



# OBSERVER

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## Our Kind of Town, Chicago

CHICAGO—Somehow, it was fitting. While city restaurants were staging the “Taste of Chicago” food festival down the street, APS members were feasting on symposia, invited addresses, posters and other programs in a stick-to-your-ribs exposition of psychology’s best science.

The Fifth Annual APS Convention drew more than 2,000 people in late June to the Windy City where, following an inspiring keynote address on psychology’s future by recent National Medal of Science winner Eleanor Gibson, they went

forth and for three days indulged in the research equivalent of Le Grand Buffet—50 sessions and 650 posters on

a wide range of topics (e.g., neuroimaging, gender differences, ecological psychology, psychopathology, and whistleblowing in the science community). There were presentations on the latest theories in cognition and decision-making, new developments in peer communication

training, and health and behavior interventions at the community level.

Paul Rozin’s rivetting “Bring-the-Family” lecture—to a standing-room-only crowd—on the little-studied emotion of

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Opening session of the 5th Annual APS Convention; APS President Gordon Bower is presiding.

Convention photos by David Hathcox

◆ *Robert Plomin has been appointed APS Secretary, and APS Finance Committee Chair Paul Thayer has been appointed Treasurer. See page 3*

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## New NIH Behavioral Science Office

### APS shapes office as latest boost for psychological science

WASHINGTON, DC—It took an Act of Congress, but for the first time behavioral research now has a place to call home in the leadership structure of the National Institutes of Health (NIH), the \$11-billion-a-year national research agency.

The Office of Behavioral and Social Science Research (OBSR) was established through legislation, signed by President Clinton this summer, that authorizes a variety of programs and policies at NIH.

There is already a substantial amount of behavioral and social science research being funded by the various NIH institutes, but these disciplines have been chronically underfunded in comparison with other disciplines. As is true in other federal agencies, one reason for the underfunding is the relative lack of psychologists and other behavioral researchers in high-level positions. (Recently it looked like that would change because a psychologist

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# Trends in Clinical Psychology Research

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## In the Beginning

A number of national issues will significantly impact future trends in clinical research. Just as clinical psychology and research got their first big push from the Veterans Administration just after World War II, so too will the future be guided primarily by major economic and social issues. We tend to go where the money is (traineeships, fellowships, research grants) and to work on the socially relevant/important problems of our time. The VA impetus was but the first example of how clinical research trends start.

Of course, clinical psychology is an enormously large area, making prediction of specific trends difficult. I present only my own views but believe that the current crisis in higher education and the projections of changes to occur under the Clinton Administration will impact what we do in the next decade.

## Health Care Reform

The proposals for health reform (and more specifically managed care) will surely influence the direction of psychology, and, to the biggest extent, clinical psychology. My intention is to provide a brief overview of several important points.

Mash and Hunsley (1993) noted that we have seen enormous changes in mental health service delivery over the past 20 to 30 years. These changes have led to our mental health services being managed by third party payers, like insurance companies and specific employer programs. A number of projections now indicate that by 1995, about half of all Americans will receive their mental health benefits under some form of managed care.

Two of the most common types of managed care are Health Maintenance Organizations (HMOs) and Preferred Provider Organizations (PPOs). Mash and Hunsley defined HMOs as organizations that typically provide "services through a health care company, a group practice formed by several health care practitioners, or an employer's own staff of practitioners." Whereas, PPOs are defined as being "represented by service providers who have contracted with organizations to provide their services at a reduced rate in return for a high volume of referrals."

An increasingly popular arrangement is the "managed-fee-for-service plan." This plan incorporates all kinds of care coordination strategies under one umbrella. A good example is the EAP (Employee Assistance Plan) "designed to provide assessment and monitoring, education, crisis-intervention, short-term counseling, and referral and follow-up services to assist employees and their dependents with their personal problems. Employers often contract for EAPs with individual practitioners, HMOs, or PPOs." The bottom line is to have the most efficient services at the lowest costs. Short-term therapy will be the mode of treatment, and some people feel that psychologists will be just too expensive.

Although we have used different terms in the past, "managed care" has been kicked

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# Plomin, Thayer Appointed APS Secretary, Treasurer

CHICAGO—The APS Board of Directors at its annual June meeting appointed Robert Plomin, of Pennsylvania State University, and Paul Thayer, of North Carolina State University, to the positions of APS Secretary and APS Treasurer, respectively.

## New Treasurer/Finance Chair

Paul Thayer has been involved with APS financing from the society's beginning. Janet Spence had asked him to lay out the very first budget for the newborn APS in 1989.

"It was an interesting experience, trying to figure out what the budget of an organization of this kind should be," Thayer said. "So I basically put together three budgets—a best case, an expected case, and a disaster version," Thayer reminisced. "Then we proceeded to track things month by month, as closely as we could."

He said APS expenditures and revenue "came in almost on-the-money on the expected version—which meant the people spending the money were good, honest citizens who were giving me the straight stuff, and they also behaved themselves and stayed within the budget."

"Since that first three-track budget we've gone to a single-track budget," Thayer said, "but we have continued to pride ourselves on the fact that the APS board and committees spend such a small proportion of the total APS budget. It's under two percent!"

As APS Finance Committee Chair Thayer has led that three-person committee in developing each of the four subsequent annual APS budgets. Thayer, an APS Charter Fellow, is an industrial-organizational psychologist at North Carolina State University who recently wound up 15 years as head of the psychology department there.

Under the new APS bylaws, approved by the membership this year, the Treasurer also serves as the Finance Committee Chair. Until now, these were two separate offices, and APS Charter Fellow Milt Hakel served as APS Treasurer for the past three years. The two positions were merged in the revised bylaws in order to improve the continuity of the two offices.

Why has Thayer contributed so much effort to APS? "Because APS has helped me be a psychologist, not just some kind of specialist," he says. "Everything about APS is designed to pull the discipline together."

## New Secretary

An APS Charter Fellow, Plomin is currently on sabbatical in Cambridge, England, but upon learning of the invitation to serve as APS Secretary, he said "I have been cheering for—and been cheered by—APS, but largely from the sidelines. I decided to accept the invitation to join the APS board because I feel so strongly about APS." Plomin succeeds Michela Gallagher of the University of North Carolina-Chapel Hill, who served a two-year term as APS Secretary. Plomin said that while his "research leaves no time for anything else," he felt he "had to try to give something back to APS."

Plomin hopes he can make a contribution to psychological science by helping to redress an imbalance he sees "in government research funding priorities. I am concerned that the biological revolution in research and research funding has failed to give adequate attention to behavioral research," he explained.



## Psych Bytes...

◆ Women earn a higher percentage of the total of academic psychology degrees than men—from associate through PhD levels—though their edge progressively narrows through the doctorate level...

Specifically, according to the U.S. Department of Education, men earned 26% of the associate degrees, 27% of the bachelor's degrees, 31% of the master's degrees, and 39% of the doctoral degrees, in 1990-91. Women, on the other hand, earned 74%, 73%, 69%, and 61% of the same degrees, respectively.

◆ Psychology doctorates constituted 8.7% of all doctorates in 1990-91...

This makes psychology the third most popular science at the doctoral level, just behind physics (with 11% of the total doctorates) and life science (with 10% of the total doctorates). According to the U.S. Department of Education, there were a total of 3,422 psychology doctorates among a total of 39,294 doctorates in all fields. Psychology degrees at the associate, bachelor's, and master's levels constituted .2%, 5.3%, and 2.9%, respectively, of the total degrees earned in all fields at those levels.

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# APS Convention: An Awarding Experience

CHICAGO—What's a scholarly convention without an awards ceremony to honor the leaders in the discipline? Nothing! So, three categories of awards were given to APS members at the opening meeting of the June APS convention, preceding Eleanor Gibson's spellbinding keynote address.

Two **William James Fellow** awards are given annually to individuals for outstanding careers of significant **intellectual contribution** to the science of psychology. The newly established, **James McKeen Cattell Fellow** status, was bestowed upon 19 scientists working in the area of **applied psychological research** in recognition of outstanding contributions. The **Shahin Hashtroudi Memorial Foundation** awarded its first annual prize—coordinated by APS—for scholarly research on **human memory**.

## James McKeen Cattell Fellow Awards

In early 1992 a special committee, chaired by Daniel Ilgen, was formed to establish the James McKeen Cattell Fellow award criteria. Consistent with the mission of APS, the committee believed that the research should address a critical problem in society at large. Nominees would be evaluated on the quality of their research, the influence of their work on others in the

field, and the enduring and significant impact of their research in the field.

APS honored 17 Charter James



Recipients of APS honors at the 1993 annual convention (left to right): Urie Bronfenbrenner, Mavis Hetherington, Eleanor Gibson (*Keynote Speaker*), Sandra Scarr, Robert Glaser, and Edwin Fleishman.

### *Urie Bronfenbrenner Award Citation*

Urie Bronfenbrenner is the embodiment of all that a great scientist ought to be. In his half century as a psychologist, Urie has been unequalled in his theoretical contributions and his ability to translate them into rigorous operational research models. Focusing on the interaction processes between the organism and its environment, his books and articles have been widely translated, and his students and colleagues number among the most influential developmental psychologists today not only in this country but abroad. His imprint on the field of developmental psychology will be felt for generations to come.

Urie is that rare breed of scientist-citizen, motivated and able to employ rigorous developmental science to analyze critical societal problems, and to apply what has been learned for designing social programs and strategies that can foster the well-being and psychological development of children, youth, and adults.

To end at the beginning, Urie's life work in psychology has illustrated the truth of that oft-quoted aphorism of his late extracurricular mentor, Kurt Lewin, "There is nothing more practical than a good theory."

### *James McKeen Cattell Fellows*

#### *Sandra Scarr Award Citation*

The American Psychological Society names Sandra Scarr as a James McKeen Cattell Fellow in recognition of her distinguished achievements in psychological science.

Through her research efforts and public policy initiatives, Sandra Scarr has worked tirelessly to improve conditions for children and families in this nation. During her distinguished career, she has directed several major research projects that have addressed fundamental problems relating to child development and family life. In addition, she has given freely of her time to serve in leadership positions in several professional associations to the great benefit of the discipline of psychology and the nation.

For her many contributions to basic and applied issues in developmental psychology, she is recognized as a leader in psychological science.

McKeen Cattell Fellows and then recognized, for 1993, the first new recipients of this honor: **Urie Bronfenbrenner**, Cornell University, and **Sandra Scarr**, University of Virginia. Each received a certificate acknowledging their contributions to science (see box at left).

Bronfenbrenner commented upon receiving the award that "being willing to take your own position despite the pressures around you is our role as



Joseph Wolpe (left) receives James McKeen Cattell Fellow award from Daniel Ilgen and is congratulated by Gordon Bower.

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psychological scientists." And, after thanking the committee and a number of individuals and students influential in her career, Scarr remarked that her family had a good deal to do with her research choices as well: "I want to thank my four children because their individual differences and development inspired much of my research and my interest in this topic...."

### William James Fellow Awards

The annual William James Fellow award is one of the highest honors APS can bestow on an individual scientist. In addition to this year's winners, there have been 83 William James Fellows named to date. This year's winners are: **E. Mavis Hetherington**, University of Virginia, and **Fergus I.M. Craik**, University of Toronto.

Each received a special certificate for their dedication and contributions; the text appears below.

### Shahin Hashtroudi Award

The chair of the selection committee for this award, Marcia Johnson of Princeton University, announced **Holly Taylor** as this year's recipient of the

\$1,000 Shahin Hashtroudi award.

Holly, said Johnson, has engaged in creative and productive research on the organization of memory, particularly spatial memory and "the way in which time and character structure memory for events." Holly received her PhD from Stanford University and was nominated for the award by her department.

Johnson explained the origin of the award saying that Shahin Hashtroudi had been killed in a robbery in 1992. At the time, Shahin, a 45-year-old full professor of psychology at George Washington University, was enthusiastically engaged in research and was greatly admired and appreciated by her students. "She devoted her career to understanding memory through the analysis of how memory processes are obstructed by alcohol intoxication," said Johnson. "She was interested in a wide range of memory issues and was an excellent scientist who approached every problem with endless insight and careful scholarship."

In 1992, Shahin's family, friends and colleagues established the Shahin Hashtroudi Memorial Foundation and approached APS to administer a prize for graduate research in cognitive approaches to human memory. "This is a way both of remembering her and of encouraging and



Holly Taylor (right), winner of the 1993 Shahin Hashtroudi Memorial Award, and Marcia Johnson, of Princeton University and chair of the Hashtroudi Award committee.

rewarding progress in the broad field of memory in which Shahin had such a deep interest," Johnson said.

The award is for work based on a PhD dissertation or a master's thesis completed within the previous 18 months. The award competition was announced last year in the *Observer*. "The judges chose this year's winner from an outstanding group of nominees....," Johnson concluded. **M.T.**

### *E. Mavis Hetherington Award Citation*

Mavis Hetherington has had an enduring impact on developmental psychology through her seminal work in the area of family processes and adolescent development. Throughout her distinguished career, she has been a trend-setter in addressing issues of vital importance to families. Her pioneering research on the impact of divorce and remarriage on children is noted for its methodological sophistication, its innovative approach, and its relevance to clinical practice. She has also influenced a generation of students through her exemplary classroom teaching.

For her many empirical and theoretical contributions to the field of developmental psychology, she is recognized as a leader in psychological science.

### *William James Fellows*

### *Fergus Craik Award Citation*

Fergus Craik has been one of the most influential students of memory in our time. In the early 1970s he and his colleagues proposed a new framework for memory research under the banner of "levels of processing." This highly original approach has now been modified, refined, elaborated and extended into a general "processing view" of memory. It has had tremendous impact on theoretical thought and experimental practice in cognitive psychology, developmental psychology, aging and memory, and the neuropsychology of memory. Its powerful and far-reaching influence in the field of psychological science will be felt for a long time to come.

For his creativity and inspiring leadership in the conception, development, and elaboration of the levels-of-processing paradigm and the processing view of human memory, he is recognized as a leader in psychological science.

### Charter James McKeen Cattell Fellows

The following 17 APS members were honored with the James McKeen Cattell Fellow status for their distinguished contributions to applied research in psychology.

**Anne Anastasi**  
**Nathan H. Azrin**  
**Aaron T. Beck**  
**Leonard Berkowitz**  
**Alphonse Chapanis**  
**Edwin A. Fleishman**  
**Robert Gagne**  
**Robert Glaser**  
**Fred S. Keller**  
**Wallace Lambert**  
**Gerald Lesser**  
**John Money**  
**Martin T. Orne**  
**Edward L. Palmer**  
**Gerald R. Patterson**  
**Donald E. Super**  
**Joseph Wolpe**

# Living in Interesting Times

## *APS to Congress: Support Behavioral Research in FY '94*

WASHINGTON, DC—The congressional appropriations process was unusually belated this year, with the President's budget going to Congress April 8, over a month later than customary. And the subsequent ripple through hearings and Committee votes has thrown the legislative sequence slightly out of kilter. Add the effects of an Administration in transition, a large number of new members of Congress, and a preoccupation with issues such as health care reform, deficit reduction, among others, and suddenly we are living in interesting times, as they say.

Despite this environment, APS has several early accomplishments to report (see sidebar) and we expect additional successes as the appropriations process continues into the fall.

### **NIH Appropriations**

Though most in the research community had been braced for slim pickings, it still was a shock when for the first time in recent memory NIH was not slated for a healthy spending increase. Overall, the President's FY 94 request of \$10.7 billion for NIH is a 3.2% increase over FY 93. Most of the new money is slated for women's health initiatives, AIDS, and a few other favored programs. But exclude these favored areas—and factor in the biomedical inflation rate—and the NIH budget contracts by about 4%.

Members of both the House and Senate appropriations committees have reacted negatively to the Administration's proposal for NIH, and many have vowed to restore the cuts. Powerful House Appropriations Committee Chairman William Natcher made the first move—reportedly to “correct the [President's] mistakes”—by proposing a 5.2% increase for each of NIH's 17 institutes. The House approved the Committee's spend-

ing bill which committed \$10.9 billion to NIH, giving it an overall increase of \$610 million (or 5.9%) over FY 93 and \$269 million more than the President's request. The Senate is expected to support increased funding for NIH as well, though how much remains uncertain.

