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Ethical and Moral Dilemmas Confronting Forensic Scientists

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ABSTRACT: Ethical and moral dilemmas that create "no win" situations must be changed into problems that permit "all win" solutions. Professional ethics are grounded on personal morals, hence an individual's concepts of faith, health, and justice are significant. Word professions like journalism and forensic sciences invite comparative analysis of their ethical and moral dilemmas. Examples of current dilemmas in the forensic sciences involve criminalistics, questioned documents, toxicology, pathology, psychiatry, and jurisprudence. All such specialties must elevate their ethics by professionally recognizing themselves, not as chemists, physicians, criminalists, and so forth but as forensic scientists—expert witnesses in the legislative, executive, and judicial processes of law and justice. Education in moral and ethical issues from the junior high school through professional schools and in the professional practice offers promise for resolving ethical and moral dilemmas by transforming the unsolvable dilemmas into soluble problems. An exemplary beginning in public education for professional ethics is being manifested in the area of computer ethics. Practical adjustments in ethics and morals can be achieved through "experience developed by reason and reason tested by experience."

KEYWORDS: jurisprudence, ethics, forensic science

Webster defines dilemma as a "choice between equally unfavorable or disagreeable alternatives." Forensic scientists who face this choice are practitioners in the various professions of the forensic sciences which include any science or technology used in the administration of civil and criminal justice. If Webster's definition is true, these scientists and technologists when they enter the administration of justice may confront "no win" situations in ethics and morality. Whatever decisions they make, unfavorable or disagreeable results will occur. This condition is not conducive to strengthening professional ethics and personal morality in the field of the forensic sciences or for that matter in any other professional activity. The thrust of this presentation is that the selection of the ethical and moral act must produce an "always win" situation, a favorable and agreeable result [1].

To consider the relationship of ethics and morality to the forensic sciences, professionals must be measured against a standard which begins with the individual as a person not as a forensic scientist. Within each individual's moral fiber rests the professional's ethical performance. Without a consciously developed sense of individual morality, neither personal morals nor professional ethics is attainable. The cornerstone of all ethical thinking including professional ethics is private morality. On this foundation of morality is placed a second layer of responsible performance, the ethics of the profession. A third and final layer is then added in the form of public law. All three of these conditions act to constrain each professional practitioner.

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A forensic scientist must be moral, ethical, and lawful simultaneously. Each of these three conditions demands individual attention. Only then can suggestions be provided to resolve the ethical and moral dilemmas confronting forensic scientists. The goal is to provide solutions that produce “always win” situations rather than “no win” situations.

Personal Morality

A forensic scientist, a physician, a lawyer, an engineer, an architect—all professional persons—have the common experience of being individuals first and professionals second. There is nothing basically peculiar or significant about the moral challenges that confront a forensic scientist. Morality demonstrates a personal, not a professional, dimension.

What is the key to the individual's preparation to be a moral person? Every person has the need to recognize that he or she lives by what can be termed the triad of life: faith, health, and justice. All segments of living are integral portions of the individual's personality. Thoughtful understanding of this triad demands a definition of each component:

1. *Faith* is a belief in a Supreme Power which permits one to answer these basic questions of life: What am I? Who am I? Why am I?
2. *Health* is not merely the negative absence of disease and injury but a positive state of physical, moral, and social well-being.
3. *Justice* is a relationship between and among human beings that seeks to provide each person with a sense of peace and order, liberty and security, and fulfillment and happiness within the whole human environment.

The human psyche must recognize the importance of each of these goals, must keep all of them in proper balance, and must nurture their lifelong growth. None of these goals are “given”; each must be sought and achieved. In recognizing, balancing, and nurturing these goals, all individuals prepare themselves to make the moral decisions required of them, the ethical decisions expected of each professional, and the legal decisions demanded of each citizen.

