

PERSPECTIVES

On the Professions

A periodical of the Center
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"Moral Problems in Medical Engineering"

Fay Sawyer, Editor, CSEP,
Illinois Institute of Technology

The statement of a moral rule is generally simple and straightforward. For example, one such rule is "Don't Injure." But to see how this rule is applied requires us to think carefully about how particular sorts of injuries are linked up with certain sorts of relationships between professionals and clients. In particular contexts we, as clients, invest professionals with hope and trust beyond the ordinary. And in any case where hope and trust are embedded deeply in the relationship, the obligation not to hurt assumes a new dimension: "Do Not Undermine Hope!" and "Do Not Betray Trust"

The special group of professionals whose work involves experiments in the actual or possible applications of very new technologies to very grave illnesses or injuries is inevitably involved in problems of just that kind. Here too the vulnerability of the client population is heightened by a significant factor: the strength of even an irrational hope if one has been in despair, in some cases for years. Our outrage about quacks who offer nostrums billed as "curing" old age or impotence or cancer testifies to our deep

feeling that professionals are under an added obligation whenever evocation of such hopes in such a population is an almost unavoidable part of the professional-client interaction. This added moral burden is intensified in our time inasmuch as there is such a tendency to invest new technologies with the magic and mysterious miracles formerly attributed to gods.

In what follows, two very different problems facing researchers in this field are recounted by the scientists personally involved in them. The serious reflections by these scientists are then commented on by a philosopher who specializes in medical ethics.

This issue of PERSPECTIVES offers also a summary and analysis of the recent conference sponsored by the Center for the Study of Ethics in the Profession and concerned with the uses of property controls, of various types, in the worlds of science and technology: thus broadly, in "intellectual property." The author of this review article shows some of the broad-ranging effects of any decisions in these matters and thus shows how each such policy decision has significant social and moral presuppositions and implications.

"Research in Biomedical Engineering"

Robert Jaeger, Ph.D., Pritzker
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As a biomedical engineer, I have always been excited about doing research that might have an impact on health care.

My first research experience was in computer simulation of eye movements. Later research focussed on the subcortical control of eye movements and visual functions, studied by single unit recording in anesthetized cats and monkeys. By the time of my Ph.D. thesis, I was working in human motor control, using healthy human subjects for various noninvasive experimental procedures.

In all of this work, the researcher was not required to pay very much attention to the experimental subjects. Someone else cared for the animals and computers, and the healthy human subjects cared for themselves. The institutional review boards easily passed many innocuous protocols.

Following my Ph.D. work, I continued to work in the area of human motor control, but my interests shifted to pathological motor control. These new interests were particularly concerned with

restoration of functional movement following spinal cord injury. I soon found myself ready to perform experiments with human research subjects who were spinal cord injured. Suddenly, experiments were no longer as easy to perform as before, and many ethical questions arose in my mind that had not arisen before.

A short review of spinal cord injury and the experimental techniques involved in this type of research may assist the reader in understanding the nature of the ethical problems involved here. Spinal cord injury is one of the most devastating and frustrating injuries that the human nervous system can sustain. The muscles below the level of the injury no longer move upon voluntary command.

In my work I have been concerned with paraplegia-paralysis of the lower extremities. Typically, a sudden and irreversible change occurs in the life of the injured person and the family. The injured person and family are rightly told by the medical staff at most trauma units and rehabilitation centers that nothing can be done to cure the injury, and that anew lifestyle which takes the injury into account must begin. This new lifestyle revolves around the wheelchair or long leg braces for mobility. Yet in most cases, the injured person and family nurture hopes that someday everything will return to normal-that "someday I will walk again."

In many cases of paraplegia, it has long been known that electrical stimulation of paralyzed muscle can cause it to contract. There have been a number of demonstrations in laboratories

around the world since 1960 which have shown that this technique might be feasible to restore standing or walking. In my studies, surface electrodes are placed over the belly of the muscles in the front part of the thigh. When pulses of electric current are passed through these electrodes, the thigh muscles contract to stabilize the knee, and the person can now stand.