### **National Science Foundation**

The National Science Foundation (NSF), treated more kindly by the Administration, received an overall budget of \$3.18 billion, a 16% increase over FY 93. The Social, Behavioral and Economic (SBE) Directorate's budget would increase by 8% to \$106.9 million. (As reported in the May *Observer*, 20% of this increase would be devoted to activities relating to the **Human Capital Initiative** (HCI), a national research agenda outlining six major problem areas—violence, worker productivity, schooling and literacy, drug and alcohol abuse, aging, and health—in which psychological research can contribute. (The HCI emerged following several APS-convened summit meetings that began in 1990 and is increasingly being used by federal research agencies in planning their behavioral and social science programs.)

The House has approved a FY 94 spending bill for NSF but trimmed back the proposed increase to only 11%. As we go to press, it is not known if the Senate will support a similar increase.

### **A Rite of Spring**

During the spring, APS presented testimony on the NIH and NSF to both the House and Senate Appropriations Subcommittees overseeing these agencies. Following are the highlights of our policy and funding recommendations for FY 94.

### **◆ Preserve Behavioral Science at NIMH, NIDA and NIAAA**

With the arrival of three new NIH Institutes—the National Institute of Mental Health (NIMH), the National Institute on Drug Abuse (NIDA), and the National Institute on Alcoholism and Alcohol Abuse (NIAAA)—we stressed the importance of preserving the behavioral science missions of these institutes, given NIH's overwhelmingly biomedical orientation. The FY 93 conference report accompanying the transfer of these former ADAMHA institutes addressed this concern by stating “...the conferees reiterate their strong support for psychological, behavioral and social science research in the understanding of mental, addictive and physical disorders.” In our testimony, we asked the Subcommittee “to uphold this policy in the FY 94 appropriations and to direct NIH to capitalize on their presence to improve its overall behavioral research efforts.”

### **◆ NIH Office of Behavioral and Social Science Research**

With the recent passage of legislation creating an Office of Behavioral and Social Science Research (see story on page 1), expectations have increased for wider recognition of the role of behavioral science in addressing physical conditions as well as mental and addictive diseases. However, given NIH's past lukewarm reception of behavioral science research, Congress needs to maintain a watchful eye, so we specifically asked that the “Subcommittee lend its full support to the creation of the Office of Behavioral and Social Science Research by taking the following steps: (1) Encourage the NIH Director to move quickly to

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establish the Office; and (2) Provide \$1.5 million to establish the Office and to fund the development of the required report within the authorized time frame. Further, we ask this Subcommittee to increase its commitment to research in health and behavior; personality research; social and developmental psychology across the life span; thinking and cognitive science; treatment effectiveness; psychopathology; and the biological bases of behavior."

◆ **NIMH Behavioral Science Programs**

● *NIMH Behavioral Science Task Force*—NIMH recently embarked on its most comprehensive assessment to date of basic behavioral and psychosocial research (see March 1993 *Observer*) with the establishment of a Behavioral Science Task Force. The Task Force is expected to present its report on a national plan for behavioral science research to the NIMH Advisory Council as soon as December 1993. In our testimony, we asked "the Subcommittee to lend its full support to NIMH's Behavioral Science Task Force and to urge NIMH to report back to Congress with plans for implementing the recommendations of the Task Force report."

● *NIMH Behavioral Science Centers*—NIMH has announced the establishment of at least one, and perhaps two behavioral science research centers (see May 1993 *Observer*). The first of its kind at NIMH, the centers program will focus on basic behavioral research related to mental health. The idea for the centers was first proposed by APS in 1990. This year we asked for "congressional support for continuing the behavioral science centers program. Specifically, we ask this Subcommittee to set aside at least \$1 million to fund additional behavioral science centers

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## *Congress to NICHD: Continue Initiatives*

Over the past two years, APS and the Society for Research in Child Development (SRCD) have worked with Representative Louis Stokes (D-OH) to establish and maintain a research program at NICHD on the **normative behavioral development of ethnic minorities**. NIMH is also contributing to the program. Because a long-term commitment is necessary to establish the comprehensive data base needed for this research, we asked both the House and the Senate for their continued support of this initiative as a priority. As a result of these efforts, the following language for the NICHD was included in the House Appropriations Committee Report on the FY 94 appropriations for NIH:

*Normative behavior*—The Committee is pleased to learn of the recent awarding of five grants for research on the normative behavioral development of ethnic minorities. The Committee recognizes that a long-term commitment to this research is necessary to establish a comprehensive data base on the general norms for various aspects of development in African-American, Asian-American, and Latino children and youth, in order to evaluate the effectiveness of early educational interventions and other childhood programs as well as to help dispel the distorted images that result from an unbalanced or incomplete research base. The Committee believes this program should remain a priority at the Institute and urges NICHD to continue funding in fiscal year 1994 for this important area of research.

In addition, at the request of APS and SRCD, Representative Stokes also sponsored language in last year's report directing NICHD to begin planning in FY 93 for an initiative on **behavioral development during the middle childhood years**. This year, through our continued efforts with Representative Stokes, the following language appears in the FY 94 House Appropriations Committee Report:

*Childhood Development*—The Committee encourages the Institute to continue its long-term research initiative on development during the middle childhood years of ages 5-11, those years least understood by child development researchers. There is evidence that many adolescent and young adulthood problem behaviors, such as school dropouts, unwanted pregnancies, gangs, alcohol and drug abuse, and AIDS, among others, may have their roots in the middle childhood years. The establishment of a knowledge base in this research area is important to fully understand the development of middle childhood skills involved in decision making, such as resolving conflicts, dealing with peer pressure, and maintaining self-confidence. The Committee understands that the Institute has begun developing a request for applications and will provide funding for research on middle childhood development in fiscal year 1994. The Committee commends NICHD for responding to this critical area of research and urges the Institute to continue supporting research in this area.



## Spotlight on Research

# Treating Autism Effectively

*Focus on the research of Eric Schopler, renowned autism expert*

### Breaking with the Past

When Eric Schopler first became interested in the subject of autism in the 1950s, the field was dominated by his

A professor of psychology and psychiatry at the University of North Carolina at Chapel Hill, Schopler has been editor of the *Journal of Autism* for eighteen years

and has published hundreds of articles and more than a dozen books on autism. An APS Charter Fellow, the 66-year-old Schopler also is the founder, and former director, of Division TEACCH (Treatment and Education of Autistic and Communications-Handicapped Children) at the university.



controversial former professor at the University of Chicago: the charismatic psychoanalyst Bruno Bettelheim.

Not intimidated by such daunting reputation, Schopler recognized what he called "some pretty serious flaws in Bettelheim's way of thinking." And, within a decade, Schopler had pioneered a new approach—to treating autistic children—antithetical to Bettelheim's thinking. Schopler utilized the parents—to Bettelheim, the very source of the problem—as cotherapists, seeing them as unfortunate "scapegoats for professionals."

His behavioral approach has earned him worldwide recognition, as professionals increasingly understood autism to be an organic developmental disorder marked by deficits in social interaction and communication. Bettelheim, and many contemporaries, had espoused a psychogenic origin: extreme stress caused by the children's parents.



Eric Schopler

### Low Rates of Institutionalization

Division TEACCH began operations in 1972 with 10 classrooms. Its success has resulted in the development of six regional centers throughout North Carolina and 154 TEACCH-affiliated public-school classrooms. About 4,500 children and adolescents have been diagnosed and/or served through the program.

By providing a broad range of services, including diagnostic evaluation, individualized treatment, consultation with schools and other agencies, social skills training, parent education and support groups, and vocational training, TEACCH is credited with North Carolina's unusually low rate of institutionalization for autistic people.

Follow-up studies reveal—in this country and Great Britain—that institutionalization rates range from 39% to 78%, whereas less than 8% of TEACCH's clients over the age of 18 require institutionalization (see figure).

In its 21 years, the state-funded TEACCH program has spawned clones not only in other states but in dozens of foreign countries, particularly in Japan, where the approach is extensively used.

The TEACCH program is in



high demand in Europe, South America, and Asia, where Schopler and his wife, Margaret Lansing, a psychotherapist, travel regularly to present workshops on the TEACCH model of "parents as cotherapists." And, TEACCH provides multidisciplinary training for allied professionals from dozens of countries at its center in Chapel Hill.

**Research**

TEACCH's active research program on autism currently includes studies on early diagnosis, standardization of diagnoses, and the effects of a model residential program for adults with autism, for which Schopler is principal investigator.

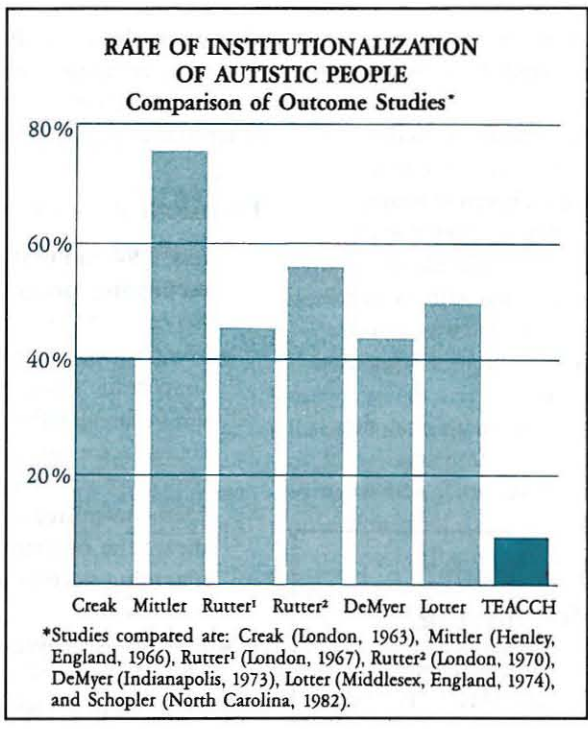
The five-year study, funded by an NIMH grant, is comparing 30 adults at the Carolina Living and Learning Center—an integrated residential and vocational training program on a sprawling rural site outside Chapel Hill—with a control group of 30 young autistic adults in a variety of residential settings.

The results of the study, now in its third year, indicate that the experimental treatment program facilitates the individual's adjustment by providing "significantly more structure, communication adaptation, individually based programming, proactive behavior management, and socialization training" than any other setting.

Schopler was a German immigrant and earned his undergraduate and graduate degrees at the University of Chicago. After graduation, he worked with severely troubled children at the Bradley Hospital, in Rhode Island, which specialized in autism.

"I met a whole spectrum there of these [autistic] kids, and they just intrigued me," Schopler explains. "Because it's a pervasive developmental disorder, there's no aspect that you can't become interested in. You can look at educational and learning problems in children, family life, community life, and parenting. And I met the parents—they were good people, and they were doing a heroic job. They had a willingness to rally that I found remarkable and inspiring."

For his doctorate in clinical child development, Schopler's empirical research project studied the area of



perceptual problems in autistic children—"the fact that they tended to smell and touch a lot and were not so interested in auditory and visual modalities. Normal kids start the same way, but their visual and auditory interests increase at a faster rate." Schopler developed procedures to compare these interests, using a sample of autistic, mentally retarded, and normal children.

When Schopler arrived at the University of North Carolina in 1964, "they were using group psychoanalysis with psychotic kids. In those days the terms psychotic and autistic were being used interchangeably," Schopler noted.

"Some alleged that their parents had thought disorders. So I decided to conduct a study comparing the incidence of thought disorders in parents of autistic, retarded children, and normal children. Indeed, the parents of autistic children had worse scores, but, I speculated, it may have been because they knew they were being evaluated in a psychoanalytic-oriented context in which they also knew parents were traditionally blamed."

"Most of them had other kids. So my followup study included parents who had another child who was not autistic," Schopler explains. "We started the study by asking them about their nonautistic

children, a more positive child-rearing experience. The interviewer would ask them, 'How is it that folks like you who have a difficult child managed to raise this other child so successfully, without any problems to speak of? How did you do this?'"

"The parents were enthusiastic about discussing this. They were then asked to fill out the thought disorder protocol as in the first study. The 'thought disorder' dropped off," says Schopler, serving as "another clear indication that Freudian explanations [of autism] were erroneous. The study offered strong support for initiating my parents-as-cotherapists project with the TEACCH model."

After the Freudian group therapy project ended and the director left, in 1967 Schopler received a six-year NIMH grant of about \$310,000 to test the parents-as-cotherapists concept.

Schopler studied 40 families of autistic children. When the money ran out, the state of North Carolina agreed to pick up the tab for the program to continue.

The manner in which the state, contrary to usual practice, decided to

CONTINUED ON NEXT PAGE

## FROM PREVIOUS PAGE

take over a federal research project is a legendary story in North Carolina autism circles.

The parents in the study invited members of the state legislature to a family breakfast at a church in Raleigh, the state capital. They'd planned to put "the tough kids between parents and staff," Schopler explained with a chuckle. But the key guest, the lieutenant governor—who would be setting the legislative agenda—arrived late.

He took the only available seat, next to one of the more severely impaired children. The seven-year-old, who was

busily eating his grits and fried eggs without silverware, soon "picked up a handful of grits and put it on the lieutenant governor's tie," Schopler recalls. "We really thought, okay, we've blown it. But by the end of the breakfast, we knew he was on our side."

Parents continue to be the mainstay of the TEACCH program. "The professional may have the expertise in the field," Schopler says, "but parents know their autistic child better than anyone else does. Together we can do a lot." - **Carol Offen**

## TESTIMONY FROM PAGE 7

**in FY 94 and to direct NIMH to commit to the behavioral science centers as an ongoing program."**

- *The Graying of NIMH Behavioral Science Researchers*—The alarming decline in support for young psychologists and social science researchers at NIMH continues to threaten the nation's ability to study the psychological, behavioral, and social factors associated with the health and welfare of its people. In our testimony, we stressed the sense of urgency to address this issue and asked the "Subcommittee to encourage NIMH to make this a priority in FY 94, and to direct the Institute to specify what mechanisms will be used to reverse this alarming decline in support for young behavioral science investigators."
- *Other NIH Programs*—In our testimony, we requested support for additional research at the National Heart, Lung and Blood Institute on the "connections between heart disease and psychosocial factors" and at the National Institute on Aging (NIA) for an initiative on clinical trials for "behavioral interventions to improve cognitive functioning" as well as more "basic research on memory and cognition in older people." We also asked Congress to "encourage a clinical trials approach to psychological interventions, currently under development at NIDA." In addition, we asked the Subcommittee's support in encouraging NIMH, NIA, and other federal agencies to continue to use the "Human Capital Initiative to guide their funding for the behavioral sciences." (See sidebar on page 7 on the National Institute of Child Health and Human Development.)

### Preserve the SBE Request

In our statement to both the House and Senate appropriations subcommittees, we asked them "to preserve the budget request of \$106.9 million for the Social, Behavioral and Economic Sciences (SBE) Directorate" to allow the NSF to maintain its commitment to strengthening basic behavioral science research. We also expressed our appreciation for the Senate Subcommittee's special support of the Human Capital Initiative (HCI) in its FY 93 report, in which it directed NSF to use the HCI in planning its programs in behavioral science. As a result, NSF has pledged that 20% of the requested increase for the SBE directorate for FY 94 will be used for HCI-related activities (see May 1993 *Observer*). In addition we urged Congress to recognize that the support for the HCI was one way NSF is responding to congressional concerns about accountability and peer review.

