The Society's bylaws and executive office were officially established at Orillia, Canada, in 1993. The mandate of the Society is to foster an interdisciplinary approach to the application of nonlinear dynamical systems theory, complex systems theory, synergetics, non-equilibrium thermodynamics, information theory, game theory, automata theory, and neural networks to the study of problems in psychology, both basic and clinical, as well as the life and social sciences and the humanities.

Membership

The Society's international membership of over 300 includes psychologists, psychiatrists, physicians, physicists, mathematicians, economists, biologists, computer scientists, political scientists, sociologists, educators, therapists, philosophers, and artists. There are two foreign branches: The Russian Synergetics Society and the Italian Society for Complexity and Chaos. The Society has reciprocity with the German Society for Complex Systems and Nonlinear Dynamics. Annual dues are \$60 (US) for regular members and \$50 for students and include the Society's newsletter and a subscription to the quarterly journal, *Nonlinear Dynamics, Psychology, and Life Science*.

The "Organizational Profile," a regular feature of the *APS Observer*, informs the research community about organizations devoted to serving psychological scientists and academics. It is difficult for anyone to keep abreast of the various organizations of potential personal interest. This section should help in that task. The Editor welcomes your suggestions as to organizations warranting coverage.

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<i>Past President/Treasurer</i>	Stephen Guastello, <i>Marquette Univ.</i>
<i>Executive Secretary</i>	Keith Clayton, <i>Vanderbilt Univ.</i>

BACKGROUND

The Society for Chaos Theory in Psychology and the Life Sciences was formed to promote interdisciplinary exploration of the concepts and methodologies of the new sciences of nonlinear dynamics and complexity, as they are applied to psychology and the life and social sciences. A major goal has been to provide a venue for the free discussion of ideas among scientists, clinicians, philosophers, and artists interested in biological, social, and mental phenomena. To this end, the Society has hosted to date six annual international conferences at various major universities in the United States and Canada. The most recent was held at the University of California-Berkeley. In addition, the Society held its first European conference in association with its Italian branch in Pavia, Italy, in October 1996. The Society's second European conference was held in March 1997, in Gstaad, Switzerland, in cooperation with the Herbst-akademie "Selbstorganization in Psychologie und Sozialwissenschaften" (Self-organization in Psychology and Social Sciences).

In January 1997, the Society launched its quarterly journal, *Nonlinear Dynamics, Psychology, and Life Science*, published by Human Sciences Press. This journal will provide a much needed forum for the publication of papers applying nonlinear dynamical systems ideas in psychology, biology, philosophy, and the social sciences, including economics.

The Society hosts an internet listserve list, which is open to anyone with an interest in these ideas. You can subscribe by sending (to listproc@list.uvm.edu) the following message: `subscribe chaopsyc <your name>`. In addition, there is a Society world-wide web page, which can be accessed at <http://www.vanderbilt.edu/AnS/psychology/cogsci/chaos/cspls.html>. Currently under development is an interactive educational package that will give neophytes an opportunity to become familiar with the basic concepts of nonlinear dynamics using their own personal computers.

Contact:

Keith Clayton
Department of Psychology
Vanderbilt Univ.
Nashville, TN 37240
Tel.: 615-322-0060
clytokn@ctrvax.vanderbilt.edu

Announcements

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CALLS FOR PAPERS

The Administration of Children, Youth and Families, Department of Health and Human Services, in collaboration with Columbia University and the Society for Research in Child Development, announces **Head Start's Fourth National Research Conference, "A Research Agenda on Children and Families in an Era of Rapid Change,"** to be held July 9-12, 1998, in Washington, DC. All inquiries about the call for papers or the conference details to: Faith Lamb Parker, Project Director, Columbia School of Public Health, CPFH, 60 Haven Ave., B3, New York, NY 10032; 212-304-5251; fax: 212-544-1911.

Children's Services: Social Policy, Research, and Practice is a new review and policy publication on issues of social and public policy for children and families. The division of Child, Youth, and Family Services of the American Psychological Association sponsors the publication. Manuscripts may now be submitted for review and the journal will start quarterly publication in 1998. This journal provides a forum on policy affecting children and families from psychological and developmental perspectives. All articles are peer reviewed and selected for their scholarly merit and contribution to the policy dialogue. Contact: Michael Roberts, Editor, Clinical Child Psychology Program, Dept. of Human Development & Family Life/Dept. of Psychology, Univ. of Kansas, Lawrence, KS 66045; mroberts@ukans.edu.

The International Journal of Organizational Analysis is soliciting original theoretical and empirical articles dealing with national and international issues in the following areas: Organization theory; Strategic management; Organizational behavior; Human resource management; Business and society, ethics and values. It also publishes case studies, research notes, simulations, teaching notes, and book reviews. The IJOA is published in January, April, July, and October. Manuscripts must be prepared strictly according to the 1994 edition of the *Publication Manual of the American Psychological Association* and will be reviewed by double-blind review process. Four copies of the manuscripts and requests for other details should be addressed to the Editor: Afzal Rahim,

Center for Advanced Studies in Management, 1574 Mallory Ct., Bowling Green, KY 42103; tel. & fax: 502-782-2601; email: mgt2000@aol.com

Developmental Science is a new journal of the European Society for Developmental Psychology. *Developmental Science* is to be published beginning April 1998 by Blackwell Publishers. Aiming to represent the best of contemporary scientific developmental psychology both in the presentation of theory and in reporting new data, *Developmental Science* will include: comparative and biological perspectives; connectionist and computational perspectives; dynamical systems theory. In addition, there will be papers on cognitive, affective, and social aspects of development. Papers should be written according to APA style guidelines and submitted in triplicate to the editor: George Butterworth, Univ. of Sussex, School of Cognitive and Computing Science, Arts D Building, Brighton, BN1 9QU, United Kingdom.

REVIEWERS SOUGHT

The **National Head Start Bureau** is expanding its pool of peer reviewers and consultants who will assist with the review of current and future activities, policies, and research. Individuals who are accepted will also receive announcements concerning the availability of funds for grants, fellowships, and programs. Contact: Dakota Technologies Corp., Head Start Reviewers and Consultants, A-A8, Fair Oaks Commerce Center, 11320 Random Hills Rd., Ste. 105, Fairfax, VA 22030, fax: 703-218-2483; email: dakotacorp@aol.com. If you have an IBM compatible PC and would prefer to submit the application form electronically, please indicate whether you have a 3.5" or 5.25" disk drive.