Everyone has a faith. We can answer *what* we are with great definiteness and accuracy. Modern knowledge can explain with scientific precision the systems and functions of the human mind and body. *Who* we are is much more difficult to comprehend. Great turmoil in the past several decades has revolved around this “who am I” aspect of personal faith. The American belief expressed in the Declaration of Independence perceives all human beings as equals. The American practice for two centuries has been a momentous effort to achieve this equality. The ultimate answer to the question “Who am I” is:

I am a human being equal to every other member of the human family. I am not just a female, just a black, just a physically disabled person, just a senior citizen, just an American. I am *homo sapiens* and my decisions on personal morality must be made on the basis of this equality with all my fellow human beings, not on the basis of being a female, a black, a physically disabled person, a senior citizen, or an ethnic national.

This attitude places moral decision-making by all persons on an equal level. No one is disadvantaged because of some secondary human condition based on sex, race, physical disability, age, religion, or ethnic origin. In making personal moral decisions all professionals stand together within the circle of equality. Moral dilemmas must be resolved as responsible members of the human family, not as special groups called: physicians, attorneys, engineers, teachers, or forensic scientists.

The third question left to faith is “Why am I?” How this question is answered becomes the paramount cause for making sound moral decisions as a person. If one exists only to acquire “gold” then moral decisions will be made to achieve this goal of life. “Gold” is an individual's faith. Honesty, truthfulness, and virtue will be secondary. If a person seeks only to acquire

“power,” then power is the faith. If one lives to love others as oneself, if one lives to nurture respect for the integrity of fellow human beings, the resolutions to moral dilemmas can be based on honesty, truthfulness, and virtue.

The second segment in the triad of life is *health*. Physical well-being probably has a minimal effect on moral decision-making. Mental well-being on the other hand can have profound effect. Emotions and mental aberrations will heavily influence moral conduct. Recall God’s admonition to Cain: “Why are you angry, and why has your countenance fallen? If you do well, will you not be accepted? And if you do not do well, sin is couching at the door; its desire is for you, but you must master it” [2]. Healthy emotions, such as love rather than hate, compassion rather than revenge, and charity rather than greed, encourage morality. Aberrations of the mind prevent proper intellectual evaluation of moral problems thus contributing to the danger of producing immoral resolutions. The pathological liar has difficulty in being truthful.

Social well-being probably has the most profound impact on a person’s moral decision-making. Social well-being originates with the decision that society must be characterized by such positive qualities as honesty, democracy, fairness, and caring if community life is to be happy and fulfilled. Social well-being is based in the proper balance of the personal life with all other personal lives in the human community. Social well-being generates respect for others because one has respect for oneself. Social well-being rests on one’s being a living, growing person related to other human beings by mutual care and concern. Socio-psychopathic personalities lack social well-being, hence moral decisionmaking is impossible. If one possesses social well-being along with mental and physical well-being that segment called health in the triad of life will nurture sound moral decisions.

The third segment of the triad of life is *justice*. Legal relationships between and among persons living within a community of public law are represented by the term citizenship with its various rights and duties. Legal relationships with each other involve the striking of acceptable balances between peace and order, liberty and security, fulfillment and happiness. Each citizen must share a sense of community with all other citizens. In this common community, justice is the environment that provides us with equal treatment in things which should be equal, fairness in the application and enforcement of law, and just and equitable conditions (*ex aequo et bono*) in our public roles as citizens. Justice is a feeling that public laws are applied and public officials are acting in a way that makes each person the recipient of equal justice under law.

If an individual has the faith to answer adequately the ultimate question of life “Why am I”; if an individual maintains health as a state of physical, mental, and social well-being; if an individual experiences the justice of equality, mutual respect and equitable legal rules and procedures; then that individual’s triad of life is in good order. Moral decision-making by that individual can then be stimulated and nurtured. It is not enough to understand intellectually the wisdom of not “lying, cheating, or stealing.” A person must be moved to make decisions that are morally sound by having a proper perspective of his or her personal faith, health, and justice. Moral decision-making will then not be in the nature of dilemmas where nobody wins. Moral decisions will be made in the spirit of “we both win.” The resolution of the dilemma will now enhance private lives, professional performances, and the public well-being of the human community.