### Funding For Training

APS presented testimony to the National Research Council's Committee on National Needs for Biomedical and Behavioral Research. The hearing was held to solicit views from the scientific research community to help in formulating recommendations for the National Research Services Awards (NRSA) program—the research training program of NIH. In the testimony, we asked the Committee to take fresh and more frequent looks at where training funds for psychology and behavioral science can best be spent and stated "Priorities should include funding for training in basic behavioral science and clinical research, and new mechanisms that meet the special needs of women scientists in psychology." We emphasized that the behavioral sciences have never been more ready to receive the infusion of researchers that NRSA support could bring. **S.B. & B.W.**

## TEACCH Is Model Program for Saving Money by Reducing Institutionalization Rates

### TEACCH receives significant federal and state support

TEACCH receives \$2.6 million annually—primarily from the state of North Carolina through the Developmental Disabilities Council—to support six regional centers in addition to the Carolina adult center. Support also comes from the U.S. Department of Education, and grants from the National Institute of Mental Health support research.

TEACCH has received numerous awards over the years for both its research and its successfully innovative treatment approach. TEACCH has been recognized for excellence, for example, by the National Institute of Mental Health and the American Psychiatric Association.

Institutionalization in the state of North Carolina costs between \$65,000 and \$85,000 per year per person. TEACCH's annual cost per person for community placement, on the other hand, is on the order of \$10,000 to \$12,000, a considerable savings over institutionalization.

# Member Profile

## Drug Addiction Treatment: What Works and What Doesn't

*Interview with Dwayne Simpson, director of one of the nation's most successful federally funded addiction treatment assessment programs*

Does the treatment work? Is it successful? These are important questions given that Medicaid's 1991 expenditure for hospital care was \$21.6 billion and some 20%, or \$4.2 billion, was attributable to substance abuse. Further, if the same ratio holds for other U.S. health care expenditures, the nation is spending close to \$200 billion annually on care caused by drug abuse, according to a report released July 15 by the Columbia University Center on Addiction and Drug Abuse.

Dwayne Simpson is an APS charter member with most, if not all, of the tools for reaching science-based answers about the efficacy of drug abuse treatment outcomes. His expertise in drug abuse dates to the 1960s when he entered the addiction field and when addiction was becoming rampant. The federal government had decided to decentralize its addiction treatment system—consisting of a few large hospitals—to create a variety of community-based systems more like the 1,500 publicly funded community centers of today. There were only a handful of such centers in 1969, but the rapid escalation of these centers changed federal funding priorities for treatment. Were the changes justified? Were outcomes better?

At the same time, more para-professionals were being used in community centers. Were they effective? How could they be made more effective? No one knew. Public awareness of the drug-crime connection clicked at about that same time, so America was seeing the first skirmishes in what would be our War on Drugs, Simpson says. Methadone treatment was on the horizon. A handful of therapeutic communities were in place.

### Outrageous Claims

What jarred Simpson's skeptical scientific sensitivities were claims by some centers of 90 percent to 100 percent "success rates" for treatment. In some places those claims were almost as rampant as drug abuse itself.

"These untested claims about 'success' aroused scientific concerns," Simpson mildly suggests. "What does success mean? And, on whom are you basing success claims?"

"What was happening was that many programs liked to count only those clients who completed the program, disregarding the 75 percent who dropped out," Simpson says.

Later he and his colleagues would demonstrate that success must not be too simplistically defined. It's all right for policy makers to be interested mainly in the bottom line—they are not psychologists, Simpson notes. Even as researchers you may indeed have to define short-term goals that help retain the funding and give quick, simple answers about "success" in treatment. But when he talks about treatment outcomes, Simpson rarely uses the "S" word without quotation marks around it.

### Getting Real

"So it's not a matter of not doing the quick, simple things; you don't stop there," Simpson says. "You must aspire to more sophisticated levels of evaluation, looking at the treatment and recovery process in the real world. How do we get addicts engaged in treatment, and what are the barriers? What happens in treatment that makes a difference, including contacts and interactions with treatment agents? How do we keep addicts in treatment and promote change? And how do we assess

multidimensional outcomes representing drug use patterns, criminal involvement, employment and productive activities, social relations and psychological adjustments?

"A more comprehensive evaluation is necessary, using a more complicated measurement system. After learning that treatment reduces recidivism rates by 30 percent, policy makers are going to ask who did best, since there are a limited number of beds. Their bottom line is cost-effectiveness," Simpson says.

When Simpson and his colleagues entered the field, there were no large-scale addiction outcome evaluations. There was also considerable doubt about the feasibility of post-treatment follow-up studies of this kind. Could large multisite evaluations be achieved effectively in a real-world setting?

### At the Right Place and Time

Even today, evaluation research is a fairly new field, Simpson points out. In the drug abuse area, it transects the drug abuse field. It transects social, physiological, quantitative, and cognitive psychology.

Simpson was trained at Texas Christian University (TCU) in a general experimental program. He was associated with psychologist Saul B. Sells as a graduate student, and he now holds the S. B. Sells Chair in Psychology at TCU. He took advantage of some of the new opportunities in a field that was just emerging, setting off on a course which has made him one of the nation's leading evaluators of drug abuse treatment.

"Our group may just have happened to be at the right place at the right time," he says. Over the last 30 years, the National Institute on Drug Abuse (NIDA) and predecessor agencies alone have funded \$20 million of the research and development work undertaken



SEE ADDICTION ON PAGE 30

# Battle Cry for a Unified Discipline

## *Gibson delivers spellbinding Keynote Address At 5th annual APS convention*

"Something went wrong with this youthful field about half way into the century," Eleanor Gibson remarked to an audience composed of 1,000 representatives of the field as she delivered the keynote address of APS's fifth annual convention.

In the 1930s, "unlimited possibilities for new discoveries" seemed to lie on psychology's horizon, she said.

"Being a graduate student in a psychology laboratory then was a highly sought-after privilege—and a great future lay ahead," the National Medal of Science laureate said, reminiscing about her own doctoral studies at Yale University in the 1930s.

"A grand theory, a truly psychological one, was eagerly awaited, certain to make its appearance during our lives as scientists." However, by mid-century "the enthusiasm waned, and wariness about the grand general theories grew."

What went wrong? Has psychology been following George Miller's recommendation to "give itself away?" She said "that's what I'm afraid we are doing, though not in the sense that Miller intended," as she focused on psychology's history in the last few decades.

When malaise intensified in the 1950s, some psychologists thought that "breaking the shackles of radical behaviorism would set things right," Gibson said.

"We had the so-called cognitive revolution—it was spurred by events outside the mainstream of psychology ... principally by computers and artificial intelligence and architectural discoveries in neuroscience," she said.

Cognitive science surged. The hope was that it would "bring back the light, broaden the thinning stream, resuscitate the flagging science and regenerate the excitement that psychologists had felt 50 years earlier" by bringing together cognitive psychologists, philosophers, linguists, computer scientists and neuroscientists.

Although the resulting individual contributions have been "generally praiseworthy," Gibson said, "I can't find any emergent principle rising from the meld, at least not any emergent theory that sounds like the view of psychology that I have waited for so long. The new combination is not more than the sum of its parts nor, I am afraid, does it represent psychology," she lamented.

### Next Steps

So what should be done now? Gibson outlined an agenda based on "qualities that always have been recognized as driving human behavior." The agenda deals "with the whole creature functioning adaptively in a dynamic exchange with the world of events and places and people," she said, adding, "I go for the big picture and I've not given up hope on big principles."

### Dualistic Traps

But first, psychologists must rid themselves of three traps, she said. Dualism and reductionism are two for the rubbish heap. The nature/nurture debate is a third. The uncertainty created by dualism was the very basis for psychology's rejoicing when it freed itself from philosophy and thus dualism's grasp. Dualism's aimless argument had left psychology outside the realm of natural science. But the "ghost in the machine" has been creeping back into psychology in recent years, Gibson said, and "we do not need it."

### Reduced Science

Reductionism cultivates what Gibson considers to be inappropriate efforts to describe causal relations *between* different levels of analysis. "Causal relations do not exist between levels," she stated. On the other hand, analyzing correspondences between levels is a major interest of scientific endeavors, she said. But meaningful analysis will derive only from correspondences between appropriate



Eleanor Gibson delivers 5th Annual Keynote Address at the APS Chicago convention.

units across the different levels, and correspondences do not imply causal relations. Emerging from this knowledge may be more general unifying principles, though.

The impressive advances in neuroscience in recent years should not be the driving force behind our discipline, explained Gibson. Psychology, she said, has its *own* valid subject matter—psychologists are the ones who "know how to study behavior, who can describe the intricate intertwining of perceiving and acting in the adaptive ways of the human animal and who can observe the development of this activity with insight into the constraints, opportunities, and environmental [factors] that underlie the dynamics of change."

### Chicken or the Egg?

Understanding the dynamics of change, as a scientific goal, requires relinquishing the third hobgoblin: the nature/nurture dichotomy or dimension. "There is no such dimension," Gibson said. "There is always interaction of many factors in development."

She continued, "It is the functioning, both cognitive and active, of the whole animal in the environment in which it evolved that has to concern us. It deals with the whole creature functioning

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adaptively in a dynamic exchange with the environment.”

Gibson believes that the most useful approach to developing a scientific understanding of behavior is a developmental approach. “There is no typical or standard moment of maturity. Besides, we gain our understanding through change and becoming. This is true of all sciences,” Gibson explained, “from cell biology to cosmic physics. The study of psychology should begin before birth—and we are beginning to be able to do that,” she said.

### Setting an Example for Principles

Gibson’s research program is organized around the “hallmarks of human behavior.” These fundamental properties of human behavior are the subject matter of psychology and what we need to account for, she elaborated. “All are present in at least primitive form at birth, though they also develop, differentiating and elaborating, giving us as they shift gears or change, a way of studying the factors that interact in making them what they are and we are early or late.”

*Agency*, or *control* tops Gibson’s five hallmarks. “William James must have had such a property in mind when he wrote his paper ‘Are We Automats?’” Today, Gibson said, we can answer that “activity is not reflex even in an infant. Change in the external world is perceived by the infant and is a perfect source of knowledge for the self as a causal agent,” Gibson said.

*Prospectivity* is her second hallmark of behavior. It is the forward-looking character of behavior, and it takes for granted the notion of agency or control.

*Flexibility* is the third hallmark. Gibson said the term refers to the transfer of means and strategies and the ability to select from varied means to realize an “affordance”—a term for the relationship between perceiving and acting of a given animal in its environment. The ability to transfer and select strategies is a mark of flexible behavior, she said.

*Communicative creativity* is the fourth hallmark. All animals communicate, but humans have the potential to extend the means of communication to an amazing degree, Gibson noted. “From gesture, to vocalization, to language, to reading print, to mathematical symbols and computer-

ized codes, there seems to be no end,” she said. Infants communicate with caretakers from day one, she noted, and they engage in real interaction by two months of age.

*Retrospectivity*, the backward-looking character of behavior, is the fifth hallmark. “Yes, babies can remember a face or a gesture, at least in the sense of responding to it differentially,” Gibson noted, but retrospectivity seems to demand language, the ability to encode past events and relate them to future anticipated ones. Remembering is a dynamic, adaptive process that “is potentially important throughout the factors that interact in creating a never-finished, perceiving, acting, thinking human being,” she said.

The audience laughed as she concluded her list of hallmarks saying, “I hold these truths to be self-evident—that agency, prospectivity, flexibility, communicative creativity, and retrospectivity are—and always have been—recognized qualities that work human behavior, however often the names have been altered over history. They still give us our agenda. And because they are continuously developing they offer us a strategy for research, a way to investigate the factors—both environmental and internal—that interact to drive the change.

“If we observe the ontogeny of these properties with all the new research methods at hand are we at all likely to find any general law or trend? We might,” she opined.

“I consider that psychologists have a duty to explore their own field, to create hypotheses about the behavior of animals, especially human, and to look for possible causal relationships at the level of acting, thinking, perceiving humans in their environmental contexts. Our agenda should be at this level, not one that depends on waiting for reductionist theories that settle other matter, be it neural, genetic, nuclear, or especially artificial.”

“...We should continue to look for theories of considerable generality, however elegant a model may be in a tiny realm. If we can’t find universal laws, we may still come up with unifying principles.”

And so, she concluded, “Let’s not give psychology away. Let’s keep psychology and recapture the old excitement.” **D.K.**

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*There is no typical or standard moment of maturity. We gain our understanding through change and becoming. This is true of all sciences from cell biology to cosmic physics. The study of psychology should begin before birth—and we are beginning to be able to do that.*

ELEANOR GIBSON

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*Causal relations do not exist between levels [of analysis].*

ELEANOR GIBSON

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## DiLORENZO FROM PAGE 2

around for over 30 years. Why is it becoming more of a reality now? Because health care reform is now linked to the "economy!" Whether you are for or against managed care, most people agree that something has to be done with the current health care system. In a recent issue of the *Health Psychologist*, Kaplan noted three major problems with the health care system in the United States.

### Expensive, Inaccessible, and Unproven Health Care

First, it's unaffordable. The 1992 expenditure for health care was \$800 billion. We spent more than \$3,000 per person, per year. Second, it's inaccessible. Overall, 40 million people have no health insurance at all. Finally, there is no accountability. "Despite the fact that we spend more money on health care than any other country, we are unable to document that these expenditures result in increased life expectancy, better quality of life, or improvements on any other health indicator" (Kaplan, 1992).

### Research and Practice

Kaplan suggests that Clinton's policy changes may affect health psychologists by increased spending on prevention and investments in clinical research. "All indications are that basic and applied research will be well supported during a Clinton administration.... According to some documents, there may be a stronger emphasis on clinical research, particularly, research that informs medical decision making or provides information on how to lower costs."

Kaplan notes that two components in the Clinton plan are of particular interest to health psychologists. First, the plan calls for core benefits that will include prevention care. This implies a potential major increase in the amount of preventive care delivered which in turn suggests more school-based clinics, community health centers, and training programs. The second component, an intensified health-education system, is reinforced by Clinton's public statements that health behavior is a major contributor to ill health and high health care costs. He has proposed programs to reduce unhealthy behavior and encourage personal responsibility for health.

Among the several implications for clinical practice, according to Kaplan, is the fact that the emphasis on universal health insurance may encourage providers to welcome preventive care since universal health insurance means that a larger pool of people share the cost of services. But strict limits on coverage are likely, and there is the challenge of how we would pay for this system. Since Clinton favors raising money through an employer mandate, every employer would be required to offer health care coverage for their workers.

Managed competition, says Kaplan, is another important concept in the Clinton proposal.... Managed competition forces competition—between insurance companies—under a set of structured rules. For example, employers would be required to provide employees a choice between competing alternatives. Employees would choose plans that best meet their needs, and

since at least a portion of the insurance premium would come from the employee's paycheck, there would be an incentive to choose the plan that provides the most value.

Perhaps the most important concept in the plan, according to Kaplan, is global budgeting which attempts to limit the systematic increases in health care expenditures as a proportion of the gross national product. Global budgets would set limits on how much could be spent for treating individuals.

### Efficacy Research

However, the global budgets will force competition. The competition is likely to increase the need for clinical research. "Under global budgets, it makes the most sense to pay for services that are most effective in making people well. Currently, it is difficult to decide which services should be supported because we have insufficient evidence about the efficacy of the alternatives. This ignorance has spawned a whole new industry of 'outcomes research' designed to evaluate the costs, risks, and benefits of competing treatments" (Kaplan, 1992).

I believe that these external forces (namely managed care) will not only affect clinical research but also clinical practice. Kaplan mentioned some: Increased prevention efforts, enhanced community approaches, and health education reform. However, Mash & Hunsley (1993) have said that it seems inevitable that managed care will dramatically influence the future development of all major forms of psychotherapy.

### Societal Issues and Research

In terms of societal issues, one point is less of a prediction—of trends in clinical research—than a plea for all of us to work together to define the future trends in psychological research.

As most of you know, the American Psychological Society convened a Behavioral Science Summit in Tucson in January 1990. "The Summit conferees, representing almost 70 organizations, unanimously endorsed the development of a national research agenda that would help policy makers in federal and other agencies set funding priorities for psychological and related sciences" (*APS Observer* Special Issue, Feb., 1992).

