COVER STORY
To Compete or to Educate? Mentoring and the Research Climate

By Glyn C. Roberts and Robert L. Sprague University of Illinois at Urbana/Champaign

When the lay public is losing its confidence in the ethical aspect of science and graduate education, and when we have several recent high profile examples of a breakdown in ethical behavior of colleagues (e.g., see Kohn, 1986), how are we to mentor our graduate students so that we instill ethical values and behavior? It is not hyperbole to state that the future of the nation rests to some degree on the professional development and integrity of our young researchers. We need to be concerned with the education and development of one of our most valuable human capital resources, graduate students.

The important question is how do we structure our graduate education experience to enhance the acquisition of appropriate ethical values and beliefs. Most graduate educators endorse the proposition that mentoring is an appropriate forum for transmitting ethical principles, but little systematic research has been conducted on the issue. In the recent National Academy of Sciences report on Responsible Science: Ensuring the Integrity of the Research Process (Panel, 1992), the mentorship process was characterized as follows: "Almost no literature exists that evaluates which problems are idiosyncratic and which are systemic. However, it is clear that traditional practices in the area of mentorship and training are under stress" (p. 60). This captures well the pressures on mentorship as now practiced and cogently underscores the lack of information about the mentor-graduate student relationship. Noe (1988) directly pointed out the
nature of the primary problem of a lack of information by noting that research regarding the mentoring relationships was in its infancy and that there were few rigorous quantitative studies of mentoring in the literature. Noe's lament is still pertinent today.

Because mentoring is the primary model used to train graduate students in the United States, it is high time that quantitative studies of the mentoring process be undertaken. But the mentoring process takes place within a research culture, and increasing internal and external pressures being placed on the scientific community have affected the research climate (Alberts & Shine, 1994). First, there are now higher standards of accountability being placed upon scientists by external agencies. The public in particular is beginning to question whether scientific research is worth the investment of tax dollars. And media attention on cases of scientific misconduct has done much to undermine public confidence, and increases the likelihood of external pressure to be held accountable. Second, and arguably of more importance to the research climate, there is now greatly increased competition for research positions, resources, and academic recognition (Alberts & Shine, 1994). It may be argued that these pressures and heightened competition have made incidents of unethical behavior more likely.

According to Alberts and Shine (1994), of most concern is that the present research climate has the potential to undermine the research values held by the academic community. The areas most likely to suffer are the allocation of credit, the ethical treatment of research data, respect for intellectual property, and the mentoring process itself. In this essay, we focus on the mentoring process, and we argue that the internal and external pressures extant in the 90's are creating a research culture which may be antithetical to appropriate mentoring. Rather than being concerned with the education and socialization of graduate students to the values and mores of responsible research, we consider graduate students as a means to an end, that end being more research publications and grants. Therefore, as a first step in our research, we wished to investigate whether the perceived research climate the faculty member worked under actually affected his/her perception of the mentoring process.

The Project

We utilized principles from motivation research and literature (e.g., Maehr & Braskamp, 1986) to investigate the structure of the research climate within units and the relationship of the structure to the mentoring process. For the purpose of this study, and consistent with the extant literature, we identified two research climates we wished to focus on initially. The first research climate we defined as Competitive, where competition for resources is extant, and competition and rivalrous behaviors on the part of faculty is encouraged. In this culture, it is the outcomes of the research process that are important, such as obtaining grants and publications. The second research climate we defined as Educational, where one is focused on mastery of skills, knowledge, and techniques within the discipline. This research climate focuses on the process of doing research and in educating the student rather than on the outcomes of doing research.

The Analysis

The first research task for us was to develop a scale to determine whether different research cultures exist in academe. We created 18 items for our Research Educational Climate Scale (RECS), each item reflected one of the two climates of education or competition. Utilizing normal human subject review processes, we obtained permission to mail our questionnaire to over 900 faculty at a large Midwestern university with strong research traditions. A total of 610 questionnaires were returned.