FELLOWSHIPS

Laurence S. Rockefeller Visiting Fellowships—Princeton University, the University Center for Human Values, invites applications for Laurence S. Rockefeller Visiting Fellowships. Several fellowships will be awarded for the academic year 1998-99 to outstanding teachers and scholars who are interested in devoting a year in residence at Princeton to writing about ethics and human values. Fellows participate in a Fellows's seminar, a seminar on Ethics and Public Affairs, and other programs of the University Center. They enjoy access to Firestone Library and a wide range of other activities throughout the University. A major part of their time is devoted to their own research on ethics and human values. Fellowships extend from September through May. Applicants are expected to have a doctorate or a professional post-graduate degree and not in the process of writing a dissertation. The deadline for application materials is December 16, 1997, for fellowships beginning September 1998. Recipients will be notified by March 16, 1998. For further information, call or write Stephanie Resko, University Center for Human Values, Louis Marx Hall, Princeton Univ., Princeton, NJ 08544; 609-258-4798; sresko@wvs.princeton.edu.

NEWSLETTERS/JOURNALS

Entries are invited for the **Eighth Annual Psychology Department Newsletter Contest**, sponsored by the Nova Southeastern University Behavioral Sciences Program. Submit a newsletter from the current academic year to John Malouff, NSU Behavioral Sciences, 3301 College Ave., Ft. Lauderdale, FL 33314; 954-262-7914. Entry deadline: June 25, 1997.

The **National Head Start Association's** Research and Evaluation Division is pleased to announce the launch of a new serial, the **NHSA Research Quarterly**. The publication is aimed to ensure that pertinent research is published in a way that is useable by researchers and practitioners alike and is part of an ongoing effort to promote quality in Head Start programs through research. Published four times a year, the journal will focus on recent research on early childhood in general and Head Start specifically. For submission information, contact: 703-739-7568; for subscription information, contact: 703-739-7558.

International Bulletin of Political Psychology is a new WWW journal located at <http://www.pr.erau.edu/~security>. It is a weekly, electronic journal sponsored by Department of Humanities and Social Sciences, Embry-Riddle University, Prescott, AZ. The journal offers: political psychological analyses of current domestic and international political events; a very early look at political psychological research trends; critiques of concepts, theory, methods, and statistical approaches concerning political psychology; international cross-talk on political psychology through its Open Forum feature; www resources and other resources concerning political psychology. Contact: Richard Bloom, ABPP, Editor, International Journal of Political Psychology, email: bloomr@pr.erau.edu; tel.: 520-708-3837; fax: 520-708-6988.

EDITOR SEARCH

The **Psychology of Women Quarterly**, the premier scientific journal of Division 35 of the American Psychological Association, is seeking nominations for the position of editor. Publishing empirical research, critical reviews, theoretical articles, brief reports, and invited book reviews related to the psychology of women and gender, the journal is received by over 5,000 members and affiliates as well as several hundred libraries. The five-year editorship will begin in the summer of 1997 with a preliminary training year with the current editor, Nancy Russo. Financial support for the management of the editorial office is provided by the publisher, Cambridge University Press. Nominees with an active record of publishing in the area of feminism and psychology of women. The committee will start reviewing applications immediately and a final pool will be identified by June 30. Self- and other nominations are welcome. To nominate, prepare a supporting statement of not more than one page. If self-nominating, send a cover letter, an editorial vision statement, and vita to Janice Steil, Derner Institute, Adelphi Univ., Garden City, NY 11530; steil@sable.adelphi.edu.

THE 20TH ANNUAL NATIONAL INSTITUTE ON THE TEACHING OF PSYCHOLOGY JANUARY 3-6, 1998

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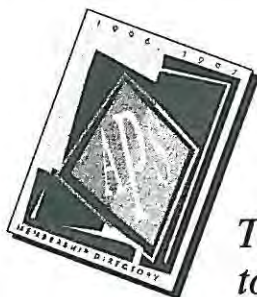
The American Psychological Society

Registration is limited to 400 participants; early registration (before September 15) is highly recommended. Poster session proposals should be received by September 30, 1997, to guarantee space in the program, although later submissions will be considered if space remains available. The preliminary conference program includes several preconference workshops, three poster sessions, two participant idea exchanges, a social hour, and optional dinner and conversation on topics submitted by participants, a publishers' roundtable, book displays, and about 35 featured speakers well-known for their excellence in teaching psychology. The conference fee is \$295, which will also include meals (except dinners), refreshments at coffee breaks and poster sessions, and an evening reception. For more information write to:

Douglas A. Bernstein ♦ Dept. of Psychology ♦ University of Illinois ♦ 603 East Daniel Street ♦ Champaign, IL 61820
or contact the conference coordinator

Joanne Fetzner ♦ tel.: 217-398-6969 or 217-244-7902 ♦ email: jfetznr@s.psych.uiuc.edu

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Meeting Calendar

June

**The National Institute of Education
International Conference on Thinking**
Singapore
June 1-6, 1997
Contact: <http://www.nie.ac.sg.8000/~wwwnie/think/>; email: think@nievax.nie.ac.sg

**International Society for the History of the
Neurosciences**
Annapolis, Maryland
June 4, 1997
Contact: P.J. Loehler; Dept. of Neurology,
de Weaver Hospital; PO Box 4446, 6401 CX
Heerlen, The Netherlands;
pkoehler@knmg.nl

**Society for Light Treatment and
Biological Rhythms**
Vancouver, British Columbia
June 7-9, 1997
Contact: SLTBR, 10200 W. 44th Ave., Ste.
304, Wheat Ridge, CO 80033-2840; tel.: 303-
424-3697; fax: 303-422-8894; email:
sltbr@resourcenter.com

Cognitive Science of Music
Uppsala, Sweden
June 7-12, 1997
Contact: Third ESCOM, Dept. of Psychol-
ogy, Uppsala Univ., Box 1225, S-751 42
Uppsala, Sweden; email:
ESCOM@psyk.uu.se; fax: +46 18 18 22 02;
<http://www2.uu.se/insts/psyk/escs.html>

**International Stockholm Seminar on Risk
Behaviour and Risk Management**
Stockholm, Sweden
June 9-12, 1997
Contact: Stockholm Univ., Risk Research
Group, School of Business, S-106 91
Stockholm, Sweden; fax: 46 8 15 30 54;
email: gre@fek.su.se

Classification Society of North America
Washington, DC
June 12-14, 1997
Contact: <http://info.pitt.edu/~csna/csna.html>

**Society for Research on Nicotine and Tobacco
Third Annual Scientific
Conference**
Nashville, Tennessee
June 13-14, 1997
Contact: Society for Research on Nicotine and
Tobacco, 401 East Jefferson St., Ste. 205,
Rockville, MD 20850; tel.: 301-251-9133; fax:
301-279-6749; email: geninfo@smt.org

**Association for the Scientific Study of
Consciousness**
Claremont, California
June 13-15, 1997
Contact: William Banks, Dept. of Psychology,
Pomona College, Claremont, CA 91711; tel.:
909-627-2443; email: wbanks@pomona.edu;
<http://www.phil.vt.edu/assc>

Association for Health Services Research
Chicago, Illinois
June 15-17, 1997
Contact: Jeri Young, 202-223-2477; <http://www.ahsr.org>

Society for Risk Analysis-European Section
Stockholm, Sweden
June 15-18, 1997
Contact: pke@hhs.se

**International Association for Conflict
Management**
Bonn, Germany
June 15-19, 1997
Contact: Donald E. Conlon, Dept. of Business
Administration, Univ. of Delaware, Newark, DE
19716; tel.: 302-831-2081; fax: 302-831-4196;
email: conlond@college.be.udel.edu

**CHEIRON: The International Society for the
History of Behavior and Social Sciences**
Richmond, Virginia
June 19-22, 1997
Contact: John Carson, Cheiron Program Chair,
Dept. of Science & Technology Studies, 632
Clark Hall, Cornell Univ., Ithaca, NY 14853-
2501; tel.: 607-255-6048; fax: 607-255-6044.