In January 1991, the Steering Committee of that summit reported its progress at the next Behavioral Science Summit in Houston. Through these meetings, the Human Capital Initiative (HCI) was proposed. The HCI is "a sustained, national research effort, to enhance the understanding of human development and behavior. The [HCI] is intended to support research relevant to a set of...six critical problems that are facing our nation, communities and families today, and that can be helped by psychological science." They include:

1. Worker Productivity
2. Schooling and Literacy
3. The Aging Society
4. Drug and Alcohol Abuse
5. Mental and Physical Health
6. Violence

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Because I am convinced that the clinical practice endeavor will change dramatically with the health care reform, this is an opportune time for applied researchers to ban together with our experimental colleagues to forge new research trends that will address, and be part of, the Human Capital Initiative. To the extent that we are successful, these trends will (and should) impact on clinical practice in the future. Within our department, we are working on a long-range plan of faculty hires that are based on building "critical masses" of researchers who would address several of these areas. The strength of the critical mass comes from bringing together researchers from different areas within the department. Many of the future trends will come from these types of collaborative efforts.

## One Unifying Trend

I realize now, after putting together this presentation, that one major trend affecting clinical research is the loss of psychopathology as the unifying theme of the clinical research endeavor. There is no *one* clinical research theme. In fact, there are many sub-areas that rightly have research themes unto themselves. The unifying theme relates more to our approach to clinical research. That is, we must engage in an increased emphasis on collaborations across areas of psychology (and, to a certain extent, across departments). We can advance our own sub-area's research theme by working with others who have something to say about the topic that we research rather than strictly working with others who belong to our sub-area group. The Human Capital Initiative demands this kind of collaboration, and, if you haven't read thoroughly the HCI document, I would suggest you do so. It's a unifying call to all of us to work together on the critical problems of our time.

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**Thomas M. DiLorenzo** is a clinical psychologist by training with a PhD from West Virginia University (1984). He is a member of APS and his research emphasis is in health psychology. His work has focused on assessment, prevention, and treatment of the use of tobacco products (smoking and smokeless or spitting tobacco). He also has conducted research on people's adherence to exercise regimens.

# People

## Recent Promotions, Appointments, Awards . . .

APS Fellow **James E. Cutting**, a professor of psychology at Cornell University, was among the 146 artists, scholars, and scientists to win a Guggenheim fellowship from the New York-based John Simon Guggenheim Memorial Foundation this past spring. The fellows were selected from among 2,989 applicants on the basis of "unusually distinguished achievement in the past and exceptional promise for future accomplishment." The awarded fellowships totalled \$3.9 million this year. Cutting's area of proposed study is the perception of environmental layout.

APS Charter Fellow **Louise Evans** is the recipient of several recent university and international honors. She was honored in April by Purdue University College of Liberal Arts for her professional achievements and community involvement and received the Distinguished Alumni Award of 1993 at the eighth annual Gala Weekend banquet. Evans also is a recipient of the 25-Year Silver Achievement Award given by the American Biographical Institute, and her biography will be included in the Institute's upcoming *Five Hundred Leaders of Influence* which includes the biographies of an "elite group who have helped mold international societies" during the last 25 years. She will be mentioned, too, in the forthcoming first edition of the *Most Admired Men and Women of the Year* and was also selected "World Intellectual of 1993" by the International Biographical Centre (England).



**David I. Mostofsky**, an APS Charter Fellow, completed his third year of a Serial Fulbright Award he received in 1991 for Teaching and Research. The host was Bar Ilan University in Israel. A serial award allows the participants to allocate the duties of teaching and/or research over a longer period than the more typical six-month award. Mostofsky is a Professor in the Department of Psychology at Boston University and is an experimental psychologist.

APS Fellow **Steven A. Pinker**, professor of brain and cognitive science at MIT, was awarded the Troland Research Award, honoring work in experimental psychology. Pinker received the \$35,000 award for his research on visual perception and the acquisition of language. The award, established by the bequest of Leonard T. Troland, is presented by the National Academy of Sciences and is given annually to further "empirical research in psychology regarding relationships of consciousness and the physical world." Pinker received his PhD from Harvard University in 1979 and is co-director of the McDonnell-Pew Center for Cognitive Neuroscience and the Center for Cognitive



Science, both at MIT. Past recipients of the Troland award include Edward N. Pugh (1984), Keith D. White (1985), Roger Ratcliff (1986), Laurence T. Maloney and Brian A. Wandell (1987), Eric I. Knudsen (1988), John T. Cacioppo (1989), Robert Desimone (1990), Daniel L. Schacter (1991), and Martha Farah (1992).

**Paula Tallal**, an APS Charter Member and Professor and Co-Director of the Center for Molecular and Behavioral Neuroscience at Rutgers University, was one of three speakers on March 18, 1993, in the newly established Decade of the Brain symposium series co-sponsored by the National Institute of Mental Health (NIMH) and the Library of Congress (LC). Along with David H. Hubel, Harvard University Medical School, and Carla J. Shatz, University of California-Berkeley, Tallal participated in this fourth symposium to help introduce members of Congress, their staffs, and the general public to the process of brain development. Tallal, a clinical psychologist and cognitive neuroscientist, has done extensive research in experimental psychology, developmental neuropsychology, language development and disorders, and speech synthesis and perception, learning disabilities, and information processing. The decade-long lecture series is one important program of several being developed by various organizations and federal agencies to publicize the revolutionary advances in the neurosciences.



**Eleanor E. Maccoby**, an APS William James Fellow, and **Larry R. Squire**, an APS Fellow, were among 60 new members and 15 foreign affiliates elected to membership in the National Academy of Sciences. They were elected to the Academy, on April 27, for "distinguished and continuing achievements in original research." The election took place at the 130th annual meeting of the Academy in Washington, DC, and brings the total active U.S. membership to 1,683 and foreign affiliate membership to 298. Membership in the Academy is considered one of the highest honors that can be earned by a U.S. scientist or engineer. Maccoby is Barbara Kimball Browning Professor of Psychology Emerita at Stanford University. Maccoby was the Keynote Speaker at the 1990 APS Convention in Dallas, Texas. Squire is professor of psychiatry at the University of California-San Diego and is a research career scientist at the Veterans Affairs Medical Center-San Diego. He has been active in APS activities including service on the National Research Agenda Committee, the predecessor to the Human Capital Initiative Committee.

**Correction:** APS Charter Fellow James G. Kelly's affiliation was incorrectly identified in the March 1993 *Observer*. He is Professor of Psychology at the University of Illinois-Chicago.

## People News Welcomed . . .

The Editor invites readers to submit announcements of noteworthy promotions, appointments, and the like for possible publication in the **People** news section of future *Observer* issues. Send suggestions to: *APS Observer*, 1010 Vermont Ave., NW, # 1100, Washington, DC 20005-4907



# Federal Agencies Meet Prospective & Current Grantees

CHICAGO—One of the staples of the APS convention is the Special Poster Session on Federal Funding, a one-stop shopping opportunity to find out about the latest federal grant opportunities for behavioral science. Chaired by Ronald Abeles, Associate Director for Behavioral and Social Research at the National Institute on Aging, this year's program included officials from 15 federal research agencies who provided information about dozens of funding programs for basic and applied research in mental health, child abuse, space human factors, AIDS, substance abuse, behavioral medicine, neuropsychology, treatment research, and military training.

Noting the good attendance—"the crowd sometimes was three people deep around some of the posters"—Abeles said that the session went beyond helping those in search of funds learn about agency programs. He said it was a time for grantees to meet their project officers and also a way for the federal participants to learn about other agencies. "I think some people were surprised" at the variety of agencies that support behavioral science, he added. Abeles also said the federal participants were pleasantly surprised by the number of "viable ideas" poster attendees discussed with the agency staff. "Many of these could compete favorably for grants," he commented.

According to Tim Condon, head of the science policy branch of the National Institute on Drug Abuse, the poster session "was a great opportunity to showcase NIDA's considerable behavioral research portfolio." Among other things, that portfolio includes the Behavioral Therapies Initiative, a new NIDA program that incorporates a "clinical trials" approach to behavioral interventions for treatment of drug abuse.

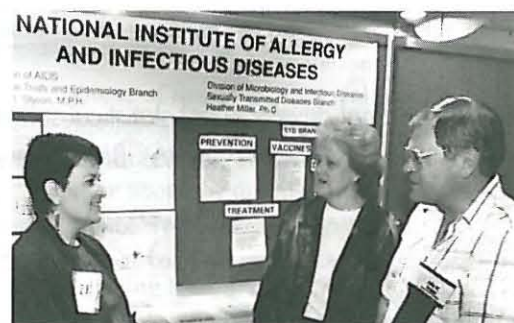
David Liskowsky, representing the life sciences division of the National Aeronautics and Space Administration (NASA), echoed Condon's comments. "We were very gratified by the response

NASA representative David Liskowsky (right) speaks with federal poster session attendee concerning NeuroLab program and space human factors research.



NIDA representative Tim Condon informs poster session attendees about drug abuse research funding programs.

Amy Sheon (left) speaks with federal poster attendees Laura Skidmore and John Hagen about NIAID research support programs.



SEE POSTERS ON PAGE 36

## Agencies Participating in the Special Federal Poster Session

- Administration on Children Youth and Families — National Center on Child Abuse and Neglect (Joan W. Gaffney, 202-205-8910)
- National Aeronautics and Space Administration — Human Factors Program (David R. Liskowsky, 202-488-5130)
- National Heart Lung and Blood Institute — Behavioral Medicine Branch (Peter G. Kaufmann, 301-496-9380)
- National Institute of Allergy and Infectious Diseases — Division of AIDS (Amy R. Sheon, 301-496-6177)
- National Institute on Child Health and Human Development — Human Learning and Behavior Branch (Norman A. Krasnegor, 301-496-6591)
- National Institute of Mental Health — Division of Neuroscience and Behavioral Science (Stephen H. Koslow, Hilleary D. Everist; Mary Ellen Oliveri, Richard Nakamura, Della M. Hahn, Michael F. Huerta, Lynne C. Huffman, and Howard S. Kurtzman, 301-443-3942); Division of Clinical and Treatment Research (Althea Wagman and Jack Maser, 301-443-5047); Mental Disorders of the Aging Branch (Jane Pearson, 443-1185)
- National Institute of Neurological Disorders and Stroke — Fundamental Neurosciences Division (Herbert C. Lansdell, 301-496-5745); Developmental Neurology Branch (Sarah Broman, 301-496-5821)
- National Institute on Aging — Behavioral and Social Research (Ronald P. Abeles and Robin A. Barr, 301-496-3136); Neuroscience and Neuropsychology of Aging (Deborah Claman, 301-496-9350)
- National Institute on Alcohol Abuse and Alcoholism — Treatment Research Branch (John P. Allen, 301-443-0796)
- National Institute on Drug Abuse — Office of Science Policy, Education and Legislation (Timothy P. Condon, 301-443-6071)
- National Science Foundation — Division of Social, Behavioral and Economic Science (Jean B. Intermaggio, 202-357-9485)
- U.S. Army Research Institute for Behavioral and Social Sciences — Basic Research Office (George Lawton, 703-274-5590)
- National Institutes of Health Reunion Task Force — Representing the reintegration of NIMH, NIDA and NIAAA into the NIH (Wendy Baldwin, 301-496-1848)

# Seeing the Brain in Action

## *Pictures of the Mind: Neuroimaging*

CHICAGO—"Evolution has encased the brain in a rock-hard vault of bone, wrapped it in layers of tough membrane, and cushioned it in a viscous bath of cerebral spinal fluid," said Gordon Bower in his opening remarks at the APS convention's presidential symposium, *Pictures of the Mind: Neuroimaging in Neuropsychology*.

"The human brain is difficult to study because it is so bloody inaccessible," Bower succinctly added, "and the fact is that few of us have ever seen a live, functioning human brain." Early studies on patients with brain injury or malfunction have left us with "the nagging question as to whether the results ... were representative of normal brain function," said Bower.

But several modern techniques now provide increased opportunities to visualize what is going on inside the brain as people behave—as they perceive, talk, remember, think, and react emotionally, Bower said. The methods (e.g., Positron Emission Tomography) for visualizing functioning activity (functional imaging) stand in contrast to methods (e.g., Magnetic Resonance Imaging and CAT Scans) used primarily to reveal brain structure (structural imaging) and were the subject of this symposium. Bower noted that the symposium had educational goals and expressed hope it would help psychologists learn about neuroimaging techniques and use these techniques to answer important research questions.

With these techniques as the centerpiece of the national Decade of the Brain initiative, Bower explained, this brain imaging symposium received partial sponsorship from the National Institute of Mental Health's Division of Neuroscience and Behavior Science, headed by Stephen Koslow.

APS Fellow Lloyd Kaufman of New York University, one of four participants in the symposium, remarked that "a short time ago the suggestion that we might watch the human brain at work would

have been dismissed as science fiction. But now PET makes it possible to see local changes in cerebral blood flow. These changes reflect the work done by neurons involved in mental tasks—so we can learn something about the parts of the brain involved in these tasks. In addition, ... functional MRI makes possible the visualization of blood flow changes in the brain on a time scale of about one second. In the future, we may in fact be able to induce the technology to measure on a scale commensurate with real-time activity during complicated mental processes."

### Going to the Source

But Kaufman pointed out that we know little about the relation between these surrogate measures (e.g., blood flow changes or glucose uptake) and the level and spatial distribution of neuronal activity. To help resolve such serious methodological issues, Kaufman described a type of functional imaging called magnetic source imaging (MSI), which is related to magnetoencephalography (MEG), uses SQUIDS (superconducting quantum interference devices), and can provide what he called "an anatomical map of patterns of intraneural currents that give rise to the brain's magnetic field." He said MSI will help connect cerebral blood flow measures with activity at the neuronal level, since MSI couples directly into the current that flows inside neurons.

More than 10 years ago, Kaufman and co-workers discovered—measuring auditory cortex with a single-channel MEG device during stimulation with different pitches—that "no other functional imaging system has ever revealed such a precise relationship between



Participants in the Presidential Symposium on neuroimaging (left to right): Walter Schneider, Joseph Wu, Lloyd Kaufman, Gordon Bower (Chair), and Steven Petersen.

functionally distinct units of the brain that are tuned to specific purposes." But a single-channel device measuring a point-source of neuronal electrical current dipoles is not a sufficient basis for functional imaging. We needed to know more about the distribution of activity across brain areas, he explained.

### Imaging Resources

The technology and software is already available today to overcome many of the technical and mathematical obstacles to successfully conduct much more sophisticated multi-channel research. But already the commercially available 37-channel MSI device Kaufman and his colleagues used for such work is surpassed in capacity by a 126-channel device in use in Helsinki, and a 200-channel device is under development in Japan. A large-array system is also under development in Canada. But fewer than five 37-channel devices are in use today in the United States in research contexts.

### Fertile Species

Many of the most fundamental issues of brain imaging have only begun to be addressed, Kaufman suggested. For example, there are many "species" of

SEE NEUROIMAGE ON PAGE 24

## NIH FROM PAGE 1

was the number-two candidate to become NIH director. See box on opposite page.)

APS had a central role in shaping the mission of the OBSR, which is one in a constellation of special offices under the NIH Director. Initially the Office would have been just another "coordinating" unit created in large part for symbolic purposes, but even this would have been a significant step forward. However, APS was able to take things a step further. Working with a new Washington-based organization interested in behavioral factors in health, the Center for the Advancement of Health (CAH), we convinced Congress to make the new office more meaningful by requiring it to address head on one of the main obstacles to improved NIH support for behavioral and social science research.

### Defining Moments

As faithful *Observer* readers know, Congress has many times in the past instructed NIH to make an assessment of its behavioral and social science portfolio as the first step in increasing the overall amount of behavioral research funded by the institutes. But NIH consistently resisted increasing its behavioral research, saying that a sufficient amount was already being funded.

As is often the case in this kind of situation, the debate boiled down to a matter of definition. Whether it was deliberate or merely a lack of understanding, various NIH institutes often counted everything but the kitchen sink as "behavioral" or "social" science research in calculating the numbers to support their claims of sufficient funding for behavioral research.