We conducted exploratory factor analysis on the data and a four factor solution emerged. The four factors were termed educational, competitive, cooperative, and rivalry. Examples of questions loading on each factor are: For educational, "I critique my students work and give recommendations for improvement"; for competitive, "I encourage results from my students in terms of publishing and obtaining grant monies"; for cooperative, "The lab/department encourages collaborative work"; and for rivalry, "I encourage rivalry among my graduate students." We computed factor scores for these scales by summing the items in each factor and dividing by the number of items. A factor analysis of the factor score values was computed and this revealed that there were two higher order factors that the sub-scales represented. These two factors corresponded to the hypothesized Educational climate (a merging of the educational and cooperative scales) and a Competitive climate (a merging of the competitive and rivalry scales). Both scales had acceptable
In order to measure the mentoring aspects, we used the Noe (1988) scale. The Noe scale is designed to determine the extent to which mentors provided career and research psychosocial support during the mentoring process. We adapted the Noe scale to ask the faculty whether they utilized the mentoring functions. We used a five point Likert scale with "Never" being given a 1, and "Very often" being given a 5.

There is no theoretical development specifying the types of functions provided by mentors (Noe, 1988), therefore, we conducted exploratory factor analysis on the mentoring scale. The first factor grouped those items which referred to promoting the student and was termed Professional Promotion. An examples of an item loading on this factor was: "I provide support and feedback regarding my student's performance." The second factor grouped those items that referred to a faculty member trying to get the student to emulate him/her and was termed Cloning. An example of an item loading on this factor was: "I encourage my students to be like me when they reach a similar position in their career." The third factor grouped those items that referred to a faculty member empathizing with his/her students and was termed Empathy. An example of an item loading on this factor was: "I encourage my students to talk openly about their anxieties and fears that detract from their work." The last factor grouped those items that referred to the faculty member actively assisting a student to socialize with other faculty and was termed Assistive Socializing. An example of an item loading on this factor was: "I give my students assignments that increase written and personal contact with scientists." All the sub-scales had acceptable internal reliabilities. These scales were assumed to represent the mentoring functions for the purpose of this study.

In order to investigate the multivariate relationship of the research climate with the mentoring functions, a canonical correlation was conducted on the data with the two research climates as the predictor variables and mentoring functions as the criterion variables. Two significant canonical functions emerged. The results of the canonical correlation analysis showing the standardized canonical coefficients are presented in Figures 1 and 2. The first function (Figure 1) reveals a strong educational function (.96) with a modest competitive function (.28) (any function greater than .30 is considered significant) and may be interpreted as reflecting an educational research climate. The relationship of the educational climate with the mentoring functions reveals that the educational research climate is significantly related to all mentoring functions. Therefore, an educational climate is related to promoting the professional preparation of the student, to a feeling of empathy toward the career development of the student, toward assistive socializing with colleagues, and, oddly enough, to cloning! Contrast this to the second function.

This second function (Figure 2 - see page 7) reveals a strong competitive research climate (.96) and a significant negative educational climate (.30) and may be interpreted as reflecting a strong competitive climate with some antithesis for an educational climate. This competitive climate is negatively related to professional promotion, which means that professional promotion is not viewed as a function of faculty who promote this type of research climate. The competitive research climate has an insignificant effect with empathy and assistive socializing. Importantly, however, for the scientist who favors a strong competitive research climate, the relationship with cloning, or reproducing oneself, is very strong.

Clearly, there is a differential relationship between the two research climates investigated here and the four mentoring functions identified with the Noe (1988) scale. It seems that scientists who promote a research climate geared toward education, as we defined it herein, and enhancing graduate education are viewed as being more supportive in terms of promoting the professional development of the student, are more empathetic about the problems and concerns of the student, and are more likely to assist in having the student meet people who may be able to promote the career of the student. But there is a modest competitive element to this climate too (the function was positive, albeit insignificant). These people would not survive at a major research university if there was not some concern with being competitive and obtaining grants and publications. But the major orientation of a faculty member who creates an educational research climate is with promoting the interests of the student. On the face of it, this would seem to be a desirable research climate for the student to experience.