Professional Ethics

A code of ethics is central to the practice of a discipline which holds itself out as learned and which places a premium on mastery of a specialized body of knowledge. Practitioners of these disciplines are known as professionals, or more specifically in the administration of justice as expert witnesses. They are distinct from the average workers by education and training, special knowledge of a distinctive intellectual discipline, membership in or certification by a particular professional group, or licensure by a public body. Special privileges in turn are ac-

corded the professional person. Employment competition is limited to fellow professionals who have satisfied the necessary prerequisites. The "outsider" cannot practice the profession.

The forensic science professional is awarded an especially significant role in the administration of justice. If properly qualified through legal procedures as an expert witness, the forensic scientist can interpret scientific facts for the legal decision-makers. This professional can give his or her personal opinion on the meaning of conflicting facts. Such opinions will often reach the ultimate issues of fact in legal controversies and will have a powerful impact on the decision-maker: "It is my opinion with reasonable scientific certainty that the blood found on the defendant's knife is human blood of the same type as the victim's blood." "It is my opinion with reasonable scientific certainty that the defendant is mentally competent to stand trial for the crime of which he is accused." "It is my opinion with reasonable medical certainty that the plaintiff's injury is the direct result of the defendant's striking the plaintiff." Such answers to questions, when answered by a forensic scientist, can have great influence on the administration of justice, both civil and criminal.

Professional ethics require a solid base of personal morality for their foundation. If there is no such base, there can be no professional ethics. If such a base exists, a system of professional ethics can mature and become vigorous. A profession will formalize its standards of self-preserving behavior in a code of ethics or rules for professional conduct. A professional organization may incorporate such matters in the bylaws of the association instead of writing codes or rules. Interestingly, professional ethics expressed in such writings as codes, rules, or bylaws will frequently incorporate matters of personal morality along with special ethical problems generated within the profession. Exhaustive research on numerous codes of professional ethics common to organizations as diversified as the American Medical Association and the National Association of Football Coaches indicates a wide variety of professional ethical concerns [3]. Many professional codes of ethics require members to maintain professional competency through continuing education, an obligation to inform some professional or public body when violations of ethical codes are committed, and a disfavor for representation of clients on any contingent fee arrangement.

In addition most codes will address matters involving personal morality, for example, honesty, truthfulness, and virtue as well as the prohibition against the "lie, cheat, or steal" syndrome. Examples of this syndrome are manifested in prohibitions against "misrepresentation," "misleading," "falsifying," "fraud," "dishonesty," "deceit." Often these codes will speak in positive terms requiring the professional practice to be performed with "honor," "integrity," "dignity," "accuracy," "truth," "good taste," "fairness," "without bias," "without malice" or "respect for the dignity of man." If a human being has a strong fabric of personal morality, the professional codes of ethics need not include matters involving these problems of "lying, cheating, and stealing." The practitioner should resolve these moral dilemmas as an individual, not as a professional.

With this understanding of the basic significance of personal morality, attention can be directed toward the real dilemmas in the professional ethics of the forensic scientists. First, it is helpful to compare the forensic sciences profession with the journalism profession. Both have fundamental need to produce truthful facts and honest opinions through words, either in the form of research reports, case studies, and court testimony or in the form of news articles, columnists' writings, and editorial opinions. The current ethical dilemmas confronting forensic scientists can be better understood by an analysis of the journalism profession's dilemmas.