So what's different now? In creating the OBSR, Congress took the unprecedented step of addressing this very issue, and after consulting with APS and the CAH, adopted the following language limiting the kinds of activities that can be counted in the definition of behavioral and social science for the OBSR report.

[Congress is] prohibiting the inclusion of neurobiological research or research that uses behavior merely as a measure to determine activity at cellular or molecular levels. In the past efforts to include such research within the framework of behavioral and social science research have artificially inflated the resource commitment to this research discipline within NIH.

### Drawing the Line

The above language is part of an explanatory report that accompanies every piece of legislation approved by Congress. Such reports are the primary means for specifying congressional intent on any given subject. In this case, the intention is to ensure that appropriate areas, such as behavioral neuroscience, are included in the definition of "behavioral and social science" while at the same time drawing a clear line to exclude inappropriate, non-behavioral based activities.

Congress further mandated that the definition be developed in consultation with representatives of the behavioral sciences and that a definition be standardized across the national research institutes.

The legislation draws heavily from APS correspondence on the need to fund the full range of basic and applied behavioral

and social science research. In fact, statements on this issue from APS Executive Director Alan Kraut found their way almost verbatim into the congressional report. "Behavioral research at NIH spans the gamut of basic to applied science," Kraut wrote to the subcommittee in March 1993. "But too often, behavioral science is thought about only at the stage of intervention. 'How do we get people to stop smoking?' How do we get compliance to a medical regimen?' 'How do we convince parents to bring their kids in for vaccinations?'"

These are all critical questions that psychologists can address, said Kraut, "but they both limit the scope of psychological science and they presuppose that the basic science on which these questions rest is already at hand. It often is not." The report then borrows directly from APS comments to further illustrate the kinds of basic research questions that need to be addressed. See box below.

CONTINUED ON NEXT PAGE

## NIH Office of Behavioral and Social Science Research

"The initial responsibility of the new office will be the preparation of a special report to the Congress identifying those specific activities within the national research institutes which represent the NIH's behavioral and social science research portfolio. The report will encompass both intramural and extramural research projects supported in fiscal year 1993. In preparing this report, the Conferees have directed that a standardized definition of "behavioral and social science research" be established and applied uniformly to the research portfolios of each national research institute. In the development of this definition, the Director of the Office is expected to consult with professional research organizations with expertise in behavioral and social science research. The conference agreement includes a provision prohibiting the inclusion of neurobiological research or research that uses behavior merely as a measure to determine activity at cellular or molecular levels. In the past, efforts to include such research within the framework of behavioral and social science research have artificially inflated the resource commitment to this research discipline within NIH.

Numerous reports have documented the enormous impact of behavior on health. The Conferees are concerned that NIH has not, relative to the biological sciences, accorded sufficient priority to the support of behavioral research. Behavioral research at NIH should span the gamut from basic to applied science. Too often behavioral science is thought about only at the stage of intervention. "How do we get people to stop smoking?", "How do we get people to take their medications?", or "How do we convince parents to bring their kids in for vaccinations?" These are important research questions that NIH should answer, but we also need information such as "How does individual maturity interact with a more general level of emotional development?", or "What are the basic social principles behind peer pressure?" These questions can and should be addressed by NIH behavioral scientists, especially at the NICHD and NIMH."

Source: *House Report 103-100*, p. 109

## FROM PREVIOUS PAGE

## Over the Top

The OBSR is one of the most significant milestones for psychology's research interests at NIH. But, as we have been reporting for more than a year, the creation of the OBSR is not the only major institutional event for behavioral and social science research at NIH. "There is a confluence of factors giving behavioral science a new visibility and presence at NIH," notes Kraut. "We've been talking about developing a 'critical mass' of behavioral science activities at NIH. I think this Office of Behavioral and Social Science Research puts us over the top." A sample of other factors include:

- ◆ Last year's transfer to NIH of three research institutes with substantial behavioral science missions (the National Institute of Mental Health (NIMH), the National Institute on Drug Abuse and the National Institute on Alcohol Abuse and Alcoholism). In the course of the transfer, Congress made clear its intent that one of the aims of the transfer was to inject the other NIH institutes with more of a behavioral perspective.
- ◆ The formal chartering of the NIH Health and Behavior Coordinating Committee. This was for many years an ad-hoc committee of NIH behavioral scientists who worked on behavioral issues. Its formal chartering raises its stature.
- ◆ The naming of a social scientist as acting NIH-wide Deputy Director for Extramural Research—APS member Wendy Baldwin, who also serves in her regular position as deputy director of the National Institute on Child Health and Human Development (NICHD). Wendy becomes the highest ranking behavioral scientist at NIH.
- ◆ The formation of the Behavioral Science Task Force at NIMH. The job of the Task Force is to assess NIMH's current behavioral research portfolio and to develop a national plan on where it should go next.
- ◆ The establishment of many new behavioral programs at individual institutes, including normative research on ethnic minorities and middle child development at the NICHD and the creation of a Behavioral Science Research Centers program at NIMH.
- ◆ The development of a cross-cutting prevention research plan for NIH. This is an initiative that is emerging from the Office of the Secretary of Health and Human Services.
- ◆ The increased use of the national behavioral research agenda, the *Human Capital Initiative*, in planning the behavioral science programs of several institutes.

## APS On Tap

APS is continuing its close involvement with the new Office of Behavioral and Social Science Research, and has been asked by NIH to suggest an initial working group to meet with NIH officials about beginning the Office and about the behavioral and social science report mandated by Congress. We also are asking Congress to continue its support of the new office by providing adequate funding for the development of the OBSR report. **S.B.**

APS OBSERVER

## APS Fellow Rodin Is a Finalist for NIH Director

Yale Provost Judith Rodin (see May 1992 *Observer*), a Charter Fellow of APS, is a finalist in the search for a new director of the National Institutes of Health (NIH), marking the first time a psychologist has been seriously considered for the position. It is widely reported that the other finalist is Harold Varmus, of the University of California-San Francisco. As this is being written, there still has been no official announcement of the President's choice, but most accounts say that Varmus, an MD and Nobel Prize-winning microbiologist will be President Clinton's choice.



The selection is being made at a time when NIH is increasingly portrayed as a stronghold of the "too male, too pale, and too stale" scientific culture, with almost daily headlines in the national news reporting widespread claims of racial and sexual bias at all levels of the agency.

Of course, psychologists are thrilled that one of their own may become the head of NIH. But Rodin, known for her research on obesity, women's issues, AIDS, and aging, also has inspired a great deal of support from her colleagues in the scientific, medical, and academic communities more generally and from influential individuals in Congress and other political leaders. Even though the selection process for a new NIH Director took place behind closed doors, APS worked with Rodin to funnel this wide base of support into a positive influence on the process.

Beyond her individual accomplishments, Rodin also drew support from those who feel NIH needs an injection of prevention and health and behavior perspectives. For many, this is an especially important consideration, given the comprehensive health care review currently underway, and the related interest regarding health care promotion and disease prevention.

The selection of a new NIH director has moved relatively quickly, in contrast to the last time when the position was open for years and candidates had to pass a "litmus test" on fetal tissue research and abortion. This time, it may boil down to the old "MD versus PhD" nonsense, plus the "sizzle" of a Nobel Prize threatens to overshadow the reality that the NIH directorship requires as much administrative prowess as it does scientific credibility.

Controversial former NIH director Bernadine Healy departed the position June 30 and is reportedly considering running for the U.S. Senate in Ohio. Until a replacement is chosen, Ruth Kirchstein, director of the National Institute on General Medical Science, is serving as acting director. Kirchstein also is slated to move to the deputy director position, which is the second highest office at NIH.

## NEUROIMAGE FROM PAGE 21

brain activity (e.g., event related fields and potentials as well as psychologically significant changes in level of background activity as subjects engage in various mental tasks). These different species may be distinguished from each other using MSI. So, a potentially fertile area of investigation is to study the extent to which different species of brain activity can be differentiated by blood flow or any other current functional measures.

MSI is a great technique, Kaufman maintains, because it has high spatial resolution and millisecond temporal resolution. It is a direct communicating link with ongoing activity of the cortex, and, in principle, can be tied to the cortical flow of blood. Further, MSI can locate and characterize brain activity not time-locked to an event such as a sensory stimulus; apparatus for MSI is much less cumbersome and provides greater physical freedom for the subject; there is no requirement to average data across subjects to improve resolution; and subjects are not exposed to radioactive substances. And, Kaufman explained, the high temporal resolution is more in harmony with actual neuronal activity than blood flow measures, for example.

One day, Kaufman mused, we may even be able to undertake MSI—on multi-channel systems linked to massively parallel computers—to measure sustained levels of activity in both disordered and normal subjects during real-time events (e.g., sleep or ongoing cognitive activity).

### PET View of Mental Disorders

Joseph Wu, University of California-Irvine Medical School, reported on brain imaging studies of schizophrenics using PET scans, and also talked about PET studies on the relationship of sleep and depression. Wu has used uptake of a radio-labeled tracer (FDG) of glucose (a major fuel for the brain) as the measure of regional neuronal activity. The fact that FDG is trapped in the brain—it is only partially metabolized—opens a sufficient temporal window in which to map neuronal activation during tasks.

Wu gave vigilance tests to activate areas of the brains of schizophrenic and normal control subjects. It is known that schizophrenics generally do poorly on

such tests, and the PET scans were aimed at determining what regions of the brain might account for differences between the performances of schizophrenics and normal controls. It turned out that frontal lobes of schizophrenics showed distinctly less activation than those of controls.

Wu's research team also tested long-existing theories that might account for schizophrenia. They studied brain activity in schizophrenics and users of PCP (phencyclidine), a drug which produces psychotic effects, and compared these subjects with normal ones. PCP provides a good drug-induced model of schizophrenia. To increase the objectivity of their analyses they used an automated stereotaxic routine to pinpoint the location of neuronal activation.

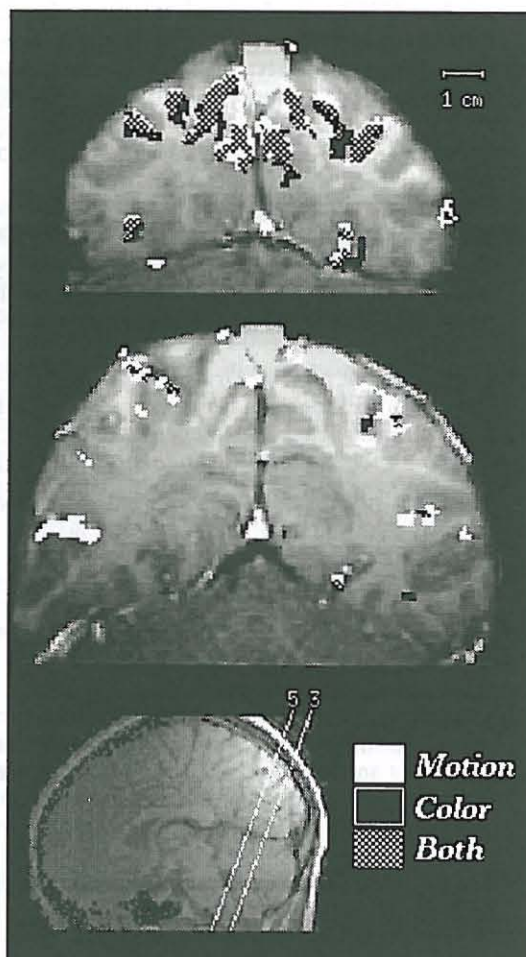
PCP users and schizophrenics showed considerable activation in almost all brain areas except the frontal cortex, while normal controls showed a more even distribution of activation. This evidence lent support to the theory that glutamate blockade may be responsible for some of the intense abnormalities seen in schizophrenia, Wu said. Some researchers have supported the glutamate blockade theory in opposition to the dopamine theory which suggests that overstimulation of the dopamine system can bring about psychosis. In fact, Wu said, there may be two different ways of bringing about psychosis—overstimulating the dopamine system and blocking the glutamate system. Further research might clarify the issue, he said.

Reporting on PET studies of the relationship between sleep and depression, Wu said initial investigations suggest that sleep deprivation helps relieve depression in a subset of depressive persons. While examining the PET correlates of this paradoxical finding, Wu's team found that during REM sleep brain activity in cingulate and amygdala cortex of some depressive patients was higher than in waking states. After sleep deprivation—a known alleviator of depression in some patients—there was a significant drop in activity in these brain areas. Wu concluded that we can thus categorize

depressive types into biological subtypes based on response to this somatic intervention and PET results.

These results suggest too that sleep deprivation might reduce some of the overactive REM sleep and cingulate gyrus activity in certain types of depression and bring the rate to a more normal level. Wu's research, for the first time, has uncovered "a regionally specific difference in brain metabolism which characterizes a distinct subgroup of depressed patients responsive to [sleep deprivation]." If PET could help classify patients on the

Courtesy of Walter Schneider



Black and white rendition of images from Functional Magnetic Resonance Imaging showing cortical activity during visual motion and/or color perception.

basis of treatment responsiveness, then perhaps we could select treatments more appropriately and reduce the negative toll of depression, Wu hoped.

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**PET and Cognitive Neuroscience**

"Functional neuroimaging techniques can give us some insight into parts of the brain involved in different tasks under different instructions. The differences between the tasks can be quite subtle yet still detectable by these techniques—like visual cortical responses to strings of letters that follow spelling rules of English and strings of letters that don't," said Steven Petersen (Washington University Medical School) in summarizing his presentation on PET scans in cognitive neuroscience. This was one of the most interesting findings Petersen presented and it shows up very early in the visual processing stream. These visual cortical responses are the result of neuronal development events that occur when we are learning to read, he concluded.

The functional anatomical information is revealed by PET's unveiling of localized cerebral blood flow patterns, a sensitive index of neuronal activity. In fact, no one picture is sufficient, several images (across or within subjects) are compared and a subtraction process is used to reveal the changes in blood flow. In all types of functional imaging, Petersen pointed out, we are looking at a surrogate measure of actual neuronal activity (e.g., blood flow, oxygen extraction fraction in MRI).

In working memory tasks, Petersen's research has shown a distinct advantage for different strategies (i.e., visual vs articulatory strategies) subjects were instructed to use when trying to remember small groups of words vs non-words. The differential performance was also unmistakably revealed in cortical response patterns in different parts of the brain. In concluding, Petersen remarked that functional anatomical information also can provide constraints on models of functional activity in working memory and the processing of words. "But what I really hope you take from this presentation is the excitement ... that these techniques bring to cognitive science in general and to cognitive neuroscience in particular," Petersen said.

APS Charter Member Walter Schneider of the University of Pittsburgh described his functional MRI (Magnetic Resonance Imaging) work and said, in effect, that it was high time for more psychologists to get into the act to take part in mapping the brain. The 3,800 MRI installations in North America present major opportunities for psychologists to retread their careers, Schneider said. It was a mere year ago that he himself entered the exciting field. **D.K.**

**OFFICERS FROM PAGE 3**

Plomin does have some early ties to APS. As he explains it, "I'm very pleased to say I received the very first award ever given by APS—it was just by chance that I received it. The award was presented at the first APS convention to the local person responsible for bringing in the most new members. Penn State had had the most start-up members, and I was the local organizing person there. Back then I never thought the APS membership would become even one third as large as it is now."

Plomin now is finishing a sabbatical year in Cambridge, England with his wife, Judy Dunn, well-known for her research in sibling and social development and who was a fellow at King's College in Cambridge. The sabbatical has enabled Plomin to complete a book based on data he presented in an invited lecture at the APS convention in San Diego last year. Titled *Genetics and Experience*, it will be published by Sage Publications at year-end.

"The book discusses genetic influence on the environmental measures we use in psychology," Plomin says. "It's not as paradoxical as it sounds to say there is genetic influence on environmental measures. During the last decade there have been at least two dozen studies showing many of our widely used measures of the environment include genetic influence. The book brings together these studies and suggests a theory of genetics and experience, explaining how genotypes become phenotypes—how genetic influences interact with the environment in development."