**1997 Summer Institute Family
Research Consortium "Diversity & Family
Research Consortium"**
San Antonio, Texas
June 19-22, 1997
Contact: Kathy Meese, Frank Porter Graham Child
Development Center, Univ. of North Carolina-
Chapel Hill, CB# 8180, 105 Smith Level Rd.,
Chapel Hill, NC 27599-8180; tel.: 919-966-3318;
fax: 919-966-7532

18th Cape Cod Institute
Cape Cod, Massachusetts
June 23-August 29, 1997
Contact: Gilbert Levin, Albert Einstein College
of Medicine, 1308 Belfer Building, Bronx, NY
10461; tel.: 718-430-2307; fax: 718-430-8782;
email: glevin@aecom.yu.edu; <http://www.cape.org>

Summer Institute in Political Psychology
Columbus, Ohio
June 23-July 18, 1997
Contact: Margaret Hermann, Mershon Center,
Ohio State Univ., 1501 Neil Ave., Columbus,
OH 43201; wituski.1@osu.edu

Fifth Annual Congress on Women's Health
Washington, DC
June 24-25, 1997
Contact: Rebecca Flournoy, Society for the
Advancement of Women's Health Research,
1920 L St., NW, Ste. 510, Washington, DC
20036; tel: 202-223-8224; fax: 202-833-3472;
email: information@womenns-health.org

International Society for Anthrozoology
Boston, Massachusetts
July 24-25, 1997
Contact: A.N. Rowan, Tufts Center for Animals
and Public Policy, 200 Westboro Rd., North
Grafton, MA 01536; tel.: 508-839-7991; fax:
508-839-2953; email: arowan@opal.tufts.edu

Society for Psychotherapy Research
Geilo, Norway
June 25-29, 1997
Contact: William B. Stiles, Dept. of Psychol-
ogy, Miami Univ., Oxford, OH 45456; <http://www.educ.sfu.ca/society/>

July

**XXVI Interamerican Congress of
Psychology**
Sao Paulo, Brazil
July 6-11, 1997
Contact: sipcon97@org.usp.br

**International Conference on the Transition to
Hong Kong Special Administrative Region of
the People's Republic of China: Panels on
Social Psychological Aspects of the Transition**
Hong Kong, PRC
July 7-9, 1997
Contact: Conference Secretariat c/o The David
C. Lam Institute for East-West Studies, 34
Renfrew Rd., Kowloon Tong, Hong Kong; fax:
852-2339-5128; email: lewi@hkbu.edu.hk

**World Multiconference on Systemics,
Cybernetics, and Informatics**

July 7-11, 1997

Caracas, Venezuela

Contact: Karl Mathia, Accurate Automation Corp., 7001 Shallowford Rd., Chattanooga, TN 37421; tel.: 423-894-4646; fax: 423-894-4645

Advances in Management

Toronto, Canada

July 9-12, 1997

Contact: Afzal Rahim, Center for Advanced Studies in Management, 1574 Mallory Ct., Bowling Green, KY 42103; tel. & fax: 502-782-2601; email: casm@gnn.com

Cognitive Linguistics Conference

Amsterdam, The Netherlands

July 14-19, 1997

Contact: ICLC '97, Faculteit der Letteren, Vrije Universiteit, De Boelelaan 1105, NL-1081 HV Amsterdam, The Netherlands; fax: +31 20 4446500; email: iclc97@let.vu.nl; <http://www.vu.nl/ICLC97/index.htm>

**Ninth International Conference on
Perception and Action**

Toronto, Ontario

July 20-25, 1997

Contact: John Kennedy, e-mail: icpa9@scar.utoronto.ca

**Joint Meeting of the International Society for
Neurochemistry & the American
Society for Neurochemistry**

Boston, Massachusetts

July 20-26, 1997

Contact: '97 Secretariat c/o Inn Scope Communications, 1531 Pontius Ave., Ste. 200, Los Angeles, CA 90025; tel.: 310-914-1866; fax: 310-914-1868; email: isnasn97@aol.com

August

Cognitive Science Society

Stanford, California

August 7-10, 1997

Contact: <http://www.ccp.uchicago.edu/cpl>

Sociologists Against Sexual Harassment

Toronto, Canada

August 10, 1997

Contact: Kimberly J. Cook, SASH 97 Conference Organizer, Dept. of Criminology, Univ. of Southern Maine, PO Box 9300, Portland, ME 04104; tel.: 207-780-4399; fax: 207-780-4987; email: kjcook@usm.maine.edu

American Psychological Association

Chicago, Illinois

August 15-19, 1997

Contact: 202-336-6020

**Second International Conference on
Cognitive Psychology**

August 25-28, 1997

Aizu, Japan

Contact: <http://www.u-aizu.ac.jp/~opm/CT97/conf.html>

**European Society for Philosophy and
Psychology**

August 27-30, 1997

Padua, Italy

Contact: espp@kub.nl

September

**Fourth Conference of the Australasian
Cognitive Science Society**

September 26-28, 1997

New South Wales, Australia

Contact: Richard Heath: rheath@HIPLAB.NEWCASTLE.EDU.AU

October

**Minnesota Conference on Vision for Research
and Grasp**

October 2-4, 1997

Univ. of Minnesota

Contact: Lynn Carlson; ccs@turtle.psych.umn.edu

**International Society for the Advancement of
Respiratory Psychophysiology**

Cape Cod, Massachusetts

October 13-15, 1997

Contact: Lawrence M. Schleifer, Program Chair, 10838 Antigua Terrace, #103, Rockville, MD 20852; tel.: 202-535-4221, x3038; fax: 202-535-5445