A Comparative Analysis: Journalism and Forensic Sciences

The forensic sciences profession does not have unique moral and ethical dilemmas. Thoughtful consideration should be given to the profession of journalism, which confronts similar dilemmas. The journalist wrestles with value decisions in honesty and truthfulness just as the fo-

rensic scientist does. Two examples of journalistic dilemmas can shed light on how personal morality and professional ethics enter the daily practice of this kindred profession. The issue of honesty was raised when the *Plain Dealer*, Cleveland's only metropolitan newspaper, published on 12 Oct. 1983, an article by one of its reporters which plagiarized an article written two years earlier by a *Washington Post* columnist [4]. The *Plain Dealer* acknowledged that on 16 Nov. 1983, it discovered this "flagrant and inexcusable act of journalistic piracy." A day later the doer of this personally immoral (cheating) and unethical (plagiarism) deed was reprimanded and suspended without pay for three days. No public acknowledgement and professional apology of the affair appeared, however, until 14 Dec. 1983. On that date the editorial acknowledging the immoral and unethical incident was published. Coincidentally, on the same day, William F. Buckley, Jr., in his column for Universal Press Syndicate revealed this sordid story of personal and professional misconduct. The *Plain Dealer* readers responded to this breach of morality and ethics by such letters as [5]:

Your Dec. 14 editorial, 'A serious ethical violation,' raises more questions than it answers.

First, knowing about the plagiarism, The PD sat on the story for almost a month. The PD says it was waiting for Walter E. Williams to reply to the attack that was made on him in the plagiarized column. But Williams' lethargy is totally irrelevant.

The issue is not the validity of the points made in the attack or in Williams' defense. The issue is plagiarism and The PD's concealing a news story of interest and importance to its readers. Every PD reader is entitled to wonder how long The PD would have continued its silence if William F. Buckley Jr. had not first spilled the beans.

The PD acknowledges that it has no 'legitimate excuse.' It thinks it has an 'explanation.' I see a possible coverup, but no explanation. (Readers will no doubt be grimly amused if they recall the previous day's editorial that condemned in outraged tones some Cuyahoga Community College trustees who wanted to keep a meeting with county officials out of the papers).

The PD calls the plagiarism 'a blatant violation of journalistic principles' and 'a flagrant and inexcusable act of journalistic piracy.' For these sins the reporter was 'reprimanded and suspended without pay for three days.'

Few people will tremble at the rigor of this punishment or view it as a symbol of a passionate commitment to preserving and enforcing journalistic principles. They may well wonder what unspeakably vile acts might bring down one whole week's suspension.

If The PD is indeed engaged in 'soul searching . . . to ensure that such incidents do not occur in the future,' it is off to a most dismal and unpromising start."

Did the response by the journalism profession undergird the personal morality and professional ethics expected of the Fourth Estate? In a profession granted the sacred right to freedom of the press by the First Amendment of the U.S. Constitution, was its resolution of the honesty issue equal to the sacred right conferred upon the profession?

The second scenario involved the much more subtle dilemma of truthfulness by a journalist. More specifically the withholding of the truth from the public. The story begins with the much publicized lapse of security in which U.S. Department of State cabinets containing top secret government files were delivered to the District of Columbia prison at Lorton, VA to be refurbished. Inadvertently, one cabinet had not been emptied of its highly confidential material. Several weeks after the delivery, a TV news reporter in Washington received a call from an inmate who said the prisoners had documents they wanted to give the reporter because they trusted his fairness. After repeated calls by the inmate and about three weeks later, the Reporter James Adams went to the prison and received the material. After study of the documents, he realized they were highly sensitive matter dealing with Soviet missiles, the Druse in Lebanon, the border situation in Nicaragua, and the monitoring of a political coup in the Third World. Reporter Adams and the news director of the TV channel Betty Endicott decided to return the material to the State Department without publication. The deans of two leading journalism schools were divided on whether this decision was moral and ethical. Dean James Atwater of the University of Missouri School of Journalism commented [6]:

I would feel like I was prying in some sense in an area I should not be involved in, . . . It's a complicated ethical issue.