Is it possible to set any borders to so vast a field? Plomin responds, "That is the goal of the book—this is the hyphen in nature-nurture. But once you enter that hyphen it's like Alice in Wonderland falling down the rabbit hole into a whole universe in itself." **D.K.**

## CHICAGO FROM PAGE 1

"disgust" was absolutely disgusting...yes, and entertaining, and educational, too.

**Federal Research Support**

But wait, there's more: The major federal agencies that support psychology research took part in a special poster session where APS members could learn about current funding opportunities. And, as always, the convention was an opportunity to honor some of the outstanding individuals in the field of scientific psychology, this year with the William James Fellow Award, the James McKeen Cattell Award, and the Shahin Hashtroudi Memorial Award.

**Pizza, Beer, and Fun**

There was even time for some fun, when APS took over the Second City comedy club for an evening of deep-dish



Getting to the Second City theater on time.

pizza and the deeper-dishing satire that makes the club a landmark on the national entertainment scene. We're sure we saw some future "Saturday Night Live" performers in the making.

All in all, it was the most exciting and successful convention yet. But don't just take our word for it. Read about some of the highlights in this issue. And be sure to put next year's convention on your schedule now: June 29 to July 1, 1994, in Washington, DC, and be part of the APS revolution!

# *Data-Waste:* The Ethical Challenge of the Underdone and Unfinished

*Scientific results can be wasted because they are not published at all or not published to advantage. The problem of data-waste has not been considered openly by scientists, administrators, or funders of scientific research. Personal and structural issues contribute to the failure to complete scientific work, and a kind of scientific integrity—on the part of institutions as well as individuals—may be at issue.*

The research community produces much scientific data yet a great deal of it never rises above the obscurity of the individual lab. Distribution of the data in uncited and unread publications (e.g., the grant report) does little to elevate the information beyond the even graver obscurity of *non*-publication. Data not converted to published results are waste of a kind.

Fundamental to science is making results public to other scientists. From the point of view of the scientific enterprise, if it wasn't published, it wasn't done. Although I can imagine a researcher whose variables are few and whose data-sets are not under-analyzed, I do not know any. I do not know a productive behavioral or biomedical researcher who is without several under-finished projects.

I have not seen the issue of the underdone and unfinished formally considered; it may be so much a part of science that it is treated as an inexorable fact of life—due to the ubiquitous lack of time and money. But, data-waste has ethical implications and it raises issues of the overall cost-effectiveness of a researcher's

work.

I am not talking about "publication bias"—either on the author's or editor's part—against negative research results (e.g., Dickersin, Min, & Meinert, 1992), an important but already well-considered issue. I also am not trying to promote the waste of piece-meal or duplicate publication. Rather, I am concerned with the potential loss of useful information from already collected complex data.

## **Waste Makers**

Part of the problem arises from the individual; some arises from the system in which science is performed and funded; and some arises from the interaction of the person and the system. I will start with person-based factors, but it is impossible to extract the person fully from the systems underlying funding of research, getting published, and keeping jobs.

## **The Person**

A researcher may be impaired, insufficiently skilled, unlucky, or ignorant, and, therefore, not publish or *under*-publish (cf. Olsen, 1978). It is hard, time-consuming work to create a first-rate scientific paper, and not all talented persons have the gumption to do it. Health can be a factor—the health of marriages and families as well as personal health. Success can depend upon long hours of work. If one does not have the stamina or opportunity to work 16-hour days, this is likely to be reflected in the length of the scientific row that is hoed.

Also, scientists differ in their ability to find valuable things in complex data.

Some are likely to be better at serendipitous discovery or at framing the questions that are asked of the data (Lightman, 1986).

Luck can be involved in the draw of reviewers and editors and in the pattern of other submissions competing for space. Just as a late-breaking news story can blow a lesser story off the front page of a newspaper, the emergence of new "hot" topic can diminish the prospects for your publication that concerns a "hot" topic of a year ago.

Publication naivete is also a problem. PhDs from distinguished research universities may not realize the role of advocacy in the publication process. Publishing a paper in a high-quality journal is often not a one-round fight. I think some fine data never have been brought to light because the scientist was not taught or did not learn to battle for a first-rate place.

Small wonder that scientists who have skins less thick than an elephant's come to publish their work in journals of easy reputation and small influence. The publication process—like its sister grant process—is not for either the timid or those ignorant of how the system works.

## **The Job**

Jobs change and the location of jobs change. Jobs also get lost. Tenure is not awarded. Or the tenure holder mistakes tenure for retirement. Contract deadlines come, and the project not done will likely never be done. Key players quit. Peripatetic researchers or the established star—

CONTINUED ON NEXT PAGE

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hired away from one university to another—can bring about data-waste and under-publication. Just as successful collaborative research can grow out of propinquity (cf. Festinger, Schachter, and Back, 1963), collaborative failures can arise from relocations. Long-distance collaborations do survive, but they are as rare as the long-distance romance that outlasts a year.

### Memory, Storage, and Retrieval

The further one gets from a project, the greater is the chance of loss. Those details which once seemed too obvious to note become fragmented or lost. The box of files burns, is lost in a flood, or is accidentally discarded. Freedland and Carney (1992) have discussed the challenges of data management—and some of its ethical implications. The development of electronic data archives (Cinkosky, Fickett, Gilna, & Burks, 1991) does not remove the crucial role of the author.

### Data Ownership

Complexities surrounding the ownership of data (Weil & Snapper, 1989) can lead to missed publication. Complex multi-collaborative research projects can languish because of questions of authorship. Credit accrues with publication; publication involves work; people don't want to work without getting enough credit; and there isn't enough first-author credit to go around. Weak links who fail to complete their component can also slow or stop the completion of a publication. If one adds to these challenges the common problem of an especially strong link being "bought" away by another team, it is surprising that such disasters are not more publicized.

### Over-commitment: Adaptive Strategy?

Over-commitment contributes to under-publication. Scores of books and executive workshops attest to the felt need on the part of executives to have help learning to manage time. A principal investigator is a kind of executive. I cannot think of a productive colleague

who does not feel over-extended and over-committed.

Given all that imperils getting work done, however, overcommitting can be seen as adaptive. Since so few seeds become plants, it is prudent to plant a lot of them. It can take time to know if a project will work out, and it makes sense to not be dependent for one's success on just one major activity. Nonetheless, overcommitment can contribute to some things not getting finished.

### 'A poor workman blames his tools'

The computer has transformed scientific investigation (Pagels, 1988). Multivariate investigations are now possible that would have been practically impossible without the computer. Statistical analyses that would have taken days to calculate by hand are now calculated in minutes. Now the lowliest of students with an afternoon's seminar on the use of packaged statistical programs can call up a U.S. government database (e.g., the National Health Interview Survey) and churn these data in service of some question. Honors and masters theses, and doctoral dissertations look at questions that would have been out of reach 30 years ago.

The computer should not be viewed as a labor-reducing device, but rather, as a labor-enabling device whereby a person can spend just as much time, or more, but with the promise of starting even *more* projects. The computer offers opportunities for new and old questions to be explored with ostensibly briefer commitments of time but with the potential of more data-waste.

Other research tools enable the beginnings of research that might not lead to ends—the graduate student, the post-doctoral fellow, or the clinical intern who provide the arms and legs for conducting a study. All of these tools can seduce researchers into more than they are able to do.

### Some things are not worth finishing

Of course, not everything begun is worth finishing. Priorities must be set. As I tell students—as they stare bemused at the tumultuous pile of scientific debris in my office—there are many ideas and

studies in that pile, and the "survival of the fittest" principle works here: Some ideas will be lost, but some will fight their way to the top and make it into print. But, is it not also the case that a skilled scientist can derive something useful from nearly any research opportunity? The promise of a data-set cannot be judged until it has been examined closely.

### Grants, Contracts, Products, Production

The funding of research does promote publication of study results (Dickersin, et al., 1992). Investigators who tend not to get things published are disadvantaged when seeking renewal of funding or a new source of money. However, it is rare to find a grant that pays *fully* for the analysis of the data collected. More typically, the analysis of one data-set co-occurs with the development of a proposal to get new research funded. One rule of thumb I have heard is that, to make 100% of one's salary from grants, one should be spending 50% of one's time getting grants. Where does that time come from? Who pays for it?

Who will pay for the scientist—and the scientist's team—to dwell over data and consider it closely? When the funding stops supporting the research team, the research may stop. The ethical question of failing to continue to work on a promising project often rests squarely on the shoulders of the funding agency or university, not the individual scientist.

So much research depends on "soft money," and so does the researcher's job. Soft-money promotes hard-scrambling. The need to seek and keep funding contributes to the under-analysis and under-publication. The usual grant period is built on the assumption that one basically knows what is going to happen. There is usually no plan for dealing with totally surprising results—one that demands you rethink your entire approach. If that happens, the researcher must "make time"—all the while appreciating that the prospects for renewed funding may be made dimmer with signs that the current direction has been tending toward a dead end. Discovering a new direction carries

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the risk of stepping beyond your expertise—a practice viewed dimly by most funding agencies.

Even if the investigator devotes more time to work on the data, will his/her employer be content? University officials may prefer time be spent seeking more money—more indirect costs. In the modern research university, the size of one's grant can be more important than the quality of one's publications.

## Scientific Ethics

At a time when agencies are putting "caps" on the average research project,

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they need to share the blame for projects being under-analyzed and under-published. With the creation of the Office of Scientific Integrity at the National Institutes of Health, more thought has been going into the definition of scientific misconduct. "Scientific misconduct" has been defined in Public Health Service (PHS) regulations as falsification, fabrication, plagiarism, or other practices that "deviate seriously" from those commonly accepted. A PHS advisory panel recommended that the definition be narrowed. In particular, it wanted "scientific misconduct" to be called "research fraud" (Hamilton, 1992). The advisory panel was content to have the Office of Scientific Integrity attend to matters of *deliberate* misrepresentation but was concerned about opening the door to regulatory consideration of those unnamed, unspecified other practices that deviate seriously from those commonly accepted. I do not suppose any committee will be able to adjudicate satisfactorily cases of wasted data, but that does not lessen their importance as an issue of scientific integrity. It remains a matter for the system or

individual to try to improve.

## Pro bono publico

A complex data set does not give up all its secrets without a fight. Data when neglected will not go to seed, they just become garbage. Some prosperous law firms adopt the practice of donating a portion of their services—at no cost—to needy clients. Perhaps scientists and their employers should endeavor to donate, for the public good, the time and resources needed to work on and think about some of the data currently going to waste. Thus, we might help keep from extinction one of the earliest ideas of what should go on in a university.

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## Author Notes

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# Successful Teamwork

CHICAGO—What are effective ways to improve the performance of teams? An APS convention symposium chaired by Robert McIntyre, *Overcoming Key Obstacles in Team Research*, approached from many perspectives a series of critical questions at the heart of increasing team success.



Christopher Rotolo discusses the importance of definitions in teamwork research.

## A Comprehensive Approach

Terry Dickinson of Old Dominion University looked inside the well-functioning team to analyze just what constitutes and drives good teamwork. He presented a teamwork theory and a conceptual framework for constructing measures to ensure effective individual and team performance within his model. He said the model shapes the measures and the two must be closely tied together. Adherence to critical measurement principles ensure scientific rigor, and reliability and validity issues are an integral part of his approach to interpreting and assessing teamwork.

Dickinson and his colleagues developed their model from an extensive review of teamwork literature. They identified seven major teamwork components: communication, team orientation or

attitudes, leadership, monitoring, feedback, backup behavior and coordination. He said communication included both exchange of information between team members and the means of linking them with teamwork processes.

Dickinson said that teams produce coordinated efforts when there are no problems with communication, orientation, and leadership. "Coordinated efforts imply that the team members are individually competent and understand the relationships of their activities to those of other members of the team. Team members learn these relationships from other members through the process of communication, feedback, and backup such that they can perform in an integrated and timely manner," he said.

But measuring the complexities of teamwork is challenging work in itself and development of teamwork measures is never finished, Dickinson said. "The appropriateness of the theory and the inferences that can be made about measure scores must be continually assessed" on an expanding basis, he said, and he demonstrated results with anti-air warfare teams that operate on Navy ships.

## Agreeing on Definitions

At another level Brian Ruggeberg and Christopher Rotolo, also from Old Dominion, tackled taxonomy questions, suggesting that better definitions and wider agreement on them would resolve many problems and upgrade teamwork effectiveness.

Problems of coordination and how to structure those problems were the focus of a paper provided in absentia by Mary Zalesny of Kent State University.

Daniel Ilgen of Michigan State University, a symposium discussant noted that industrial-organizational psychologists are interested not just in describing how teams behave but in taking the next step and finding a functional solution to poor performance by the team.

Ilgen suggested followups in three



Brian Ruggeberg discusses taxonomy issues.

ways. "First, we must look at staffing, asking what it is about the match of people in these teams and the match to the task that works or does not work. Second, we must ask how this should affect training. And, third, we must examine job design and change the nature of the tasks in which people are functioning."

"I think that if we begin by saying that our overall purpose is to look at human effectiveness and our sub-purpose is to look at that effectiveness in terms of staffing, training, and job design, this will lead to a foundation for a taxonomy that will provide us with ways to be more comfortable than we have been in the past with the contributions of our taxonomy."

Jacob Hautaluoma of Colorado State University also a symposium discussant, said he found Ruggeberg's paper on taxonomy the most risky. "It implies that taxonomies were the solution for much of the problem in team research," he said. Hautaluoma said the taxonomy that Dickinson used for his teams' tasks remind one "that we have to think of many kinds of taxonomies when we consider teamwork or any other area of science."

D.K.

## ADDICTION FROM PAGE 11

largely by psychologists at the Institute of Behavioral Research (IBR) that Simpson heads at TCU in Fort Worth, Texas. Many of the IBR researchers emerge from the university's psychology programs, which are experimentally oriented and thus provide a strong evaluation training base, Simpson says.

### Current Events

Today Simpson's colleagues at the Institute include 11 other psychologists in experimental, cognitive, clinical, educational, and organizational fields, scientists from other disciplines, and a half dozen visiting scientists.

And now, as Texas launches the largest new prison-based drug treatment program in the nation, Simpson is deeply involved. Texas is adding enough capacity by 1995 to treat about 14,000 incarcerated persons and to attempt to smooth their re-entry into the community. Will it succeed? Simpson's group is supposed to deliver many of the answers.

### A Track Record

The Drug Abuse Reporting Program (DARP) that Simpson, Sells, and colleagues launched in 1969 ran for 20 years continuously and was the longest and largest project of its kind. It was the first national comprehensive treatment evaluation study of the system of new community-based treatment centers and included 44,000 persons admitted to treatment in 52 agencies in the continental United States and Puerto Rico from 1969 to 1973. It was coupled with a treatment contract, so long as clients continued in treatment, researchers got fresh data on them every two months. Then they followed up stratified subsamples at 6 and 12 years post-admission. Simpson says the results were important methodologically because they established credible evaluation standards for this new field.

The DARP studies indicated that one could successfully follow up on drug addicts, even street addicts in urban settings, Simpson says. And, "we demonstrated the utility of conducting quasi-experimental and naturalistic studies in real-world settings. DARP focused on a national sample in which we were able to track 80 percent of the participants!"

DARP showed that treatment works and that three treatment modes—methadone maintenance, therapeutic communities, and drug-free programs—are successful. But a shift in the nation's emphasis on enforcement to that of treatment is required for continued success and development of a national treatment plan.

### Finding What Works

DARP provided the first empirical data that could be used to say, "Look, treatment is working—there's something going on in treatment that is helping people get better," Simpson says.

"We relied on multi-site studies with cohort replications—that is, we looked at people who came in during successive years to see if results were consistent with successive replications over time. We used multimethod analytic strategies so we were not relying on only one procedure. Rather, we looked at data with a variety of quantitative and qualitative analytic approaches. We compared during-treatment and post-treatment outcomes to study how long people stayed in treatment, what their characteristics

were when they came to treatment, what happened while they were in treatment.