The postural stability when standing by electrical stimulation is not as good as the stability of a neurologically intact person. It is also not yet as good as the postural stability achieved while wearing long leg braces. Some advantages of standing by electrical stimulation are that it is less cumbersome to use than braces and more cosmetic. Despite the feasibility demonstrations I have performed and those performed at other laboratories (Rancho Los Amigos Hospital, Case Western Reserve University, Rehabilitation Engineering Center of Ljubljana, Yugoslavia, and others), most researchers agree that it will still be many years before this technology is clinically available.

As a researcher, I have hope that the projects I am working on will benefit mankind. Yet, in reality, a given project may not really result in any benefit to mankind. If no benefits occur, I am not disturbed, because I have many projects; perhaps one of the others will be successful.

The ethical question here is whether I have the right to project my hope for a single project to an individual research subject who may be very desperate for something to hope for. In this case, if the project is not successful, the individual

typically has few other places to turn for hope. The research described earlier is a perfect illustration of this dilemma. Generally, the spinal cord injured individual has been rightly told by the medical profession that the likelihood of standing or walking is remote. Psychological professionals agree that this news is devastating to an individual. When the "carrot" of a research project is dangled that might imply some hope that the medical predictions were somewhat pessimistic, the injured individual is highly likely to chase it. It is useful to recall a quote from the late Dr. Morris Fishbein: "In times of great stress, of pain or of sorrow the human being recants all that he may have learned of science and truth and resorts to incantation and to prayer. He is ready to leap at any cure or suggestion that may be offered to him for the alleviation of his travail, never stopping to inquire as to the motives of those who would heal him or as to the basis on which their claims may rest."

This dilemma must be resolved. On the one hand, if no research is done with human subjects, the likelihood that advances will be made is diminished; on the other hand, if research is conducted with human subjects, there is the potential for psychological trauma to the individuals participating as human subjects in the research. Obviously, taking either extreme position (that the research should be conducted no matter what harm comes to the subjects or that the research should not be done at all) is indefensible. We must thus address the nature of the compromise to be made in this case.

In the research program at ITT, we have had the cooperation of

rehabilitation psychologists. We try very early on to make sure the prospective research participant understands the difference between treatment (which we do not do) and research (which we do). We further screen participants for expectations, try to identify them, and manage them. We want to make the best possible effort to help the research participant understand that he or she is really a co-investigator of sorts, and that the only benefits that might accrue are the satisfaction of having contributed to scientific knowledge in this field.

Despite this ethical wrangling, I, as a researcher, am left with a bitter taste in my mouth. Why not return to research in areas that do not have these problems?

One answer to this question may lie in the observation that research in bioengineering has to a large extent not been as effective as it might be, since not enough research feasibility studies that have been successful have been brought to the point where they directly benefit people and improve the quality of health care. If more researchers do not attempt to see their results move beyond publication in a journal, and into the mainstream of health care, then these research efforts will ultimately be curtailed.

A second answer lies in the ability of the researchers to feel that they have done their best, in spite of the many difficulties working against them, to bring their ideas to help mankind to fruition.

"Medical Engineering and the Media"

Robert Arzbaecher, Ph.D.,
Director, Pritzker Institute of
Medical Engineering, IIT

Those of us who pursue engineering solutions to medical problems have learned to become quite conservative in reporting our research to the popular media. This is because our small steps forward are usually not newsworthy in the popular sense, and the effort by ourselves or our journalists to make them so frequently end in exaggeration.

I recall a personal incident in which an experienced and quite responsible science writer did a piece on my research for the science section of the Sunday newspaper. Although the article was modest enough a sufficient amount of human interest and speculation about the future impact of this research was introduced to capture the attention of a West Coast freelance writer who called me, asked some questions, put some "layman's" words in my mouth and then sold a sensational story to Globe. It appeared a week later (on a page with Mick Jagger and Bianca). My family and friends were delighted, but not my colleagues. one of whom was annoyed enough to tack the item on the bulletin board in the cardiology office at a university where much of my work has its clinical support and encouragement.

We learn from the above lesson of a big risk in popularizing our work, besides the obvious one of falsely raising the hopes of the public: possible loss of respect by our peers. To the engineer whose research depends very heavily on

successful collaboration with medical colleagues, such respect is essential. The benefits of media exposure are considerable: praise for one's self, publicity for one's university, unexpected financial support by foundations and individuals whose funding decisions may be based on popular rather than peer opinion. But the risk is also significant, and on balance, many of us decide to resist the temptations of newspapers and television.