**World Foundation for Medical Studies in
Female Health**

Key Biscayne, Florida

October 23-26, 1997

Contact: 516-944-3192

New England Psychological Association

North Easton, Massachusetts

October 24-25, 1997

Contact: Estelle R. Friedman, NEPA Secretary, 419 Norton Pkwy., New Haven, CT 06511-2828; tel.: 203-776-8324

**Southern Regional Chapter of the
Association for Women in Psychology**

Wilmington, North Carolina

October 31-November 2, 1997

Contact: Patricia Owen-Smith, Oxford College of Emory Univ., Oxford, GA 30267; tel.: 770-784-8322; fax: 770-784-8364; email: psypos@emory.edu

1998

January

**20th Annual National Institute on the
Teaching of Psychology**

St. Petersburg, Florida

January 3-6, 1998

Contact: Joanne Fetzner, tel.: 217-398-6969 or 217-244-7902; email: jfetzner@s.psych.uiuc.edu

July

**Head Start National Research Confer-
ence: A Research Agenda on Children
and Families in an Era of Rapid Change**

Washington, DC

July 9-12, 1997

Contact: Faith Lamb Parker, Project Director, Columbia School of Public Health, CPFH, 60 haven Ave., B#, New York, NY 10032; tel.: 212-304-5251; fax: 212-544-1911

August

**14th International Congress of the
International Association for Child and
Adolescent Psychiatry and Allied
Professions**

Stockholm, Sweden

August 2-6, 1998

Contact: <http://www.stocon.se/iacapap/index.html>

**Third Congress of the International
Academy of Family Psychology**

Athens, Georgia

August 6-9, 1998

Contact: Luciano L'Abate, Dept. of Psychology, Georgia State Univ., Atlanta, GA 30303; email: psyll@panther.gsu.edu

**24th International Congress of Applied
Psychology**

San Francisco, California

August 9-14, 1998

Contact: Congress Secretariat, APA Office of International Affairs, 750 First St., NE, Washington, DC 20002-4242; fax: 202-336-5956

Send announcements to:

**APS Observer
Meeting Calendar
1010 Vermont Ave, NW
Ste 1100
Washington, DC 20005
EWR@capcon.net**

American Psychological Society 1997 Member Application

(The membership dues below are valid until 6/30/97)

Check one:

- This is my first membership application to APS. (Send application to: APS, PO Box 90457, Washington, DC 20090-0457)
 This is to change my membership record. (Return to: APS, 1010 Vermont Ave, NW, Ste 1100, Washington, DC 20005-4907)



AMERICAN
PSYCHOLOGICAL
SOCIETY

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Last First MI

Mailing Address _____

_____ City State Zip Country

Telephone _____
Office (include extension) Home Fax

Institutional Affiliation _____
(spell out)

Education _____
Highest Degree Year of Degree Institution (spell out)

Major Field (circle one): Biological/Physiological ♦ Cognitive ♦ Clinical/Counseling/School ♦ Developmental ♦ Educational
 Experimental ♦ General ♦ I/O ♦ Personality/Social ♦ Quantitative

Specialty Area _____

Email Address _____

ANNUAL DUES

TO JOIN, SIMPLY COMPLETE THIS FORM AND RETURN IT TO APS WITH YOUR DUES PAYMENT OR VISA OR MASTERCARD AUTHORIZATION. **THANK YOU!**

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- Spouse (No journals) \$55
 Spouse name _____
- Student \$45
- Student \$55
(Residing outside U.S. with air delivery of newsletter)
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OBSERVER

Published by the American Psychological Society

Employment Bulletin ♦ May/June 1997

ALABAMA

HEAD, DEPARTMENT OF PSYCHOLOGY: Seeking applications for Head of the Psychology Department. Tenure track faculty position, and minimum qualifications include credentials appropriate for appointment as an associate professor. Applicants must have PhD in psychology, substantial college-level teaching experience, a record of scholarly activity, and a record of departmental service and student-oriented activities and service. The Department has seven full-time and five part-time faculty, offers BA and BS degrees and a Master's degree. Faculty members have a predominately behavioral orientation with a strong commitment toward experimental methodology. 450 undergraduate majors and minors and 50 graduate students. Jacksonville State University is a public

institution of approximately 7,500 students with baccalaureate and master's programs. It is located 75 miles from Birmingham and 100 miles from Atlanta. Candidates are invited to send a letter of application, a curriculum vita, and three letters of reference to: Personnel Services, Jacksonville State University, 700 North Pelham Road, Jacksonville, Alabama 36265. Screening of the applicants will begin immediately and will continue until the position is filled. *AN EO/AA EMPLOYER. AL1*

ARIZONA

Faculty Research Associate. Two-year position beginning January 1, 1998. Collaborate on a longitudinal study of adolescents at risk for substance use/abuse, particularly on data analysis and manuscript writing. Requirements: Masters degree or

ABD and quantitative skills/training. Preference will be given to candidates skilled in multivariate analyses of longitudinal data (e.g., structural modeling, growth curve modeling, multi-level modeling). Send vita and 2 letters of recommendation to: Laurie Chassin, Psychology Department, Box 871104, Arizona State University, Tempe, AZ 85287-1104. Application deadline May 1 or the first of the month until filled. *AA/EOE.* Prof. Chassin can be contacted at (606) 965-1616, or by e-mail at laurie.chassin@asu.edu. *AZ1*

CALIFORNIA

COGNITIVE NEUROSCIENTIST. EEG Systems Laboratory, an internationally renowned human brain research institute established in 1980 by Alan Gevins, has an opening for a PhD level scientist.

We are looking for an exceptional individual to help develop new applications for EEG measures of human cognition. An ideal candidate would have significant prior experience utilizing EEG and/or evoked potentials to investigate learning and memory, attention and vigilance, human factors issues, neurological populations, or pharmacodynamics. Our organization has state-of-the-art facilities and is located in an attractive building near the waterfront in downtown San Francisco. We have no bureaucracy and have an organizational structure which rewards hard work and significant accomplishments with rapid professional growth. To apply, please fax vita and cover letter to (415) 546-

See Subject Index and the index instructions on page 51.

ROLLINS SCHOOL OF PUBLIC HEALTH OF EMORY UNIVERSITY

announces a recruitment for

Department Chair/Senior Scholar, Department of Behavioral Sciences & Health Education

The Rollins School of Public Health of Emory University seeks an established scholar in an area related to Behavioral Sciences and Health Education who will help shape and build the department. Candidates should possess an earned doctoral degree; have a strong record of academic research and teaching, particularly at the graduate level; and have a demonstrated capacity to secure external funding to support research. Research and teaching experience related to health education, health promotion, health psychology, adolescent health, minority health or behavioral medicine are preferred. Areas of concentration may include, but are not limited to, nutrition; alcohol, tobacco, and other drugs; HIV/AIDS, adolescent sexual behavior; reproductive health; violence; physical activity; school health; or work site health programs. A strong track record of published research is expected. Ideally, the candidate should have leadership experience in an academic setting and be able to foster collaboration in a multi disciplinary group, between academic departments, and across the university and neighboring public health institutions. We expect to make a tenured appointment at the professor or advanced associate level.