"We developed prediction models and determined that methadone maintenance, therapeutic communities, and outpatient drug free programs were significantly more effective than were detoxification alone. And, we learned that the longer clients stayed in these treatments, the better their outcomes after leaving treatment. Because the DARP studies showed poor performance of detoxification alone, decisions were made politically later on, based on DARP in large part, to reduce detoxification funding. Detox was short-term treatment. People pretty well came in and got dried out and left," Simpson said.

In the early 1980s, NIDA funded the Treatment Outcome Prospectus Study (TOPS) designed much like DARP and with the same objectives. And now 10 years later still there is the 1990s version, the DATOS (Drug Abuse Treatment Outcome Study), following the path set by DARP.

By providing an empirical basis to support their effectiveness, DARP and TOPS have helped maintain funding of publicly based treatment systems. That's very important, Simpson emphasizes.

"It also has helped move drug abuse treatment more into the general health care system. We are treating a segment of society that no one has wanted to deal with. So the DARP study gave some legitimacy to addiction treatment."

Simpson is worried about the effects of NIDA's move back into the National Institutes of Health (NIH), leaving the services programs outside NIH. The separation of federal funding for services from funding for research is making his life as a treatment evaluator more difficult already, he says.

### Where the Big Bucks Are

Today, the Institute of Behavioral Research's biggest project is a \$7.7-million NIDA-funded grant called DATAR (Drug Abuse Treatment for AIDS-risk Reduction). About 25 to 30 percent of persons who are HIV-positive are drug injectors, Simpson notes, and this accounts for renewed federal interest in treatment effectiveness research in recent years.

All the DATAR money goes through Simpson's shop, and about half is spent on treatment, the other half on research. It's one of 15 similar national programs. They are treatment enhancement demonstration grants which link treatment services and evaluation research directly. Simpson works with selected organizations that will provide services of the type the Institute is developing. For instance, the three DATAR treatment sites each added four or eight counselors to their staff with this funding, increasing their capacity for an additional 80 to 160 clients in each agency.

Studies previous to DARP showed that if you can get people to stay in treatment over three months you tend to hook them in and they start seeing some benefits of treatment, Simpson says. "If you don't keep them in, it's a revolving door—a very high-risk, costly operation," he says.

"One of our goals at DATAR is to develop different models and strategies for improving the quality of treatment. Funding deteriorated in the 1980s, causing the quality of the treatment infrastructure to drop. So an object of the NIDA-funded pro-

SEE ADDICTION ON PAGE 36

# Advanced Study Institute Receives Mindful Initiation

## *Krasnow Institute for Advanced Study at George Mason University Inaugurated with Session on Mind, Brain, and Complex Systems*

FAIRFAX, VIRGINIA—How do you begin to comprehend the human brain's complexity? It's simple; put the best minds to it! That's just the kind of thinking that spawned the nation's newest advanced study institute devoted exclusively to understanding that great thinking machine we all love to admire.

Well, maybe it's not *that* simple. But, what topic other than the human brain could be of such universal scientific interest as to inspire a mutual admiration and cooperation between the nation's most renowned minds in psychology and physics?

Two Nobel prize winners—artificial intelligence (AI) expert Herbert Simon and quark discoverer Murray Gell-Mann—are credited with the idea for the institute's mission: to expand our understanding of the mind and intelligence and complex systems. Simon is an APS William James Fellow at Carnegie Mellon University, and Gell-Mann is at the California Institute of Technology.

After surveying several scholars from various disciplines about the "most pressing intellectual problem of today," institute administrators decided that the institute would pursue the mission advanced by Simon and Gell-Mann by combining the intellectual power of the separate fields of cognitive psychology, neurobiology, and the computer-driven fields of AI, and complex adaptive systems.

And, to initiate the institute, a three-day symposium, titled "The Mind, the Brain, and Complex Adaptive Systems," was held in May at the institute's home, George Mason University, a doctoral-granting state institution. In addition to Simon's address on the mind and brain, there were 11 other addresses, five of which were delivered by APS members or fellows.

Speaking to an audience of over 500 scientists, students, and members of the press—were John Antrobus, City College of New York (Thinking Away and Ahead); John Kihlstrom, University of Arizona (Residcovery of the Unconscious); Stevan Harnad, Princeton University (Does Mind Piggy-Back on Robotic and Symbolic Capacity?); David Rumelhart, Stanford University (Brain Style Computation); Larry Squire, University of California-San Diego (Memory and Brain Systems).

Krasnow Institute director Steven Diner said that the institute "eventually will house a resident population of short- and long-term fellows bringing a variety of perspectives in cognitive science." At any given time, the institute will be focused on two or more issues and may involve presentations as in the inaugural symposium and/or the recruitment of scientific advisers to provide consultation to the institute as fellows. As of yet, however, "the institute's \$2.5-million building exists only as a series of artist's sketches," said Diner, with groundbreaking scheduled for 1994.

### Idea Exchange

To benefit educators, a unique aspect of the Krasnow Institute symposium was a series of informal afternoon discussion groups that occurred after each of the two mornings' formal presentations. Audience participation was high during these informal dialogues with the speakers, and these discussion groups—on the application of the cognitive sciences to learning and teaching—were particularly popular.

Commenting on the rationale for the Institute's theme, Simon told the *Observer* that "there are four scientific problems that overshadow all others in centrality



Herbert Simon speaks at inaugural symposium of the Krasnow Institute.

and scientific challenge: the nature of matter, the origins of the universe, the nature of life and the nature of mind—to which we can add the problem of complexity, thoroughly entwined with all of them." Enthused by its creation, Simon further commented that "the recently endowed Krasnow Institute, provides new resources and a new center for studying mind and brain as a salient example of complexity, a task calling upon a wide range of sciences for new ideas and new methods."

The Institute was initiated by a bequest from the late Shelly Krasnow, a Fairfax businessman, who sought to create an institute to advance knowledge by bringing together scholars from diverse disciplines to undertake original research and writing. The idea was to create an environment that would foster collaborative work at the outer edge of scientific knowledge rather than to create a place for people to do their work in isolated obscurity, explained Diner.

SEE KRASNOW ON PAGE 34

## Congratulations . . .

The Executive Council wants to extend its congratulations to some of the outstanding members of the Student Caucus. Winners of the APSSC research competition were awarded \$250 and were given the opportunity to present their papers to an audience made up of both professional and student members at the Chicago APS Convention. The winners (see page 34 for photo) were:

- ◆ **Brian C. Cronk and Susan D. Lima**, University of Wisconsin-Milwaukee: "Three priming effects with heterographic homophones"
- ◆ **Cynthia P. May and Lynn Hasher**, Duke University; **Ellen R. Stoltzfus**, Kenyon College: "Optimal time of day impacts the magnitude of age differences in memory"
- ◆ **Erik P. Thompson, Julie A. Lewis and Shelly Chaiken**, New York University: "Mild depression both inhibits and facilitates systematic processing of person information"
- ◆ **Joseph C. Wesley**, State University of New York-Geneseo: "The effects of ability, high school achievement and procrastinatory behavior on college performance"

The APSSC Chapter at **Central Michigan University** received the annual **outstanding chapter award** for its innovative activities. Some exceptional achievements include recruitment activities designed to help another university establish an APSSC chapter. The Central Michigan chapter also hosted a presentation on how to secure research grants as well as a special program with a cross-cultural focus in which four international students spoke on doing psychological research in their countries. Central Michigan also boasts quite a research record with over a dozen papers accepted for publication or presentation. The chapter received a cash award of \$250. Congratulations from the Executive Council for impressive accomplishments.

## Convention Brief

For those unable to attend the enormously successful Chicago convention, you definitely should make plans to attend the 1994 meeting in Washington, DC. The record-breaking Chicago attendance—over 2000—included nearly 25 percent students.

True to the APS philosophy of advancing the best of scientific psychology and promoting cooperation among its diverse fields, this year's convention offered talks ranging from occupational stress to neural nets in clinical psychology. Nearly 800 posters were presented over the course of the four-day convention and approximately one-third were from Student Caucus members. Also available to conference goers were the latest publications from the biggest publishers, all at bargain prices.

Student Caucus members were treated to a reception hosted by APS Executive Director Alan Kraut. Students got a chance to interact with the Executive Council of the Student Caucus as well as with APS Board Members including past president Gordon Bower and current president Marilynn Brewer.

Some of the APSSC officers and APS student affiliates present at the 5th annual APS convention in Chicago.



## ASK AUNT KENN ...

### Corrections & Clarifications

Before we get started, Aunt Kenn has a few corrections and clarifications with regard to the May 1993 STUDENT NOTEBOOK. First, the NIH main switchboard number is 301-496-4000. Second, the NIH campus fellowships mentioned are called "Intramural Research Training Awards" or IRTAs. More specific information about labs offering such awards can be found in NIH publications #93-213, *Post-Doctoral Research Fellowship Opportunities*, and #93-2446, *Summer Research Fellowship Program*. Contact the Office of Education, Publications Office, NIH, 9000 Rockville Pike, Bethesda, MD 20892, Tel.: 301-496-2427.

### Finding Graduate Fellowship Funding

Dear Aunt Kenn,

*I hear so often about grants and fellowships available to graduate students, but I don't know where to start looking for such funding. I'm willing to make a few calls and send a few letters, but to where? And to whom? Money! I want money!*

Sincerely,  
Energetic But Broke

Dear Broke,

Aunt Kenn has done some more searching in her relentless pursuit of information (and gossip) for students and has discovered some very interesting things. Hold on to your hats, *I have found money*. Lots and lots of money. (Well, okay, so maybe just plain "lots" is more accurate, but what do you expect from free advice?)

How do I know about this money? Well, government agencies offering funding must also provide some degree of public information or "disclosure" about exactly who might qualify, how to qualify, and (most importantly) what sorts of

SEE CONVENTION ON PAGE 32

The APS Student Caucus represents all the Society's student affiliates. It is not an honor society. All chapter chairs are additionally recognized as members of the APSSC national Advisory Committee. Students or faculty wanting information about APSSC school chapter applications should contact:

Sunni Reilman  
PO Box 18134  
Colorado Springs, CO 80935  
Tel.: 719-577-1098

When applying, student chapter founders are asked to provide information about the institution, department, and students, and to designate a faculty sponsor.

## APSSC Facts

Following are some interesting summary statistics concerning the student members of APS. There are:

- 5477 APSSC (student) members
- 884 new APSSC members this year
- 294 APSSC members graduated and converted to professional membership
- 7 new APSSC Chapters were established this year
- 52 APSSC Chapters have been established to date

time tables and deadlines are required to receive said moolah. These disclosure laws result in substantial archives of pamphlets, reports, brochures, and books. So, many agencies have publications about publications.

### NIH

For instance, NIH has the *NIH Publications List*, publication #93-7 (obtainable from: NIH, Editorial Operations Branch, Office of Communications, Bethesda, MD 20892). Scan "The List" (while bowing to the East, with all due reverence to the research gods), and you will discover info to your heart's content.

In all seriousness, Aunt Kenn found this one to be particularly informative. Not only will you find research and professionally oriented information sources but also a great deal of public mental health sources too. For instance, do you want to know the latest "official line" on the status of Alzheimer's disease? Try NIH Pub #84-2251, *Alzheimer's Disease: A Scientific Guide for Health Practitioners* or ADM #92-1696, *Alzheimer's Disease*. Or maybe you'd like NIH Pub #93-3424, *Aphasia Treatment: Current Approaches and Research Opportunities* or *Panic Disorder* ADM Pub #92-1869, just to name a few. Get "The List"—you won't be disappointed!

But I digress. The topic at hand is money, and you should contact the NIH Division of Research Grants and Information, Room 312B-03, 9000 Rockville Pike, Bethesda MD, 20892, tel. 301-594-7278, and ask for a "General Information Package" for graduate students. Or, if you have recently graduated, also ask for information on NIH's "First Award." This award provides start-up money to recent PhDs and an attempt to get around the you-need-a-grant-to-get-more-grants catch-22 in which so many young scientists find themselves.

### NSF

Similarly, the National Science Foundation's *Guide to Programs*, #NSF9278, provides very interesting information on funding. Similar to the NIH First Awards is the NSF Presidential Young Investigator Award and the NSF Young Investigator Awards. The Presidential YI grants are rumored to be highly competitive, while the NSF YIs are rumored to be less so. Still, nothing ventured, nothing gained. Information can be obtained from: Division of Social, Behavioral and Economic Research, NSF, Room 320, 1800 G St., NW, Washington, DC 20550, tel.: 202-357-7564.

The moral of this story: Support *does* exist for those vigilant and persistent enough to seek it out.

But now for some really juicy, non-cited gossip. Although the negotiations continue, federal spending for behavioral research under the Clinton administration is expected to provide a mixed blessing for the academy. *Science* recently reported on the budget offered by the White House for 1994. Spending at NIH would include a cut of 2 to 10% across some Institutes and an increase in others. The Human Genome Project, Women's Health, and AIDS will see substantial increases. How this is likely to play out for psychologists has yet to be seen. Some sources tell me that social and health psychologists may play an important role in the President's stated emphasis on education and prevention of AIDS, at the national level, but for now, all bets are off.

*Have a question for Aunt Kenn? She is a veritable wealth of information for students. Any and all advocacy issues are fair game. Who knows, maybe she can help! Your Aunt can be reached at "Dear Aunt Kenn" c/o Kenn White, Institute for Child Study, Benjamin Bldg. 3304, College Park, MD 20742.*

## APSSC Officers ♦ 1993-1994 \*

All the officers welcome students and others who wish to contact them about concerns particular to their own offices.

### Executive Council

#### President

Dianna Newburn  
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\* Officers listed here reflect election results at the 1993 APSSC annual meeting in Chicago. An upcoming Student Notebook will feature background information on these newly elected officers.

## CONVENTION FROM PAGE 32

Many Student Caucus members who were presenting research took advantage of student travel awards and were either given a hotel room or a cash award in exchange for volunteering a few hours to help with the convention.

The APSSC student research competition was a big success as winners from all over the country were able to present their research and engage in discussion with both student and professional members of APS. The Student Caucus business meeting was held to elect new members to the Executive Council, and it also gave curious student members a chance to find out what the executive council is all about and the many opportunities available. (Remember, any student affiliate of the APS is automatically a member of the APS Student Caucus.) Once informed, several students ran for, and were elected to, positions on the Council. The showing of enthusiasm by Student Caucus members was well received, and many also joined committees or simply expressed support.

## More Fun

In addition to all this fun, Student Caucus members did some serious investigation into the Chicago lifestyle. Native eating and drinking habits were studied at local establishments such as the world-renowned Pizzeria Uno (most responsible for introducing the planet to Chicago's infamous deep dish pizza), the currently famous Michael Jordan's Restaurant and the always hip Hard Rock Cafe. Social interaction was examined in depth at native watering holes such as Excaliber, Baha, and many local blues and jazz bars. For those interested in analyz-



Paul Reber (Chair of the APSSC Student Research Competition symposium) (left) and APS Student award winners (left to right): Cynthia May, Erik Thompson, Brian Cronk, Joseph Wesley.

ing the lighter elements of Chicago, APS arranged a special night at the world famous Second City Theater which has passed through its ranks most of today's and yesterday's internationally known comedians. ♦

## KRASNOW FROM PAGE 31

This first symposium of the Krasnow Institute was co-sponsored by the Santa Fe Institute, a scholarly center that has become the international focal point for the study of complex adaptive systems across a broad range of fields, including economics, physics, and biology. In fact, the Santa Fe Institute is the primary role model in the development of the Krasnow Institute. The Krasnow Institute also was patterned after the Princeton University Institute of Advanced Study.