My own experience with the not so collegial reaction of my colleagues to my moment of media glory is nothing compared to that of Jerrold Petrofsky. He is the physiologist at Wright State University in Dayton whose work in electrical stimulation of paralyzed muscle has recently received so much media attention and peer reaction. After several years of preliminary work with animals Petrofsky in 1982 began sonic experiments in which current applied to electrodes on the legs of paraplegic: patients is used to stimulate contraction of the underlying muscle, to effect standing and even some primitive movement.

The technique is neither new nor unique to Petrofsky's laboratory, but it has now been described by the media as a "breakthrough" and "miracle of modern medicine", despite the fact that many years of hard work will be needed before a practical system is available for a limited number of paralyzed patients. The Wall Street Journal, People magazine and Reader's Digest all ran stories and by February 1984, Petrofsky had been featured on such TV shows as That's Incredible, Phil Donahue, 60 Minutes and Nova. Following the Nova story, CBS produced a full length made-for-

TV movie called First Steps, billed as a "real-life drama" and portraying Petrofsky and one of his paraplegic: research subjects.

When the movie was aired in March of this year, many researchers finally objected to the exaggerated treatment of Petrofsky's research and to the unwarranted expectations such exposure would engender among paraplegic patients and their families. Michael Rosen, principal research scientist in the Mechanical Engineering Department at MIT, typified this reaction in his July article in Technology Review:

"Because of the publicity over Petrofsky's work, many victims of spinal cord injury now believe they will soon be able to discard their wheelchairs."

A second objection raised by neuromuscular scientists is that the media portrayals ignored the work of many other investigators who have been conducting similar experiments for up to 15 years, have enrolled and successfully studied more patients and have repeatedly recorded instances of more extended activity, including forward movement of several hundred feet and ascending and descending stairs.

The magnitude of the reaction by other scientists can be noted from the signatures on a "Joint Statement" which has appeared in several important technical publications and which begins:

"The undersigned biomedical scientists wish to correct certain misimpressions and misleading statements that have appeared in the lay press regarding the state of the art in the application of

electrical stimulation to move paralyzed limbs. As active and long-standing contributors to this area of research, we are concerned that the continued dissemination of mis-information will cause serious disappointment to patients suffering from motor disorders and may reflect adversely on the significant contributions of the many responsible and productive researchers in this field."

The statement, in its original public appearance, bore the signatures of 27 respected neuromuscular scientists.

Petrofsky's peers have not only blamed the media for its telling of the story, but also Petrofsky himself for courting media attention for the past two years. Gerald Loeb, who is a well respected neuromuscular expert at NIH, stated in the newspaper of IEEE (the world's largest professional society):

"I find it difficult to imagine that this story could have been played in so misleading a way for as long as it did and in as many different places as it did without at least the tacit consent of Petrofsky."

To the question, "What price TV glory?" an unhappy answer is emerging in the still unfinished Petrofsky story: the price may be one's reputation in the scientific community. Part of this price will be paid by a trusting and hopeful audience to these media events. Their discovery that some giant claims are flawed usually has ripple effects. Trust in medical research diminishes and with that loss may go diminished public support as well.

"Comments on Jaeger and Arzbaecher"

Mark Sheldon, Ph.D. Indiana University Northwest, Indiana University School of Medicine

The two papers appear to address the same concern, adequate protection of the experimental subject, but from different perspectives. Jaeger expresses anxiety over what seems to be an unavoidable dilemma: on the one hand, he is concerned for the individual subject whose hopes ultimately may be devastated when the experiment does not succeed, and, on the other, he desires to contribute to the basis for hope itself. In the second paper, Arzbaecher examines the complex issue of how one ought to deal with the media that over dramatizes and one's colleagues who irresponsibly exaggerate their experimental results.

Regarding Jaeger's remarks, I would first like to make the observation that Jaeger's concerns might be compared to those of an oncologist. For instance, Jaeger's feelings of discomfort in approaching a patient with an idea for a new engineering technique might be viewed as similar to the feelings an oncologist experiences when he or she must decide whether to inform a terminal patient, in desperate circumstances, of some experimental procedure. This experimental procedure maybe occurring at a location that would involved a great emotional and financial burden for the patient and the patient's family. Also, the oncologist may have difficulty in translating, in coherent fashion for the patient, the figures that are often reported in such studies indicating the success rates. Also,

how do success rates for treatments translate into actual quality of life for any particular patient?