The School is dedicated to teaching, research, and service. Currently, the school employs 55 tenure track and 45 non-tenure track faculty and enrolls over 700 full and part-time students in its masters and doctoral programs. It offers a wide range of collaborative research opportunities with nearby institutions including the Centers for Disease Control and Prevention, American Cancer Society, Carter Center, Seratean Center, CARE International and other health care and business organizations and agencies in the Atlanta area. The Rollins School of Public Health is located in a new building with 144,000 square feet of space on the Emory University campus adjacent to the CDC.

The Department of Behavioral Sciences and Health Education currently consists of nine tenure track doctoral faculty trained in psychology, demography, sociology, health education, and health sciences. The department anticipates adding one or two other faculty positions in the near future. The chair would be expected to guide the development of the department while performing as a scholar, a teacher in the department's academic program, a faculty colleague and mentor and participate in the School's leadership.

Interested candidates should send a letter indicating their interest accompanied by a curriculum vitae to:

**Colleen DiIorio, PhD ♦ Chair, Search Committee ♦ Rollins School of Public Health of Emory University
1518 Clifton Road, NE ♦ Atlanta, GA 30322**

Screening of applicants will begin on May 1, 1997, and continue until the position is filled. Starting date is negotiable.

Applications will be considered confidential.

Emory is an Equal Opportunity/Affirmative Action Employer.

GA2

Position Announcement

U.S. Navy Aerospace Experimental Psychologist

- Uniformed positions available in 1996 which span all phases of aviation systems development and acquisition processes, i.e., R&D, test, and evaluation.
- Candidates must have a doctorate in psychology with emphasis in experimental, engineering personnel, training, cognition, or physiological psychology, and have strong background in research methodology. Must meet physical standards and be less than 35 years old.
- Candidate will be commissioned a Lieutenant with initial obligation of 3 years. Approximate starting salary is \$34,000. Additional benefits include 30 days leave per year, no-cost retirement plan, free medical & dental care, and exchange & commissary privileges.

For further information contact:



Commander Michael Lilienthal
Naval Medical R & D Command
Code 413
Bethesda, MD 20889-5044
(301) 295-1423/1468

MD1

7122, attn: Michael Smith; or email (text format only please) michael@eeg.com. *EOE/AA. CA1*

GEORGIA

Assistant Professor of Psychology, Clinical. Tenure-track. PhD required. Preference given to candidates capable of teaching multiple courses from the following: abnormal behavior, tests and measurements, personality theories, research design and methodology, and introductory psychology. Candidate expected to direct clinical internships and student research. Evidence of outstanding teaching required. Provide letter of application, current vita, research plans and three letters of reference to: Dr. Arthur G. Cleveland, Dean, School of Science, Columbus State University, 4225 University Avenue, Columbus, GA 31907. Applications being accepted and reviewed now. *COLUMBUS STATE UNIVERSITY IS AN AFFIRMATIVE ACTION/EQUAL OPPORTUNITY EMPLOYER. MINORITIES AND WOMEN ARE ENCOURAGED TO APPLY. GA1*

(See Display ad on page 1 for GA2)

INDIANA

INDIANA UNIVERSITY. NIH-funded postdoctoral fellowships for multidisciplinary training in developmental processes. For training in the integrative study of processes of change in infancy and childhood.

Faculty in Psychology, Speech and Hearing Sciences, and Kinesiology bring theoretical innovation and technical sophistication in diverse areas, including perception, action, affect, language, speech, neuroscience, cognition, and do research in typical and atypical populations. Appointments for 1 year, renewable for a second year. Candidate must be a US citizen, non-citizen national or possess a permanent resident visa. Send a vita, letter describing research and training interests, publications, and three letters of recommendation to: Developmental Training, Box 500, Department of Psychology, Indiana University, Bloomington, IN 47405 or call 812-855-5590 for further information. Open until positions are filled. Women and minorities are especially encouraged to apply. *Indiana University is an Equal Opportunity/Affirmative Action Employer. IN1*

CLINICAL PSYCHOLOGIST.

One year leave replacement as visiting instructor/asst. professor starting August 1997. Will teach introductory, abnormal, counseling and psychotherapy, and/or other courses based upon expertise. Excellence in undergraduate teaching and PhD/ABD from APA accredited psychology program in clinical or counseling psychology required. *EOE.* Send application letter, vita transcripts, and three letters of recommendation to Dr. John Krantz, Chair, Psychology Search Committee, c/o Christine Wilcox, Hanover College, PO

Box 108, Hanover, IN 47243-0108. Review of applications begins immediately and continues until position is filled. *IN2*

The Department of Psychology at the **University of Evansville** is seeking a qualified candidate to fill a one-year visiting assistant professor or instructor position. The position is for the 1997-98 academic year and begins August 1997. The candidate must have a PhD or be at the ABD level. A candidate with specialization in social psychology will be given the highest consideration; other nonclinical areas will be considered. The candidate should be qualified to teach some of the following psychology courses: Introductory, Statistics, Experimental Design, Human Factors, Social Psychology, Learning/Memory, Sensation/Perception, and History of Psychology. The University places greatest value on teaching performance; in addition, there is significant focus on undergraduate research, especially within the Psychology program. The University of Evansville is an independent, church-related, selective admissions University located in a city of 135,000 in southwestern Indiana. It offers a comprehensive program of instruction including liberal arts and sciences, engineering, business, nursing, physical therapy, and education. Enrollment numbers approximately 2700 full-time students. The University also includes a study-abroad campus in England.

Harlaxton College. *The University of Evansville operates under a non-discriminatory policy with regard to race, color, religion, national origin, gender, age and disability.* Review of applications begins immediately and will continue until the position is filled. Candidates should provide a letter of interest, curriculum vitae, reprints/preprints of published work, if available, and three letters of reference to S. Mark Kopta, PhD, Chair, Department of Psychology, University of Evansville, 1800 Lincoln Avenue, Evansville, IN 47722; 812-479-2520. *IN3*

MASSACHUSETTS

VISITING ASSISTANT PROFESSOR OF CLINICAL PSYCHOLOGY: Suffolk University Department of Psychology is seeking a visiting assistant professor to begin, September, 1997. The successful candidate is expected to have a clinical license, to teach at both the undergraduate and doctoral levels, and to supervise both graduate and undergraduate research. Any area of specialization is welcome though we are actively seeking candidates who might teach one or more of our three graduate statistics courses. Review of applications will begin immediately. Please send letter of application, curriculum vitae, reprints, and three letters of recommendation to: Search Committee, Suffolk University, Department of Psychology, 41 Temple Street, Boston, MA 02114. *Suffolk University is an affirmative action/equal opportunity employer. MA1*