In contrast, it seems that scientists who promote a competitive research climate are oriented toward producing more publications and grants and eschew creating an educational climate for students (note the negative function in the canonical coefficients). In fact, these scientists can be viewed as being antagonistic toward the professional
development of students. In addition, they are not concerned with the concerns of the student and the professional socialization of students. The strong relationship with cloning suggests that these scientists are more interested in producing individuals who are more like themselves.

It is a large conceptual leap from these observations to the conclusion that competitive climates are more susceptible to a breakdown of professional ethics. But it is plausible that the greatly increased competition for resources, publications, and research positions experienced by scientists may have promoted a climate engendering incidents of unethical behavior and the undermining of research values (Alberts & Shine, 1994). What this research does point out, however, is that research faculty do differ on their commitment to mentoring functions and values depending on the perceived research climate. It remains for future research to determine the implications of this awareness for the research values of the student, and for the professional integrity of science. With this project, we have developed prototype empirical scales to measure differences in laboratory and research unit research climates promoted by faculty and laboratory directors. On the positive side of the research climate continuum, it is known that, for example, Nobel Laureates produce research excellence (Zuckerman, 1977). It would be intriguing to determine the research climate fostered by these scientists. On the negative side, it is tantalizing to speculate that highly driven, competitive faculty who create competitive research climates may produce corner-cutting, ethically insensitive future researchers. Only further empirical studies can answer this intriguing question.

[This research was supported in part by grant SBR 93-11328 from the National Science Foundation. For more information, contact the authors at the Institute for Research on Human Development, University of Illinois at Urbana/Champaign, 51 Gerty drive, Champaign, IL 61820; 217-333-4123; Fax 217-244-7732; E-mail rlspragu@uiuc.edu or glync@ux1.cso.uiuc.edu.]

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IN THE NEWS

New FDA Rule on Patient Consent

Should a person be denied access to an experimental medical procedure if she is physically unable to give consent? What if the procedure is the only thing that could possibly save her life and a proxy that could give consent is nowhere to be found? The FDA has proposed a new rule (Federal Register, 60(183): 49086-49103, September 21, 1995) that would waive the requirement that a doctor have the patient's consent before treating him or her with an experimental therapy. According to FDA Commissioner David A. Kessler, an increasing number of new drugs and procedures, "offer potential in this golden window of a few minutes or an hour for patients who have a life-threatening emergency and are not conscious. It's important to allow this research to go forward, but it must be done ethically." The new rule requires that, before a doctor tries an experimental procedure, it must first be approved by an independent physician
and the hospital's Institutional Review Board. According to the FDA proposal, the experimental procedure must also address life-threatening risks, be at least as good as conventional therapy, and be administered only in situations in which the conditions of the patient are such that it is unlikely that the doctors could obtain consent in advance. Public comments have been evenly split between pro and con, and as of December 1, 1995, the FDA was uncertain when a final rule might be issued.

**Human Genome Education Model Project**

A survey of genetic consumers and providers has reinforced the critical need for education on the ethical, legal, and social implications of the Human Genome Project (HGP). The survey, conducted as part of the Human Genome Education Model Project funded by the National Institutes of Health, included 332 members of more than 100 genetic support groups across the country who participated in telephone interviews and 329 health professionals in 52 University Affiliated Programs in the U.S. who returned mail surveys. Included among the health professionals were physicians, psychologists, education specialists, social workers, nurses, occupational and physical therapists, speech and language pathologists, nutritionists, and administrators. While 61% of the consumers and 52% of the providers had heard about the HGP, less than 30% of each group had heard or read a lot about genetic testing. 44% of the health professionals first learned about the HGP from the media; 18% learned about it from lectures and workshops. 34% of the consumers first learned about the HGP from the media; 24% learned about it from their support groups. Four of the top five priority topics for education were the same for the two groups. These were: 1) coping with a new genetic diagnosis in the family; 2) treatments for genetic disorders including gene therapy; 3) genetic disorders and health insurance; and, 4) how to stay informed about new developments in the HGP. The project is a joint effort of Georgetown University Child Development Center in Washington, D.C., and the Alliance of Genetic Support Groups in Chevy Chase, Maryland, and has produced a set of five videos for public and professional education. The underlying premise of the project is that consumers and health professionals are the two groups most affected initially by the HGP and that collaborative education will enhance their mutual understanding in participating in future genetic research. For more information, contact either of the Project's co-directors, E. Virginia Lapham at Georgetown University (202-687-8635) or Joan O. Weiss at the Alliance (800-336-4363).