Dean Osborn Elliott of the Columbia University School of Journalism countered [6]:

A reporter's responsibility is to report. I can conceive of instances where the material is indeed so sensitive as to require great care in their publication. But I would feel impelled to publish them unless I found very strong reasons internally not to.

It is interesting to read the participant's statements on their moral and ethical decision. Director Endicott commented that [6]:

... the key issue for her was that the documents didn't contain evidence that the administration had lied. 'If you find that the government is lying to the people, then I think you have a responsibility [to publish].'

Reporter Adams confided [6]:

I didn't want to have a role in compromising national security... I kept asking myself the question, what good would it do? A number of news organizations have called, not believing that we did not copy them. [They say], 'You're giving gold away.' They keep wondering when we are going to reveal what was in them. We are not going to. There was nothing in them that would have done the public any good.

Perhaps the most profound observation in this whole story is that many professional practitioners did not react to the complex professional ethics involved as did the Deans of the Schools of Journalism. They based their decision on the gross personal morality issue of what's in it for me, not the sophisticated professional ethics dilemma. The practitioners saw the whole episode as one to be governed by "gold"—"You're giving gold away." How much of what purports to be sophisticated professional ethics in our daily practice as journalists or forensic scientists really is based on the personal morality of our hunger for gold. If mankind in general and especially the practitioners in journalism, the forensic sciences, or any of the professions purported to be concerned with professional ethics can resolve the lust for gold, the vast majority of the dilemmas faced in personal morality and professional ethics would probably disappear.

Current Ethical Dilemmas Confronting Forensic Scientists

Following are dilemmas that have been suggested by several forensic scientists in the areas of criminalistics, toxicology, questioned documents, pathology/biology, and psychiatry. In two scenarios (criminalistics and psychiatry) forensic scientists share ethical dilemmas with the jurispudent be he lawyer or judge. Given the facts in each situation, how should the professional practitioner respond on the basis of professional ethics?

The Criminalist and the Jurispudent (Lawyer)

Defense counsel requests a private criminalist to evaluate certain evidence in a homicide case. The defendant is accused of bludgeoning his wife to death. The accused explains that the bloodstains which covered his clothing and skin resulted when he discovered his dying wife and grasped her to his bosom to give her comfort. The wife's brother, a nurse wearing white clothes, is likewise covered with blood. He too states that when he discovered his sister he grabbed her and hugged her. Defense counsel believes that the accused's brother-in-law was the assailant and that the husband is innocent. The criminalist, upon examination, finds the clothing of both the husband and brother has no blood which has been splattered. A piece of plaster board containing a bloody palm print is also studied. The defense attorney tells the criminalist that he would stipulate that the bloody palmprint is the defendant's because after the defendant found his beaten wife and held her, he stood up and wiped his hand across the wall, depositing the print with the blood of the wife. The forensic scientist confirms that the print came from

the heel of the accused's left palm. Blood on the palm print reveals small blood splatters with no centers. The splatters look like a skeletal outline. In the forensic expert's words:

These small specks of blood with no centers told me that the blood had been wiped off the wall. The specks had dried but very briefly, that is maybe four minutes, five minutes, but not completely dried, because blood dries at the periphery first. The circumference was clearly outlined and the center was missing. Well that certainly told me that the man was there after the blood had splattered. But what was most important was the many very, very fine blood splatters with long tails, less than one hundredth of an inch in diameter which went on top of this white pattern so the wiping had occurred before those splatters were laid down or the wet palm most assuredly would have distorted, defused or completely removed these long tails. It simply proved that the defendant (husband) was there after the beating began and before it finished, from which one could conclude that he was there during the beating.

With this conclusion, defense counsel dismisses the forensic scientist and tells him to return to his laboratory in another state. The prosecution fails to call any scientist to interpret the blood splatters. To complicate the dilemma, no valid dying declaration was taken from the wife in the hospital, even though she kept repeating that her husband had beaten her. Since no one told her that she was going to expire, the dying words failed to qualify as an exception to the hearsay rule to achieve validity as admissible evidence.