MICHIGAN

Post-Doctoral/Research Investigator Position—The Survey Research Center, **University of Michigan.** The ongoing Monitoring the Future project (Lloyd Johnston, PI), funded by the National Institute on Drug Abuse invites applications for a Ph.D. level post-doctoral/research investigator position to collaborate on studies concerning the epidemiology and etiology of drug use among adolescents and young adults. The Monitoring the Future project has been conducting annual nationally representative surveys of high school seniors since 1975 and of 8th and 10th graders since 1991; representative sub-samples are followed into adulthood. The project is designed to investigate the causes, correlates, and consequences of aggregate-level and individual-level

changes in tobacco, illicit drug, and alcohol use. Applicants should have an interest in adolescent drug use etiology, epidemiology, policy, or prevention, and a substantive expertise in a relevant area of psychology, sociology, education, public health, social work, or evaluation. Demonstrated scholarly productivity, along with the proven ability to work both independently and collaboratively, are essential. The successful applicant should also have demonstrated expertise in analysis of large-scale survey data, including multi-level and longitudinal panel data. Position will be for two years or more, and is contingent upon budgetary approval. Salary is competitive (comparable to an Assistant Professor position). Anticipated starting date is September 1, 1997, although it could be delayed for up to four months upon mutual agreement. Applicants should submit a curriculum vitae, statement of research interests, reprints/preprints of relevant publications, and three letters of recommendation to John Schulenberg, Institute for Social Research, University of Michigan, P.O. Box 1248, Ann Arbor, MI 48106-1248. Please direct any questions about the project to Joyce Buchanan at 313-763-5043, or visit our website at www.isr.umich.edu/src/mtf. Review of applicants will begin on May 1, and will continue until the position is filled. *An Affirmative Action/Equal Opportunity Employer.* **MI**

MISSOURI

Research Assistant Professor—University of Missouri. We are recruiting for three nontenure track positions at the University of Missouri to serve as senior staff members on an NICHD grant (Lizette Peterson, PI; Ken Sher, Co-PI) investigating the determinants of childhood injury. Each of these positions should provide excellent training in diverse aspects of research on childhood injury prevention, in developmental modeling, in training and supervising field-work staff, in data analysis, and involve substantial opportunities for publishing. All current postdoctoral positions have received the rank of Assistant Research Professor and we anticipate these three would do the same as well. Salaries will vary but will range in the low \$30,000 per full-time year range. This five year grant is an extension of a project begun 7 years ago. This project will exam-

ine toddler's and mother's interactions with a major focus on how mothers socialize behaviors relevant to injury prevention. The current project will extend the earlier work by creating a model of the elicitors and influences of safety behavior. **Position 1.** One full-time position (1.0 FTE) will have primary responsibility for maintaining data quality by ensuring consistency of interviewing strategies and procedures and checking to insure the completeness of protocol (and making "call backs" to participants when needed). Competence handling large data sets, budgets, and statistical knowledge will be especially important to this position. **Position 2.** One full-time position (1.0 FTE) will be responsible for training and giving daily feedback to the field-work staff to be composed of 9 interviewers. Background in structured interviewing with children and adults is highly desirable. Again, experience with monitoring data integrity and statistical skills will be very valuable. **Position 3.** One half-time position (.5 FTE) will be responsible for data set management and statistical analyses under the direction of project consultant Alex von Eye and Co-PI Kenneth J. Sher. A very strong background in SAS and maintaining large data sets is required, and knowledge and experience in multi-variate analysis (especially structural equation modeling and hierarchical linear modeling) are essential. The two full-time positions carry full benefits, while the half-time position does not. However, the half-time position might be combined with other local options, depending on the qualifications of the applicant. There is a possibility that individuals taking these positions will have the opportunity to participate in the Psychology Department's postdoctoral licensing program (for those postdoctoral clinical psychologists who have completed their internships). *Women and minorities are especially urged to apply.* Please indicate the position for which you wish to apply. Contact: Lizette Peterson, PhD, Department of Psychology, 210 McAlester Hall, University of Missouri-Columbia, Columbia, MO 65211; Phone: 573-882-6083; Fax: 573-882-7710; email: pyliz@showme.missouri.edu. **MO**

EDUCATIONAL RESEARCH AND EVALUATION CONSULTANT North Carolina State University Urban Affairs

Masters degree in education with specialization in research and statistics and three years of experience in educational research or public education with emphasis on research and evaluation. Educational measurement skills with knowledge of classical psychometric scaling and item response theory-based analysis techniques. Develop test, measure evaluating effectiveness and manage work flow in creating test items. Prepare technical reports, design, and implement studies. Time limited position.

For an application, call 919-515-4309.
Refer to vacancy #464073.

AA/EOE

NC1

NEW HAMPSHIRE

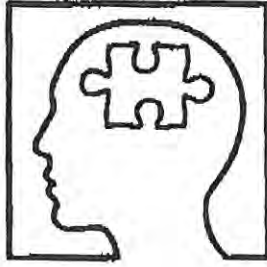
SUMMER TEACHING POSITION at St. Paul's School-Concord, New Hampshire. The School seeks a master teacher in Psychology for the **ADVANCED STUDIES PROGRAM (ASP)**. The ASP is an intensive academic immersion program for talented New Hampshire public high school seniors, and runs from June 20 - July 26, 1997. The course is intended to introduce students to the field of psychology, with particular emphasis on physiological psychology. Responsibilities include teaching one section (16 students) for 21 hours per week, and overseeing an undergraduate intern. Position includes salary to be discussed at hiring plus room and board. Prior teaching experience, preferably at the high school or introductory college level, is required. Candidates should send a cover letter, resume, and three letters of recommendation by April 11, 1997, to Jeff Bradley, Director, Advanced Studies Program, St. Paul's School, Concord, NH 03301. Personal interview required. TELEPHONE: 603-229-4777. EMAIL: asp@sps.edu. WWW: <http://www.sps.edu/Academics/ASP/index.shtml>. **NH1**

NEW JERSEY

Postdoctoral positions in cognitive psychology. Dept. of Psychology, **PRINCETON UNIV.** Demonstrated expertise in memory research, designing experiments, statistical analyses, and writing papers. Knowledge of reality/source monitoring preferred. 1 yr. position, start date to be arranged. Salary commensurate with background/experience. Send vita, statement of interests and three letters of recommendation to M.K. Johnson, Dept. of Psych., Green Hall, Princeton, Univ., Princeton, NJ 08544-1010. *AA/EOE.* **NJ1**

NEW YORK

Hamilton College. Two year leave-replacement position in psychology at the instructor or assistant professor level, beginning August 25, 1997. Annual teaching responsibilities are to teach two sections of Introductory Psychology, one course in Statistics, and two courses in the area of specialty. Hamilton is a selective liberal arts college with a tradition of excellence in teaching and research. Send resume and three letters of recommendation to: John



The Max Planck Institute for Psychological Research, Munich, Germany, announces the availability of a

POSTDOCTORAL FELLOWSHIP

to be granted as of October 1997. A second year renewal is possible. Candidates who pursue experimental research in the area of action planning, linkages between perception and action, motor control, and related fields are encouraged to apply by June 15, 1997.