**Commission on Human Radiation Experiments Issues Report**

On October 3, the Presidential Advisory Committee on Human Radiation Experiments issues its final report on experiments involving human subjects and ionizing radiation from 1944 through 1974 and the intentional releases of radiation into the environment. The Committee found that information about some experiments was kept secret "out of concerns for embarrassment to the government, potential legal liability, and worry that public misunderstanding would jeopardize government programs." Although the Committee uncovered no evidence that research subjects suffered long-term ill effects, it urged the government to apologize and provide financial compensation to the subjects of such secretive research when there was no prospect of medical benefit to them, a recommendation accepted personally by President Clinton. The Committee also found serious problems with the current procedures for protecting human research subjects. It singled out for special criticism current consent forms, which "appear to be overly optimistic in portraying the likely benefits of research" and which "inadequately explain the impact of research procedures on quality of life and personal finances, and are sometimes incomprehensible to lay people." It recommended that "a mechanism be established to provide for continuing interpretation and application of ethics rules and principles for the conduct of human subject research." An archive containing the Committee's final report and supporting documentation has been established on the Internet; the URL is http://www.seas.gwu.edu/nsarchive/radiation.

**European Statement on Research Integrity**

The European Medical Research Councils, prompted by several incidents of scientific misconduct that have generated considerable concern in Europe, have issued a statement of principles that should guide research institutions in the development of codes of good laboratory practices and of policies and procedures for responding to allegations of scientific misconduct. For the former, the Councils emphasize the supervision and training responsibilities of scientists, the requirement of good record keeping, the determination of authorship, and the need for proper citation. With respect to investigating allegations of scientific misconduct, the Councils stress the importance of protecting scientists "against ill-founded, frivolous, mischievous, or malicious complaints," of taking all reasonable steps to ensure the
confidentiality of the proceedings, and of providing complainants and those accused of misconduct "access to arbitration and appeal mechanisms."

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IN THE SOCIETIES

PSEG Discusses New Conflict of Interest Rules

The AAAS Professional Society Ethics Group (PSEG) met on November 30, 1995, at the AAAS headquarters to discuss the new federal rules on conflicts of interest recently issued by the Public Health Service and the National Science Foundation. The invited speakers, George Galasso, National Institutes of Health, and Christopher Ashley, NSF, walked PSEG members through the rules, which became effective October 1, 1995 for grantee organizations of both agencies [see PER, VIII(3), Summer 1995]. PSEG meets two to three times a year and includes more than seventy representatives from professional scientific and engineering societies, academic institutions, and government agencies.

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LETTERS TO THE EDITOR

Dear Editor: For some years as a professional archivist, now a free-lance researcher, I have been concerned with ethical as well as legal issues relating to academics' uses of knowledge acquired from indigenous people.

Indigenous persons have told me that they think it is very unjust that academics and other professionals advance their careers by means of theses and publications using indigenous people's knowledge, while their indigenous informants benefit marginally. There are documented cases in Australia, and elsewhere I suspect, where indigenous communities were harmed by academics who disseminated knowledge revealed to them in confidence.

I often see or hear the argument that indigenous people's knowledge must be documented in the professional literature to prevent its loss. This argument reminds me of the rationale given by European collectors of archaeological remains in decades past. Today, it is accepted that archaeological cultural heritage is rightfully left in its country of origin, not taken to the security of a European Museum. Now the international community accepts a responsibility to help preserve this heritage in situ.