Another way in which Jaeger's situation could be compared to that of the oncologist is that it is not clear whether the patient has the critical faculties that would enable him or her to assess the situation in a way objective enough to determine that the patient is legitimately giving consent to participate in the experiment. That is, the patient might be in such desperate circumstances that there is a sense, perhaps, in which he or she clearly cannot say no, where the patient really has no choice. In such circumstances, it would seem to be possible to claim that there is an element of coercion involved, that requires further analysis.

While this issue may not be that important where the patient in question is terminal (with very limited time left, in any case), it may be a very important issue for the bioengineer. The patient of the bioengineer may have years to look forward to (one source of the urgency to do something), and the circumstances of the patient, from a physical point of view, would only seem to indicate possible improvement in the patient's quality of life. The problem, of course, is that the patient might be subject to possible psychological trauma if the procedure does not succeed. Also, the quality of life issue is complicated for the bioengineer in that there is a sense in which the quality of life of the patient will be improved to the extent that he or she comes to terms with the situation and deals with it in a way that allows him or her to be less constrained emotionally and psychologically

(as opposed to physically) by the circumstances.

Ultimately, for Jaeger, the issue appears to be determining what is an ethical approach to the patient given all of the above concerns. In response, I think that it can be argued that he has taken the important first steps. First, he is aware of the danger of projecting one's professional hopes on the patient. Second, he has arranged to have a consulting clinical psychologist on hand, with an expertise in rehabilitation, and in this context the central issue seems to be that of informed consent with the psychologist playing a very significant role.

Whether the patient is informed in the sense that he or she has understood the procedure is a question that the researcher can answer without assistance from others. However, whether the patient really understands the likelihood of success and whether the patient truly gives consent (and could have chosen otherwise without any element of coercion) are questions which appear appropriate for the psychologist to address. One particular danger, not mentioned by Jaeger, which could also be dealt with by the clinical psychologist, is the possibility of a patient construing a bad outcome in an experiment as his or her failure. Such a conclusion must be avoided.

Arzbaecher's paper raises fundamental issues impossible to resolve in this space. In the profession there appears to be widespread recognition that at Wright State University Jerrold Petrofsky is irresponsibly misleading potential experimental subjects concerning the success of his work. Petrofsky also appears to be allowing the media to

exaggerate what he has achieved.

In response, is it enough to publish letters in professional journals? Clearly, such a response does not seem to protect subjects as desperate as both Arzbaecher and Jaeger describe. Does one take some sort of action in trying to establish procedures for regulating experiments on a national level? Does one call for a congressional committee to investigate informed consent procedures that occur at different research institutions? Does one write to the networks, to the media that report in exaggerated ways the results of experiments and ask for equal time for one's dissenting point of view? To what extent and in what way does one focus on distinguishing media exaggeration from professional irresponsibility in reporting inaccurately the success rates of experiments? If the issue has to do with media exaggeration, it would seem possible to suggest that this is the sort of issue which a professional society ought to consider.

One could conclude that efforts have to be made to educate the media about the true state of bioengineering. Clinical psychologists involved in rehabilitation ought to make clear the dangers involved in irresponsibly reporting the success rates of experiments, the seriousness of raising false hopes in individuals who are in desperate circumstances.

Of course, it must be recognized that this is precisely what some members of the media trade in. It is clearly very profitable for them to raise the false hopes of the desperate.

The question is, given that this is

clearly going to occur, in what way is the ethical obligation of the professional society properly discharged? The response must be to make persistent efforts to educate the public, and to take action to isolate irresponsible colleagues. Attempts must be made to work with responsible media representatives. The professional society ought to establish guidelines that determine at what point, in what way, results of experiments will be disclosed to the public.

It may be suggested that all of this will adversely affect the availability of research funds. I would think that this is unlikely. Researchers in physical medicine are appropriately aggressive in the judgment of their colleagues and research funds appear to continue to be readily available. However, the availability of research funds, as the public becomes less excited due to the candid disclosure of research results, might decrease. This would be very unfortunate and would obviously not serve the interests of those in the future who might benefit, but the emotional and psychological devastation of individuals in the present, improperly informed, would simply not be worth it.