Prof. Dr. Wolfgang Prinz
Max Planck Institute for Psychological Research
Leopoldstrasse 24
D-80802 Munich, Germany
Phone: +int.-89-38 602 280
Fax: +int.-89-38 602 203
Email: Prinz@mpipf-muenchen.mpg.de

GR1

Rybash, Acting Chair, Department of Psychology, Hamilton College, Clinton, NY 13323. Women and members of minorities are encouraged to apply. *Hamilton College is an Equal Opportunity and Affirmative Action Employer.* Applications will be reviewed, beginning May 15, 1997, until the position is filled. NY1

FCDD and Rockland ARC are looking for a Director of Educational Programming for the existing Autistic Children's Program. PhD or MS with experience in applied behavior analysis and childhood autism is essential. The candidate will oversee all aspects of curriculum, supervise and train staff. We offer opportunities for professional development, expert consultation for continued training, travel and research. Send resume to: Foundation for Children with Developmental Disabilities (FCDD), PO Box 757, Pearl River, NY 10965 or via FAX 914-359-0764 or call 914-634-5152. NY2

POSTDOCTORAL ASSOCIATE position in **CORNELL UNIVERSITY** in a lab studying cognitive effects of developmental brain damage using an animal model. Two current NIH funded projects concern early exposure to cocaine and lead, respectively. PhD required. Preference given to candidate with expertise in the areas of biology of cognition and statistics. Send CV and three letters of recommendation to Dr. BJ Strupp, Dept. of Psychology and Division of Nutritional Sciences, Cornell University, 109 Savage Hall, Ithaca, NY 14853-6401. Fax: 607-255-1033; or E-mail to: bsj13@CORNELL.edu. Phone: 607-255-2694. EEO/AA. NY3

OHIO

PROJECT MANAGER/POSTDOCTORAL RESEARCHER IN THE DEPARTMENT OF PSYCHOLOGY AT THE OHIO STATE UNIVERSITY: Applicant will be joining, in the 2nd year, a 5-year federally funded project examining the role of stress in newly diagnosed women with breast can-

cer on psychological, behavioral, medical, and immunological/endocrinological outcomes. Subjects in the study are randomized into one of two groups: assessment only or assessment plus intervention. The project manager/post-doctoral researcher's main responsibility is to supervise the work of project employees and coordinate data collection of multidisciplinary team of psychologists, immunologists/endocrinologists, physicians, research assistants, and graduate students. Strong interpersonal and organizational skills required. It is also important the applicant possess clinical experience. PhD in clinical/health psychology preferred although MA level applicants with appropriate background will be considered. Salary will be based on degree and level of experience. Benefits package included. Position start date is 9/1/97 or sooner. Applications will be accepted until position is filled. *The Ohio State University is an equal opportunity/Affirmative Action Employer. Qualified women, minorities, Vietnam-era Veterans, disabled veterans and individuals with disabilities are encouraged to apply.* Information requests can be made to Deanna M. Golden Kreutz, PhD, Phone (614) 292-6874; email: goldenkreutz.1@postbox.acs.ohio-state.edu. Submit letter of interest, vita, and list of 3 references to Barbara L. Andersen, PhD, Dept. of Psychology, 169 Townshend Hall, 1885 Neil Avenue, The Ohio State University, Columbus, Ohio 43210-1222. OH1

VISITING ASSISTANT PROFESSOR OF PSYCHOLOGY—The OHIO STATE UNIVERSITY Department of Psychology is inviting candidates for a one-year (but could possibly be a two year) visiting position at the rank of Assistant Professor in Clinical Psychology, beginning in the Fall of 1997. The major responsibility of this faculty member will be to teach graduate level adult psychopathology, adult clinical assessment, and supervise graduate students in practica. Review of applications will begin immediately and will continue until the position is filled. The salary range is \$25,000 to \$28,000. To assure consideration, send vita and three letters of recommendation to Dr. Steven Beck, Department of Psychology, The Ohio State University, 1885 Neil Avenue Mall, Columbus, Ohio 43210-1222. For

further inquiries, e-mail: Beck.5@osu.edu, or phone 614-292-6849. *The Ohio State University is an Equal Opportunity, Affirmative Action Employer. Women, minorities, Vietnam-era veterans, veterans, disabled veterans, and individuals with disabilities are encouraged to apply.* OH2

PENNSYLVANIA

The Department of Psychiatry of the **UNIVERSITY OF PITTSBURGH SCHOOL OF MEDICINE/WESTERN PSYCHIATRIC INSTITUTE AND CLINIC** has an opening at the level of Assistant Professor of Psychiatry (currently non-tenure stream) for a position as a scientific coordinator in a Program Project of research examining risk factors in childhood-onset depression. This program includes several research projects which will conjointly investigate genetic predisposition, psychophysiology, and developmental problems in the regulation of dysphoric emotions as risk factors for childhood-onset depression. We seek a person with demonstrated interest in clinical research in affective disorders with a focus on nosology, course and outcome, and models of etiology. This person will be expected to take a major programmatic role in the scientific and practical implementation of the Program Project, facilitate its progress, suggest new directions, develop research initiatives, and be actively involved in scientific publications, and presentations. Applicant should have a PhD in Psychology and postdoctoral training in a clinical/psychiatric research setting; clinical experience with children, adolescents, and/or adults; familiarity with psychiatric diagnosis; demonstrated interest and background in the area of affective disorders; and evidence of research potential. Good interpersonal, oral communication and writing skills are essential, as well as good problem solving skills. Salary commensurate with experience. For consideration, please send letter of inquiry, curriculum vitae and three letters of recommendation by June 30, 1997 to: Maria Kovacs, PhD, University of Pittsburgh Medical Center, Western Psychiatric Institute and Clinic, 3811 O'Hara Street, Pittsburgh, PA 15213. *The University of Pittsburgh is an Affirmative Action, Equal Opportunity Employer.* PA1

TEXAS

ASSISTANT/ASSOCIATE PROFESSOR, CHILD DEVELOPMENT EARLY CHILDHOOD.