Indigenous people seem happy to share their knowledge, even their technical knowledge, but in their own way. An indigenous Australian friend told me of her unease with University people; she described how she was helping her people share their culture with non-indigenous Australians by organizing study circles. Her program called Tell It How It Is is a modern form of the traditional skill of story-telling.

Do researchers have ethical responsibilities to (1) determine and (2) respect the wishes of indigenous people before they proceed to collect their knowledge, stories, seeds or other manifestations of indigenous heritage? Could knowledge in toto be better served if researchers supported local peoples' efforts to promote and protect their knowledge in their own communities? Would Professional Ethics Report be an appropriate forum for discussion of such ethical issues?

I would be pleased to hear from readers interested to explore ways to raise these issues in forums lacking PER's concern for ethics.

Margaret Dwyer, Ph.D., 22 The Avenue, Balmain NSW 2041, Australia
Dear Editor: In late July, 1995, I posted on the Internet a factually based story of how in 1994 a pharmaceutical company unethically intervened in the publication of a scientific article.

The story, "Hanky-Panky in the Pharmaceutical Industry," showed how pharmaceutical company pressure on a journal editor can substantially delay getting important new information about possible side effects to physicians and their patients. In August, Part II of the story offered additional documentation that drug companies not only influence research publications but that they can even indirectly affect the scientific review of NIH grants that the industry does not want to see funded. Part II further raised questions about the industry's pervasive influence on the training of young physicians. In September, I posted Part III, offering some of my thinking behind the hope that the public (including our colleagues) could be aroused...to bring moral pressure on the pharmaceutical industry.

Since there finally seems to be growing support for doing something about raising the ethical awareness of the ethical" pharmaceutical industry, I've reposted Part I on the AAASEST mailing list [To subscribe, send e-mail to listserv@gwuvm.gwu.edu that reads "subscribe AAASEST your full name", Ed.] for readers who may have missed it. I'll also be happy to send copies of any of the three postings to anyone who requests them. We ought to be able to loudly and clearly warn the industry that, while we admire and are grateful for their many therapeutic accomplishments, we won't tolerate their placing dollars before truth.

Seymour Fisher, Ph.D., Professor & Director, Center for Medication Monitoring, University of Texas Medical Branch, Galveston, TX 77555; sfisher@utmb.edu

ETHICS, LAW & PUBLIC POLICY

The last two issues of the PER have featured several articles related to the work of the HHS Commission on Research Integrity. The Spring 1995 issue highlighted the Commission in the cover story, "Research Integrity Commission Picks Up The Pace." In addition, the issue included a summary of the testimony at the Commission's January 5, 1995, public hearing and the Ethics, Law & Public Policy column for that issue addressed the Commission's recommendation that professional associations promote compliance with research standards. The Summer 1995 issue of PER reprinted the Commission's new definition of "Professional Misconduct Involving Research." This month we are pleased to bring you the Executive Summary of the Commission's final report, Integrity and Misconduct in Research, which was released this past November, 1995.

Executive Summary

A. Commission on Research Integrity: Origins and Charge

Congress created the Commission on Research Integrity in 1993 in response to continuing controversy concerning the apparent inability of the scientific community and the Federal Government to deal adequately with misconduct in scientific research. The Commission's task was to advise the Secretary of Health and Human Services and Congress about ways to improve the Public Health Service (PHS) response to misconduct in biomedical and behavioral research receiving PHS funding. Issues to be addressed included: 1) the definition of research misconduct; 2) the assurance process for research institutions' compliance with DHHS regulations; 3) the administrative processes of institutions and the PHS for dealing with allegations of misconduct; 4) and the development of a regulation to protect whistleblowers.