"A Conference on Ethics and Intellectual Property"

John W. Snapper, Ph.D. CSEP,
Illinois Institute of Technology

Diverse sorts of intellectual property arrangements, including patents, trade secrets, and copyrights, have been used to protect scientific and

technological innovations. On October 4th and 5th, the Center for the Study of Ethics in the Professions, under a grant from the National Science Foundation, hosted a conference on the ethical and social implications for privately sponsored research of property controls over scientific and technical innovations.

Truly innovative technology often fails to fit into the traditional categories of intellectual property. When this happens the categories may be modified. Computer software, for instance, resembles both a copyrightable manuscript and a patentable process and, falling between copyright and patent, may not be protect able by either means. In spite of certain legal difficulties, there have been moves to accommodate the computer industry by stretching the definition of copyright. This accommodation has led to variations in the law of copyrights, including copyrights on software that has been made only partially public.

On occasion whole new categories of intellectual property have been created to accommodate new technologies. In the beginning of this century, for instance, the development of plant varieties became a major research project. But a new variety of corn is not easily protected by its developer. Corn plants (unless the corn is a sterile hybrid) spring forth naturally from crop to crop and cannot be controlled through patents like manufactured machines. In an attempt to accommodate agribusiness, the United States has defined special sorts of protections over seed lines that apply only to agricultural developments.

When intellectual property policies change, research practices change to take maximum advantage of the new protections. This interrelation between intellectual property policy and research practices raises a number of ethical issues about the uses of alternative forms of protections.

We may have prima facie expectations about how intellectual property policies affect both society and the scientific community. Consider, for instance, that trade secret protections deprive the scientific community of the opportunity to study new technology. Since this is contrary to a presumed norm of openness in science, it is popularly argued that patent protections demand publication of the protected technology, and are thus socially and ethically preferable. Such prima facie arguments are, however, suspect. The claim that publication is encouraged by the patent laws requires empirical evidence from studies of research practices in alternative R&D environments. The argument moreover blurs over a history of changes in the legal definitions of patent and trade secret, and ignores the availability of alternative intellectual property arrangements.

In an attempt to avoid overly abstract discussion, the CSEP conference focussed discussion of ethical issues on detailed case studies. Each case study assessed the impact of one approach to intellectual property on a research field.

Duncan Davidson (lawyer in private practice) presented a study of recent copyright suits brought by IBM to protect software used in its personal computers. A major

legal decision in 1983 following 1980 revisions in the copyright law has opened the way to copyrights on the programs that guide basic machine operations. Mr. Davidson looked at attempts by small companies to develop IBM clones and IBM compatible software in spite of IBM's copyrights.

Alan Lemin (research manager at Upjohn Corporation) discussed problems being faced by biotechnologists working under patent arrangements. A major issue is the requirement that genetic samples be publicly available (an adaption of the publication criterion for patents). This creates problems for patent holders who cannot easily detect when a competitor has violated the patent by improperly using the sample. The industry has responded with the use of distinctive licensing agreements.

Charles Weiner (historian at MIT) presented a history of controversies over patents that control medically important substances and techniques. The controversies have been particularly fierce when the research was done in and a patent is held by an academic institution. On the one hand there is a tradition of open access to medicines. On the other, patent seekers have expressed the desire to assure quality control over new medicines or to fund further basic research. Dr. Weiner looked into three such controversies, bringing out distinctive differences between them.

Fred Buttel and Jack Kloppenburg (sociologists at Cornell and Wisconsin) presented a complex history of recent attempts to protect newly developed

organisms and plant varieties. Developers have used sui generis protections, trade secrets, and (just recently) patents. These shifts from one preferred protection to another have paralleled changes in breeding techniques and in the amount of funds committed by private business to development of plant varieties.

The case studies provided a point of departure for papers by Alan Goldman (philosopher at University of Miami), Patrick Kelly (lawyer at Monsanto), Sidney Winter (economist at Yale), Arthur Kutlik (philosopher at University of Vermont), Pamela Samuelson (lawyer at the University of Pittsburgh), Anne Branscomb (lawyer in private practice), John Palmer (economist at University of Western Ontario), and Gerald Dworkin (philosopher at University of Illinois/ Chicago). A select group of discussants, including representatives of research industries and government agencies, commented on the presentations.