The Department of Human Development and Family Studies at Texas Tech University invites applications for a tenure track position beginning Fall 1997 due to program expansion. Applicants are preferred whose research, teaching, and applied interests include one or more of the following areas: infancy, childhood, child guidance and early childhood programs. Evidence of strong research and undergraduate/graduate teaching record/potential is essential, ability and interest in mentoring is preferred. Deadline is June 1, 1997, or until the position is filled. *Texas Tech is an Equal Opportunity/Affirmative Action Employer and we strongly encourage applications from underrepresented groups.* Send vita tree letters of recommendation to Dr. Yvonne M. Caldera, Co-Chair, Early Childhood Faculty Search Committee, Department of Human Development and Family Studies, Texas Tech University, Lubbock, TX 79409-1162. Ph: 806-742-3000 x.262, FAX 806-742-0285, e-mail Q2YVO@ttacs.ttu.edu, web site www.hs.ttu.edu. **TX1**

VIRGINIA

US NAVY RESEARCH PSYCHOLOGIST—Uniformed positions available in 1997 in a variety of specializations: general experimental psychology, industrial/organizational/personnel optimization, physiological, quantitative, human factors and human performance. Candidates must have a doctorate, strong background in research methods and willingness to work on a variety of applied problems. Candidates will be commissioned a Lieutenant with an initial obligation of 3 years. Approximate starting salary is \$36,000. Additional benefits include 30 days leave per year, no-cost retirement plan, free medical and dental care, and exchange and commissary privileges. For further information, contact LCDR Tim Steele, Office of Naval Research, Code 342, 800 North Quincy St., Arlington, VA 22217-5660. **VA1**



University of Otago

Te Whare Wananga o Otago

New Zealand

LECTURER IN CLINICAL PSYCHOLOGY

Applications are invited from women and men for a lectureship in the Department of Psychology (equivalent to tenure-track Assistant Professor). Applicants must hold a postgraduate qualification in clinical psychology, and have a proven commitment to research. The successful applicant will be expected to contribute to undergraduate and graduate teaching and research supervision, and to be involved in clinical supervision. An appropriately qualified candidate may be appointed at a higher level and it is possible for an appointment to be made on a part-time or fixed-term basis.

The Department of Psychology offers a three-year programme of training in clinical psychology with an emphasis on the scientist-practitioner model. Well established links exist with the health-related services in the community and the School of Medicine. Teaching and research in clinical psychology are supported by the Clinical Psychology Research and Training Centre, and by excellent computing and technical facilities in the Department. Enquiries may be made to the Head of Department, Professor J. O. Miller, email miller@jomdesk.otago.ac.nz, facsimile 64-3-479 8335.

Salary: Lecturer NZ\$42,750 - NZ\$53,250 per annum. A particularly well qualified applicant may be considered for appointment beyond this level.

Reference Number A97/28. Closing Date 30 June 1997.

METHOD OF APPLICATION

Further details regarding this position, the University and the application procedure are available from the Deputy Director, Personnel Services, University of Otago, PO Box 56, Dunedin, New Zealand, (facsimile 64-3-474 1607).

Applicants should send two copies of their curriculum vitae together with the names, addresses and fax numbers of three referees, to the Deputy Director of Personnel Services by the specified closing date, quoting the appropriate reference number.

Equal opportunity in employment is University policy.

E tautoko ana Te Whare Wananga o Otago i te kaupapa whakaorite whiwhinga mahi.

NZ1

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1010 Vermont Avenue, Suite 1100
Washington, DC 20005-4907

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Ad copy is due generally on the 15th of the month preceding the month of publication.



AMERICAN PSYCHOLOGICAL SOCIETY

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(ISSN: 1050-4672)

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SUBJECT AREAS Index

Autism: NY2
 Biological: NH1, VA1
 Clinical: GA1, IN2, MA1, OH1, OH2, PA1, NZ1
 Cognition: NY3
 Cognitive: NJ1
 Cognitive Neuroscience: CA1
 Developmental: IN1, TX1
 Educational: NC1
 Experimental: MD1, VA1, GR1
 General (includes Director and Chair): AL1, GA2, MO1, NH1, NY1
 Health: GA2, OH1
 Human Factors: VA1
 Postdoctoral: IN1, MI1, NJ1, NY, OH1, GR1
 Psychometrics: NC1
 Quantitative: AZ1, VA1
 Social/Personality: IN3
 Substance Abuse/Addiction: AZ1, MI1

Foreign Country Code

GR Germany
 NZ New Zealand

How to Use the Job Subject Index

To help readers easily find position openings of direct interest, use the **Subject Areas Index** found at the end of the *APS Employment Bulletin*. The job listings themselves are organized by **geographic area**, but the **subject area** index permits more flexible review of the listings. At the end of each position announcement is a unique three- to four-character alphanumeric code in bold-face type. These codes appear in a listing of **SUBJECT AREAS** at the end of the job listings.

Use the subject list to locate areas of interest and note the codes that follow the subject area of interest. Codes contain two-character postal abbreviations of state names (e.g., FL stands for Florida) as their first two characters followed by a sequential number (1 through N) assigned on the basis of the position opening's location in the list of openings for the given state. For example, the tenth job opening listed under the state of Florida would have as its unique code "FL10."

Individual subject areas listed in the **SUBJECT AREAS** list may be followed by more than one code, indicating that more than one job relates to that specific subject area. Each code following an individual subject area represents one specific position opening. The subject list will vary in content across issues of the *Bulletin*.

Editor's Note: Subject indexing is not intended to be exhaustive. Readers should browse the job listings for a thorough exposure to available openings. Comments regarding indexing are welcome.

Email your ad to:
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Ad Size	Width	Height	Price (US \$)
Full-page	7 1/2	9 1/2	1,400
3/4	5 5/8	9 1/2	1,100
1/2	7 1/2	7 1/8	850
3/8	5 1/2	4 3/4	600
1/4	3 5/8	7 1/8	450
1/8	1 3/4	4 3/4	300
1/16	1 3/4	2 3/8	200

Display Ad Dimensions (in inches) and Prices

APS OBSERVER

APS OBSERVER

The *APS OBSERVER Employment Bulletin* is published monthly except June and August and is received by the nearly 15,000 academic, applied, and research psychologist members of the American Psychological Society.

Line ads (text ads) cost \$7.00 per line (approximately 34 characters fit on a line). Type is set in 9 point Times Roman.

Display ads are produced from your camera-ready art, film, or, if text is provided, APS will design simple ads. (See other side for sizes.)

Line ads appear on APS's gopher/www servers. Ads are due at APS by the 15th of the month preceding the month of publication.

For more information or to submit an ad, contact:

APS Observer ♦ 1010 Vermont Ave., NW ♦ Suite 1100

Washington, DC 20005-4907

(202) 783-2077 (ext. 3022) ♦ Fax: (202) 783-2083

Email: EWR@APS.Washington.DC.US



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