The Commission's 12 members, chaired by Dr. Kenneth Ryan of Harvard University Medical School, were selected to include scientists, research misconduct investigators, administrators of research institutions, attorneys, and ethicists. The Commission held public meetings monthly from June 1994 through October 1995, primarily in the Washington, D.C., metropolitan area; regional public hearings were held in San Francisco, Chicago, Boston, and Birmingham. These meetings and hearings elicited a range of opinion and experience regarding weaknesses in current institutional and federal policies and practices related to research misconduct, as well as suggestions for improvement. The
Commission also consulted informally with relevant non-PHS federal agencies, and with professional and scientific organizations.

**B. Guiding Considerations and Principles**

In its deliberations, the Commission sought to develop a fair, balanced, and realistic response to its charge, while taking into account the many parties potentially affected by the implementation of its recommendations. Certain principles emerged as fundamental to this effort:

**Balancing responsibilities:** Individual scientists, research institutions and professional societies have primary responsibility for preserving research integrity and pursuing research misconduct; the role of the Federal Government should complement and enhance that of institutions and societies, and federal intervention should occur only when institutional processes fail.

**Clarifying the federal interest in research misconduct:** A federal definition of research misconduct should bridge legal and scientific perspectives to state clearly for all potential users: (a) the principles on which it is based; (b) the federal interest in research misconduct; and (c) the specific behaviors to be prohibited and their boundaries.

**Reducing unnecessary complexity and conflicting requirements in federal regulations related to research misconduct:** Consistency is needed among all federal definitions of research misconduct and among the administrative mechanisms related to them.

**Promoting research integrity and attempting to prevent research misconduct:** Research integrity is best fostered by developing and disseminating clear standards of behavior in science (whether by professional organizations or by research institutions or both), and by reinforcing those standards through education and example at all stages of scientific development, and at all levels of research administration.

**Creating an institutional climate in which concerns about unethical research conduct can be voiced without fear:** Good-faith whistleblowers are important to the identification and ultimate punishment of those who violate research ethics. Both whistleblowers and those they accuse of research misconduct must be treated with respect, fairness, and openness. In addition, whistleblowers need to be protected from retaliation, and their concerns should be resolved by decision makers whose judgment is not tainted by bias.

**Assuring fairness in misconduct proceedings:** In pursuing allegations of research misconduct at both the federal and institutional levels, a separation must be maintained between investigation and adjudication.

**Mitigating inherent conflicts of interest and promoting impartiality in institutional inquiries and investigations of alleged research misconduct:** Whatever processes individual institutions develop or adopt, they must achieve a fair balance of impartiality and advocacy in all proceedings. Allegations must be addressed through procedures that are impartial, fair, fact-based, accessible, and open.

**C. Summary of Commission Recommendations**

The Commission on Research Integrity recommends to the Secretary of Health and Human Services (HHS) and to Congress a plan to improve the administration of the Federal Government's research integrity and research misconduct activities and to encourage an appropriate assumption of self-regulatory responsibility by the scientific community.

The Commission recommends that the Secretary of HHS:

- Adopt a new federal definition of research misconduct and other professional misconduct related to research. The proposed definition specifies offenses that by themselves constitute research misconduct: misappropriation, interference, and misrepresentation (MIM). Each is a form of dishonesty or unfairness that, if sufficiently serious, violates the principles on which the definition is based. The definition clarifies the role of intent in research misconduct, and distinguishes such behavior from other defined forms of research-related professional misconduct, including obstruction of investigations of research misconduct.
and noncompliance with research regulations.

- Form an interagency task force to develop a common federal definition of research misconduct and other forms of professional misconduct related to research.
- Expand existing institutional assurances to require that research institutions provide research integrity education for all individuals supported by PHS research funds.
- Develop a regulation guaranteeing appropriate standards for protection of whistleblowers, based on "Responsible Whistleblowing: A Whistleblower's Bill of Rights."
- Require that intramural research programs of the PHS be subject to requirements concerning assurances, annual reports, and monitoring that parallel requirements for research institutions.
- Streamline DHHS administrative requirements and mechanisms concerning investigation and adjudication of research misconduct allegations, federal intervention in institutional misconduct proceedings, and the imposition of federal sanctions.
- Focus federal oversight of institutional research integrity and research misconduct activities.