Our policy decisions to provide proprietary protections for technological innovations are justified by a number of different public policy and ethical concerns. According to the US Constitution, patent and copyright policy is designed to promote progress in science and the useful arts. Official justifications have not been so plainly enunciated for other forms of protections, such as trade secrets. In all cases, however, there is considerable controversy about the actual social utility of any one intellectual property policy.

There was, for instance, a lively exchange at the conference over

whether or not the turn by the computer industry to copyrights overly restricts the opportunity for new research in the industry. In order for a researcher to base further developments on a competitor's work, he must look into his competitor's design. If the design is kept as copyrighted software, even the attempt to investigate the design may require copying it into readable form and violate the copyright. This contrasts with patent protections whereby reverse engineering is permitted (so long as no new machines are produced) and designs are publicly available for further development.

Duncan Davidson's case study drew evidence from the pattern of IBM suits to show that we can distinguish between fair and unfair study of copyrighted technology and that there is considerable fair research in progress. He claimed that research and development is taking place in a copyright environment just as it takes place in a patent environment. Pamela Samuelson's discussion paper argued to the contrary that present copyright policy is too restrictive for the health of the research enterprise. The CSEP conference brought practicing scientists, economists, philosophers, and representatives of the copyright office into this debate, which is too often fought just by lawyers.

In intellectual property, as with other social institutions, we can expect that policy changes have multiple effects, and that any one policy has a multiplicity of social utilities and disutilities. Both expectations were verified by conference studies. Kloppenburg's and Buttel's study of the history of agribusiness shows how the

redefinition of protections affected such matters as the proportion of privately to publicly funded research and the number of new seed lines in production. In a summary presentation, Dworkin noted that (though most participants preferred instrumental arguments to arguments from desert or entitlement) the conference considered at least ten different ends that intellectual property policy was alleged to promote. These include monetary incentive for new research, the ability to insure quality control over a technology, social and professional recognition for creative scientists, the preservation of openness in scientific research, and the possibility of generating funds for further research.

An intellectual property policy has many positive utilities, any one of which can be used for its justification. It also has many disutilities and represents a choice among alternative policies with their own justifications. A sophisticated evaluation of an intellectual property arrangement takes note of a complex of ethically important effects and alternatives, and does not overemphasize just one value. Thus a shift in policy (e.g., over the time period for which a protection stays in force) or a shift in an industry from one preferred protection to another (e.g., in agribusiness from sui generis protections to patent protections) demands concern for a large number of different values.

Additional information about the conference content is available from Dr. Vivian Weil, the CSEP, IIT, Chicago, 60616.

"Announcements"

Conferences: The Federation of Associations of Regulatory Boards will sponsor its Tenth Annual FARB Forum for members of state regulatory boards on February 7-10, 1986 at the Sheraton Park Central Hotel & Towers, 12720 Merit Drive, Dallas, Texas. Among the topics to be considered will be "Ethics and Implications for the Regulation of Practice" and "Legal Aspects of Regulation." For further information, contact: FARB; Suite 745, 5530 Wisconsin Avenue, N.W.; Washington, D.C. 20815.

Workshops: The American Association for the Advancement of Science, in collaboration with the Illinois Institute of Technology's Center for the Study of Ethics in the Professions, will sponsor a workshop on professional societies and professional ethics on May 24-25, 1986, at the Hershey-Philadelphia Hotel in Philadelphia, PA. For further information, contact: Office of the AAAS Committee on Scientific Freedom and Responsibility, 1333 H Street, NW, Washington, D.C. 20005.

Calls for Papers: The East Carolina University Department of Philosophy, with the support of the North Carolina Humanities Committee, the College of Arts and Sciences, and the School of Business, is pleased to announce a conference on Moral and Conceptual Issues in Investment and Finance, April 17-18, 1986. Send two copies of papers by March 8, 1986 to: Dr. Craig K. Lehman, Director; Conference in

Applied Philosophy; Department of Philosophy; East Carolina University; Greenville, NC 27834-4353.