The symposium proceedings will be published as a book in the Santa Fe series. Harold Morowitz, Professor of Biology and Natural Philosophy at George Mason University, chaired the three-day inaugural symposium. He is a member of the science board of the Santa Fe Institute. ♦

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# Organizational Profile

## Association for Chemoreception Sciences

### Origins and Purpose

The Association for Chemoreception Sciences (AChemS) was formed 15 years ago in response to funding agencies' urging for integration of the diverse groups of investigators interested in basic and clinical research on taste and smell. The Association was established to: (a) advance the understanding of chemosensory mechanisms by uniting the variety of scientific disciplines currently investigating the chemical senses; (b) encourage basic, clinical, and applied research in the chemical senses; (c) promote an appreciation, beyond the chemosensory community itself, of the need and impact of chemosensory research; (d) act as an identifiable organ representing the interests of the chemosensory research community; and (e) act as an identifiable directory for those requiring particular types of chemosensory expertise.

### Membership

The Association has over 800 active members from 21 countries. Membership is open to persons with active research or professional interest in chemoreception. There are two classes of membership: individual (regular, emeritus, and student) and corporate. Regular members are scientists from academia, medicine, and industry having two years experience working in the field. Student members are pre-doctoral students having participated for two years in a program of studies leading to an advanced degree in a field relevant to chemosensory research or having equivalent commitment to the field. Emeritus membership is granted to retired members. Corporate members are organizations financially aiding the purposes of AChemS. Annual dues: \$45 regular; \$10 emeritus and student; \$2000 corporate.

The "Organizational Profile," a fairly regular feature of the *APS Observer*, informs the research community about organizations devoted primarily 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.

## OFFICERS

### Executive Committee 1993-94

*Executive Chair* - Inglis Miller, Dept. of Neurobiology & Anatomy, Bowman Gray School of Medicine, Wake Forest Univ.

*Executive Chair Elect* - John S. Kauer, Dept of Anatomy & Cell Biology, Tufts-New England Medical Center

*Past Executive Chair* - John Caprio, Dept. of Zoology & Physiology, Louisiana State Univ.

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*Council* -

Gail D. Burd, Dept. of Molecular and Cellular Biology, Univ. of Arizona

John G. Hildebrand, Div. of Neurobiology, Univ. of Arizona

## BACKGROUND

Aided by a planning grant from the National Science Foundation, Maxwell Mozell (SUNY Health Sciences Center, Syracuse) and a group of ten colleagues in the chemical senses met in 1978 to initiate the formation of the Association and plan its first meeting. The first meeting (April 1979) of the Association was held in Sarasota, Florida, where it has held all but one of its annual spring meetings. The meeting was modeled after the successful meetings of the Association for Research in Vision and Ophthalmology (ARVO).

Membership draws from a wide range of disciplines including biology, psychology, neuroscience, physiology, zoology, and medicine.

From modest beginnings, AChemS has grown to become the professional society for olfaction and taste research in the United States. The annual meeting has evolved into the nation's major forum for presenting advances in chemical senses research. The 1992 meeting drew 465 scientists and consisted of 365 platform and poster presentations complemented with workshops and symposia. The 1994 meeting will be held April 13-17 in Sarasota. Annual awards are presented for distinguished research in olfaction (Kenji Nakanishi Award), taste (Frito-Lay Award), and the psychophysics of taste and smell (Moskowitz Jacobs Award). The Don Tucker Memorial Award is presented to the graduate student member giving the most outstanding presentation at the annual meeting. The Association sponsors a journal, *Chemical Senses*, published bimonthly by Oxford University Press.

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## ADDICTION FROM PAGE 30

grams is to find ways of improving services.

### Finding Your Way

"The DATAR project engages many areas important to psychologists. Major use is made of cognitive psychology approaches, like what we call mapping. It's a graphical approach—similar to flow charts—with systematic rules in which informational nodes and links connect. It's used as a personal problem-solving tool, or, in other cases, as a group map where it helps focus group discussion. Mapping was developed and used earlier in educational settings by TCU psychologist Don Dansereau who now works with the Institute to help apply mapping to the therapeutic process, both in group and individual counseling. It doesn't change the nature of counseling or theoretical approach to counseling, but it does provide a communication tool that is helpful with the population being served.

"Addicts often have thinking deficiencies," Simpson says. "Many are not consequential thinkers, they are not means-ends thinkers, they don't think about antecedent conditions and probable social consequences. The purpose of mapping is to change that," Simpson said.

### Specific Improvements

Together, monitoring counselor performance and using the mapping strategy seem to produce better client commitment. Second, counselors who use mapping are rated more highly by their clients. And third, counselors who use mapping give better progress ratings to their clients than do standard counselors.

Inexperienced counselors often do not have good group counseling training, Simpson says. The Institute has therefore developed hands-on type manuals to help remedy such deficiencies. For example, one manual deals with health care and communications skills in addressing women's needs.

### On the Front Lines

Many counselors also have limited training in psychology. "They walk into the job and then start training for credentialing," Simpson says, "and they need something they can use right away."

Some do not have bachelor's degrees, or perhaps have one in business administration or some other field. For the pay, you can't expect to have graduate trained people, Simpson says.

Nevertheless, Simpson says of them, "Those folks are the stars in the treatment field. They work for relatively low wages, in a highly charged atmosphere, in a very discouraging line of work. They are people I've grown to admire and care about more and more."

Another problem is developing assessment tools for counselors who have no previous experience with assessment. Clients with anti-social personality traits "are among the toughest to treat," he says. "Brief screening tools are something we are working toward under DATAR—focusing on childhood problems, risk-taking traits, hostility, social competence, social performance, motivational functioning." These and other research tools the Institute develops are being diffused by NIDA nationwide, even internationally.

### Getting and Keeping Federal Funding

The Institute has done well in obtaining federal research funding, and Simpson attributes that to several things: "We were able to build a very capable and durable research team. We paid attention to our strengths—we know what we can and can't do. Third, we were programmatic and weighed our options in terms of what kinds of money we should go for—it's a matter of matching what you can do well and what money is coming up on the horizon. We focused on areas that have a long-term future and invested in those areas. Finally, we keep in touch with our funding sources and help meet their needs.

"And it's important that researchers not get greedy. You've got to be realistic about the size you want to be as a group or institution. We could have gotten a lot more work if we wanted it in recent years, but that would have affected the overall quality of our work and the quality of our lives. In the long run it would not do us well to chase those monies."

As for the future, Simpson says Texas Governor Anne Richards has taken on a very challenging new initiative with the target of putting 14,000 treatment beds in state prisons by 1995, and his team is helping develop plans to evaluate it. The plan calls for nine months of in-prison

therapeutic community treatment for drug abusers, followed by three months in community-based residential care, and a full year of outpatient treatment after that.

"It represents a major social experiment in this country," Simpson says, "that promises to test political careers, treatment implementation skills, and tolerances for cross-agency cooperation, because so much is expected in such a short time. Behavioral scientists and treatment evaluators have an important role to play in projects like this one. Treatment integrity must be documented, and high quality process and outcome assessments are necessary for short-term and long-term applications."

Simpson adds, "The stakes are high in this effort to impact the linkage of drug and crime of our country. Psychologists should also be aware that outcome research is being viewed as a crucial strategy for making decisions about how to control national and local spending. How we respond as social scientists will help shape the future in terms of health care, education, and numerous other social systems." **D.K.**

### POSTERS FROM PAGE 19

we received at the convention," he said, referring to NASA's exhibit on its space human factors program. The convention was a chance to let people know about a division-wide research announcement soliciting proposals in the general area of space human factors. The program expects to fund about 30 research grants in the next fiscal year as it has in recent years, according to Liskowsky. He noted that NASA is interested in human and animal research in crew and team factors, selection and training, habitability, behavioral processes, performance capabilities, human/machine interaction, and stress/crew support systems.

Liskowsky also indicated that the long-awaited Neurolab program announcement would be available as of the end of July. Neurolab is a planned space shuttle mission devoted to brain and behavior research. Those interested in either of the above announcements should contact Liskowsky directly at NASA Life and Biomedical Sciences and Application Division, USRA, Suite 801, 300 D SW, Washington, DC 20024. V(202) 488-5130; F(202) 479-2613.

# Announcements

## CALLS FOR PAPERS

**The Psychonomic Society** announces *Psychonomic Bulletin & Review*, a new quarterly journal to begin publication in March 1994. Henry L. Roediger, III, of Rice University will serve as editor. Topics that form the basis of traditional experimental psychology are of interest: animal learning and behavior, judgment and decision-making, memory and cognition, psychobiology and cognitive neuropsychology, psychophysics and perception, social cognition and cognitive development. Categories of papers of interest include: review papers; theoretical papers; and comments on trends in the field. In general, such articles will not report new experimental data, although brief descriptions of new findings may be included to buttress a theoretical point. Send inquiries or manuscripts to Henry Roediger, III, Dept. of Psychology, Rice Univ., PO Box 1892, Houston, TX 77251-1892; Email: prj@ricevm1.rice.edu.

**The IEA Specialized Conference on Rehabilitation Ergonomics - Toronto, Canada - August 15-19, 1994.** Areas of interest include ergonomics and functional classification of disabilities, workstation modification, anthropometry of the disabled, consumer products and communication for the disabled, participatory ergonomics for the disabled, and ergonomic content for rehabilitation education. Deadline for abstracts is Sept. 1, 1993. Send copies of abstracts to S. Kumar, Conference Coordinator, Dept. of Physical Therapy, Univ. of Alberta, Edmonton, AB T6G 2G4, Canada; Fax: 403-492-1626.

**International Conference on Infant Studies - Paris, France - June 2-5, 1994.** Invited lectures, symposia, poster-sessions, and poster workshops. Deadline for submission of abstracts is Oct. 15, 1993. Conference program chair: Henriette Bloch, LPBD, 41 rue Gay Lussac, 75005 Paris, France. More information: David J. Lewkowicz, Institute for Basic Research, 1050 Forest Hill Rd., Staten Island, NY 10314, Bitnet: DDLSI@CUNYVM, Fax: 718-698-3803.

**Behavioral Sciences and the Law** will devote a special issue to **Civil Litigation**. Deadline for receipt of manuscripts is **Oct. 1, 1993**. Manuscripts should be 20 to 30 double-spaced pages and *must* conform to the *Publication Manual of the APA* or the 15th edition of a *Uniform System of Citation* and have a 150-word abstract. Submit three copies to the special issue guest editor, Dorothy Kagehiro, Litigation Sciences, 120 White Plains Rd., 2nd Fl., Tarrytown, NY 10591-5522, Tel.: 914-332-6074; Fax: 914-332-6080.

**The 7th annual meeting of Neural Information Processing Systems (Natural and Synthetic) - Denver, Colorado - November 29 - December 2, 1993.** An interdisciplinary conference for neuroscientists, engineers, computer scientists, cognitive scientists, physicists, and mathematicians interested in

neural processing and computation. Tutorial presentations (Nov. 29) precede the regular session, and two days of focused workshops follow at a nearby ski area (Dec. 3-4). Original research contributions are solicited; submit six copies of both a 1,000-word (max.) summary and six copies of a single-page 50- to 100-word abstract clearly stating results and postmarked by May 22, 1993. At the bottom of each abstract page and on the first summary page indicate preference for oral or poster presentation and specify broad subject category. (For example: Poster, Applications-Expert Systems; Oral, Implementation-Analog VLSI). Include addresses of all authors at the front of the summary and the abstract and indicate to which author correspondence should be addressed. Submissions will not be considered that lack any of this information. Mail to: Gerry Tesaro, NIPS\*93 Program Chair, Salk Institute, CNL 10010 N. Torrey Pines Rd., La Jolla, CA 92037. Mail for registration material to: NIPS\*93 Registration, NIPS Foundation, PO Box 60035 Pasadena, CA 91116-6035.

**The Asian American and Pacific Islander Journal of Health**, a newly established peer-reviewed journal, invites papers for its special issue on the *Mental Health of Asian Americans and Pacific Islanders*. Of interest are empirical, theoretical/conceptual, policy and practice-oriented articles. Deadline for submission of an original and four copies of manuscript is Oct. 1, 1993. More information: Frederick Leong, Guest Editor, Ohio State Univ., Dept. of Psychology, 142 Townshend Hall, 1885 Neil Ave., Columbus, OH 43210-1222, Tel.: 614-292-8219. Or, contact journal editor: Moon S. Chen, Jr., Ed., *AAPJH*, 5525 Corey Swirl Dr., Dublin, OH 43017-3057, Tel.: 614-766-5219.

**The Journal of Social Behavior and Personality**, an interdisciplinary journal, announces a special issue devoted to psychosocial perspectives on disability. Theoretical, empirical, and review articles dealing with a broad range of topics are encouraged. Five copies of each paper (3 for anonymous review) in APA style, should be submitted to the Special Issue Editor no later than Feb. 1, 1994. More information: Dana S. Dunn, Special Issue Editor, Dept. of Psychology, 1200 Main St., Moravian College, Bethlehem, PA 18018-6650, Tel: 215-861-1562. Email: dunn@moravian.edu.

**Knowledge Workers in Teams - The 2nd annual theory symposium - University of North Texas - June, 1994.** The Center for the Study of Work Teams invites researchers studying work teams to present major conceptual/theoretical papers. Papers will be published by JAI Press in our new series, *Advances in Interdisciplinary Studies of Work Teams*. Discussants for the papers will be invited from industry to add an applied focus to the academic proceedings. For consideration, send papers by Mar. 1, 1994 to: Michael Beyerlein, Director, Center for the Study of Work Teams, Dept. of Psychology, Univ. of North Texas, Denton, TX 76203-3587.

**The Journal of Statistics Education (JSE)** is a new refereed electronic journal on postsecondary statistics education. JSE will publish high-quality articles on a variety of topics related to the teaching of statistics, including the results of controlled experiments on pedagogical methods, case studies and anecdotal reports, review and opinion articles, discussion of the impact of new technologies and new methods of assessment on statistics education. The journal will publish reviews of software, books, and teaching materials. Reviews should be descriptions of an instructor's experiences actually using a particular book or software product. Articles making innovative use of the electronic medium are encouraged. Submission via email is preferred. The journal's electronic format requires adherence to certain formatting conventions; consult the Guidelines for Authors before submitting. The Guidelines can be obtained by sending email to archive@jse.stat.ncsu.edu with the one-line message (no subject needed): send jse/author\_guide, or write to E. Jacquelin Dietz, Dept. of Statistics, Box 8203, North Carolina State Univ., Raleigh, NC 27695-8203.

**Representation, Analogy, and Cognition: An Interdisciplinary Graduate Student Conference - Binghamton University, New York - February 18-19, 1994.** Graduate and post-doc students are welcome. Submission can be original work, dissertation abstracts, and/or extensions of established work. Areas of interest include: Artificial Intelligence, Cognitive Science, Cognitive Neuroscience, Cognitive Psychology, Cognitive Ethology, Connectionism, Linguistic, Philosophy, Psychology. Panel discussions organized to date include: Implicit/Explicit Information; Concepts and Categories formation; Developmental and Scaffolded Connectionist Models; High-level Perception and Analogical reasoning: Is there a relation?; Structure mapping and representation building in analogy; Indeterminacy of meaning: Semantic Ambiguity and Vagueness; Comparative cognition/Cognitive Ethology; Language Development and Acquisition; Constructivism and Situated Action. Submissions: A 3- to 4-page extended abstract is due October 15. Each paper or presentation should be 10 to 12 pages and should be about 20 minutes long. Send panel suggestions with a description of proposed discussion to conference organizers. Email submission of quality will be accepted in plain text format. Include return snail-mail and email address. Include subject line 'Submission R,A, and C: grad conference.' Email: timothy@turing.pacss.binghamton.edu. The conference fee (to cover organization cost) will be kept to a minimum (approx. \$25). Deadline for Extended abstract submission: Oct. 15, 1993; Notice of acceptance: Dec. 15, 1993; Conference: Feb. 18-19, 1994. For more information, contact Timothy Buczak or John Guichelaar at Binghamton Univ., Dept. of Philosophy, Program in Philosophy and Computers and System Science, Hinman College/HN-129, PO Box 6000, Binghamton, NY 13902-6000, Tel.: 607-775-2860; Email addresses, respectively, are: timothy@turing.pacss.binghamton.edu or johnguic@turing.pacss.binghamton.edu.

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