In other recommendations, the Commission encourages:

- Scientific and professional societies to adopt and apply codes of ethics in research to educate their membership and to help ensure that all scientists follow professional ethical standards for their particular disciplines; and
- Research institutions to develop and disseminate specific guidelines for good scientific practices.
- The Commission believes that, if implemented with sensitivity to the individual characteristics of research institutions and disciplines, these recommendations can contribute to a scientific environment that nurtures research integrity.

To obtain the complete report or learn more about the work of Commission, contact Henrietta Hyatt-Knorr, Commission on Research Integrity, 5515 Security Lane, Suite 700, Rockwall-II Building, Rockville, MD 20852; (301) 443-5300; Fax (301) 443-5351; E-mail hhyatt@osophs.ssw.dhhs.gov.

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RESOURCES

Videos

*Academic Integrity: A Bridge to Professional Ethics* (Center for Applied Ethics, School of Engineering, Duke University, Durham, NC 27708-0290; $50 per copy; (919) 660-5200). This videotape and workbook have been designed to help teach professional engineering ethics by using cases with which most students are familiar, e.g. academic integrity. By using familiar cases as examples, "the instructor can help bridge the gap between academic ethics and professional ethics, using similar themes and concepts." The videotape contains four ethical dilemmas that may arise in an academic setting. The dilemmas are left unresolved and the students are encouraged to discuss the issues and provide ethical evaluations. The principles highlighted in all four scenarios can be applied to scenarios in professional engineering. Case studies that parallel the videotape presentation are included in the workbook.

*Professional Choices: Ethics at Work* (NASW Press, P.O. Box 431, Annapolis JCT, MD 20701; 1-800-227-3590; Fax (301) 206-7989; $71.50 per copy). This video presents interviews with social work practitioners, educators, and administrators as they discuss the subject of ethical social work. The participants address ethical issues that commonly arise in the social work profession, and case scenarios are presented. Each segment covers frequently encountered ethical issues related to confidentiality, boundary issues, indiscretion, and client self-determination.

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ANNOUNCEMENTS
The 4th National Symposium on Biosafety: Working Safely with Research Animals will be held January 27-31, 1996 in Atlanta, Georgia. The four-day symposium for laboratory animal veterinarians, animal care personnel, facility managers and administrators, principal investigators, biosafety professionals, industrial hygienists, and occupational health care professionals will address the identification of hazards, assessment of risks, and implementation of measures to ensure the health and safety of personnel and animals. Contact the Fourth National Symposium on Biosafety, C/O Exposition and Meeting Concepts (EMC), P.O. Box 250381, Atlanta, Georgia 30325; (404) 355-4884; Fax (404) 355-6765.

The National Science Foundation, Directorate for Social, Behavioral and Economic Sciences invites submissions for its Ethics and Value Studies (EVS) program. Projects should examine the ethical, value, and policy contexts that influence and are influenced by the development, use, and effects of science and technology. The target dates for proposals are February 1 and August 1. Preliminary proposals, giving a description of the proposal and its appropriateness for consideration in EVS, can be submitted at any time. Financial support for EVS projects involving one or more investigators is available through regular grants for research and education. Contact Rachelle Hollander, Room 995, 4201 Wilson Blvd., Arlington, VA 22230; (703) 306-1743; Fax (703) 306-0485; E-mail rholland@nsf.gov.

The Association for Practical and Professional Ethics' Fifth Annual Meeting is being held February 29 - March 2, 1996 in Saint Louis, Missouri. The meeting will feature numerous papers, pedagogical demonstrations, posters, and case studies on ethical concerns in fields such as public administration, law, the environment, accounting, engineering, computer science, research ethics, business, medicine, journalism, the academy, as well as those issues that cut across professions. There will also be demonstrations in ethics teaching and discussions of moral education and curriculum development. Contact the APPE, 410 North Park Avenue, Bloomington, IN, 47405; (812) 855-6450; Fax (812) 855-3315; E-mail appe@indiana.edu.