The Fifth Chicago Summer Conference on Business and Professional Ethics will be sponsored by the Society for Business Ethics and Loyola University of Chicago on August 11-12, 1986. Papers are welcome on all aspects of business ethics and philosophy of economics and on professional ethics. The program committee also hopes to organize several panels. Possible panel subjects are advertising, computer ethics, and issues in finance. Deadline for submission of papers is March 15, 1986. Please send submissions to Kendall D'Andrade; Department of Philosophy; Loyola University of Chicago; 6525 N.Sheridan Road; Chicago, IL 60626.

The annual series Research on Corporate Social Performance and Policy will devote a future volume in whole or in part to research on business ethics and values. The publication target date is January, 1987, and articles must be in hand no later than October, 1986. If you are interested, you may either send the editor a one-page description of the research you would like to have considered, or call him with specific plans in mind. The editor of this volume will be: William C. Frederick; Professor of Business Administration; Graduate School of Business; University of Pittsburgh; Pittsburgh, PA 15260. Phone: (412) 648-1718 (work), or 6212663 or 621-6467 (home).

The editor of the journal of Medical Humanities and Bioethics (formerly Bioethics Quarterly) invites essays in all aspects of

Medical Humanities. For further information, contact: Spencer Lavan, Ph.D.; Chair, Dept. of Medical Humanities; New England College of Osteopathic Medicine; 11 bills Reach Road; Biddeford, ME 04005. (Subscriptions to this journal may be obtained from the Human Sciences Press, Inc.; 72 Fifth Ave.; New York, NY 10011.)

The Technology Studies and Education Division of the Society for the History of Technology is collecting materials for two publication projects: (1) a collection of course syllabi in the History of Technology and Technology Studies, and (2) a collection of useful teaching techniques for Technology Studies. Screening of submissions will begin on April 30, 1986. For more information, contact: Dr. Terry Reynolds; Director: Program in Science, Technology, & Society; Department of Social Sciences; Michigan Technological University; Houghton, MI 49931.

Academic Positions: Rice University Jesse H. Jones Graduate School of Business Administration. Lynette S. Autrey Visiting Professorship in Business Ethics. Applications should include a curriculum vitae, names and addresses of six references, and copies of recent publications and teaching evaluations if available. Applications should be sent to Prof. Wilfred C. Uecker; Jones Graduate School of Administration; Rice University; PO. Box 1892; Houston, TX 77251. EO/ AAE.

Loyola Marymount University, College of Business Administration. Hilton Professorship of Business Ethics. Nominations and requests for

applications should be addressed to: Dr. John T Wholihan, Dean; College of Business Administration; Loyola Marymount University; Loyola Boulevard at West 80th Street; Los Angeles, CA 90045.

University of Maryland at College York, Center for Philosophy and Public Policy. Rockefeller Resident Fellowships. Two fellowships are available for the 1986-87 academic year. The research proposed must make good use of the Center's association with the Washington policy community. Applications will be considered without prejudice from philosophers in the early stages of their careers as well as from scholars of established stature.

Applicants for 1986-87 should submit a curriculum vitae, one paper or off-print, and a proposal of no more than 2,500 words describing a welldefined philosophical research project. They should also arrange for three letters of recommendation to be sent directly to the Center by persons who can comment on their qualifications and their proposal. All materials must be received by January 31, 1986. Awards will be announced by March 31, 1986. For additional information, contact: Douglas MacLean, Director; Center for Philosophy and Public Policy; 0123 Woods Hall; University of Maryland; College Park, MD 20742.

Police Ethics: Source Materials: Under an NED grant awarded to the Police Foundation, Dr. Frederick A. Elliston directed a project collecting curricular

materials dealing with ethical, social, and policy dimensions of police work. To obtain a copy of the monograph which resulted from this project, contact: The Police Foundation; 1001 22nd Street, Suite 200, NW; Washington, D.C. 20037. Phone: (202) 833-1460.

CSEP Publications List: A revised Center Publications and Papers List (December 1985) is now available on request. The list includes more than 100 published and unpublished items written or edited by CSEP faculty, staff, and other participants in Center programs. Contact: Dr. Mark Frankel, Director; Center for the Study of Ethics in the Professions; Illinois Institute of Technology; Chicago, IL 60616.

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Institute of Technology was established in 1976 for the purpose of promoting education and scholarship relating to ethical and policy issues of the professions.

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Opinions expressed in
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