The National Conference on Applied Ethics, entitled "Facing the Challenge: The Ethical Stretch," will be held March 7-9, 1996 in Long Beach, California. The conference is designed to promote continuous improvement in the practice and theory of ethics across the professions. It identifies, but is not limited to, five major areas of the national discussion on ethics: education, business, government, law, and international ethics. Contact Delona Davis, Conference Coordinator, California State University, Long Beach, University College and Extension Services, 6300 State University Drive, Suite 104, Long Beach, CA 90815; (310) 985-8222; Fax (310) 985-5842; E-mail ddavis@uces.csulb.edu.

The first annual ethics and technology conference, Ethical Issues and Technological Utilization, will be held Saturday, March 9, 1996, at Loyola University in Chicago. The conference will be geared to those who wish to become more active in the field of ethics and technology. There will be special half-day programs/seminars for those who are interested in learning about the foundations of the study of ethics and how ethical issues are associated with information technology. Introductory and intermediate level seminars will also be presented. Contact Dr. Linda Salchenberger, Program Chair, Dept. of Management, School of Business, Loyola University Chicago, 820 N. Michigan Ave., Chicago, IL 60611-2103; E-mail lsalche@orion.it.luc.edu.

The biennial conference, Entretiens Sciences-Monde, will be held in Quebec on April 9-12, 1996. The conference theme is "solidarity in the sharing of science," and participants will address how scientific and technological advances can help alleviate some of our global problems. Contact Entretiens Sciences-Monde 96, Organizing Committee, Université Laval, fédifice Jean-Durand, bureau 1801, Sante-Foy (Québec), Canada, G1K 7P4; (418) 656-5916; Fax (418) 656-3687.

Conversations: Personal, Professional, and Ethical Challenges in the Treatment of Breast Cancer is being held April 13, 1996 at the Center for Biomedical Ethics, University of Minnesota. A performance, "For Our Daughters," will be presented the evenings of April 12 and 13 in conjunction with the conference. The conference along with the performance will discuss ethical issues encountered by people with breast cancer, their loved ones, and health care professionals. Contact the Center for Biomedical Ethics, University of Minnesota (612) 626-9756; Fax (612) 626-9786.

The Association for Practical and Professional Ethics invites submission of papers for a Conference on Technological Assaults on Privacy to be held April 18-20, 1996 at the Rochester Institute of Technology, Rochester, New York.
Organizers of this interdisciplinary conference are interested in a wide variety of issues regarding privacy that have arisen from recent technological advances; for instance, the capacity to eavesdrop, the debate regarding the Clipperchip, the capacity to create profiles of individuals for marketing purposes, etc. Papers should be single-spaced and suitable for photocopying and be postmarked by February 1, 1996, and sent to Prof. Wade Robinson, Department of Philosophy, Rochester Institute of Technology, Rochester, NY 14623. For additional information, or if you are interested in commenting or chairing a session, contact Robinson at: E-mail privacy@rit.edu; Fax (716) 475-6643; (716) 475-6643.

The National Science Foundation, the Office of Research and the University Graduate School, Indiana University, the Association for Practical and Professional Ethics, and the Poynter Center for the Study of Ethics and American Institutions, Indiana University are holding a **Workshop on Graduate Research Ethics Education** at Indiana University on June 5-9, 1996. Workshop participants will gain a conceptual understanding of research ethics and ethical thinking and an awareness of the ethics literature that informs these approaches. Eligible participants are post-doctoral fellows, students in the physical and natural sciences who have completed at least two years of graduate work, and engineering students who have completed at least one year of graduate work. Applicants must be nominated by their mentors and submit a two-page essay on why they wish to participate. The deadline for applications is March 1, 1996. Contact Brian Schrag, Project Director, "Graduate Research Ethics Education," Association for Practical and Professional Ethics, 410 North Park Avenue, Bloomington, Indiana 47405 (812) 855-6450; Fax (812) 855-3315; E-mail appe@indiana.edu.

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