This scenario suggests these questions. What is the ethical obligation of the professional practitioner in forensic sciences to reveal the result of his scientific study in a homicide case which implicates the husband? Is the forensic scientist prohibited by ethical considerations from making available to the prosecution, or in a reverse situation to the defense, scientific opinion favorable to either the prosecution or defense? Is this a situation where the forensic scientist should bring to the court's attention the availability of vital evidence for the achievement of criminal justice? Should defense counsel or prosecutor be ethically obligated to reveal the results of scientific tests to the court? Should the judiciary resolve this ethical dilemma by ordering as a rule of court that forensic scientists must report scientific conclusions to the administration of justice in the interest of providing truthful facts and scientific opinions to the decision-maker?

Already legal authority exists under Rule 706 in the Federal Rules of Evidence for the court to appoint on its own motion an expert witness [7]. It would not be too great an advance to extend that authority to an obligation on the part of the forensic scientist to come forward with his expert opinion and to present it to the court when either the prosecution or defense counsel retained his services, but declined to utilize his results. Over 17 years ago the U.S. Supreme Court in *Miller v. Pate, Warden* [8] said "The prosecution deliberately misrepresented the truth" when it used defendant's underwear shorts as evidence and alleged that the stains thereon were blood of the victim's blood type in a brutal rape-murder case. Not until the federal habeas corpus proceeding following conviction were the underwear shorts first given to the defense counsel for chemical analysis. The stains were found to be paint, not blood. The shorts had played a vital part as circumstantial evidence against the accused resulting in his conviction. The High Court ordered the accused's release or a prompt retrial because the U.S. Constitution "cannot tolerate a state criminal conviction secured by the knowing use of false evidence."

Can the U.S. Constitution tolerate state criminal cases that knowingly refuse to use truthful scientific evidence developed by either the prosecution or defense? Is there not a sound jurisprudential basis for a refusal to tolerate the deliberate withholding of scientific evidence where the expert has been retained and his conclusions are contrary to the prosecution's or defense's desires or anticipations? Would it be wise to elevate the duty to divulge scientific evidence from a professional ethical dilemma to a public legal duty under the expansion of this judicial authority to appoint expert witnesses [9]? A judicial rule or legislative enactment that requires a forensic scientist or attorney to reveal forensic science evidence developed in the investigatory stage of a criminal case would not only eliminate a professional ethical dilemma, but it could also enhance the administration of justice [10].

Some individuals, especially defense counsel, will view this procedure as a serious erosion of the accused's constitutional rights. As the *Miller v. Pate* case's practical experience demonstrates the defense has considerably more difficulty in obtaining forensic science evidence than does the prosecution. The obligation to require a forensic scientist, who was retained by either party, to present expert testimony to the court if not called by the party retaining his or her services could aid an accused. Under today's constitutional law neither prosecution nor defense can use false scientific evidence. Tomorrow let both parties receive the benefit of available truthful scientific evidence. Let neither party hide the expert's evidence. Let the court summon the truth under its power to appoint court recognized experts by creating a new rule of evidence which makes available the expert opinion of forensic scientists retained by either the prosecution or defense. Until tomorrow, however, the forensic scientist must face the ethical dilemma as did the criminalist in the case of the bloody palmprint. What would you have done?

Lawyers have recently considered this dilemma in the newly promulgated Model Rules of Professional Conduct. If a lawyer learns in confidence from his client that the client is committing or plans to commit a criminal act that the lawyer believes is likely to result in imminent death or substantial bodily harm, the lawyer may reveal such information to the authorities to the extent that the lawyer reasonably believes necessary. Client confidence must be maintained, however, if the client is involved in fraud or criminal activity that does not imminently threaten life or substantial bodily harm. This prohibition against revealing knowledge presents a dilemma similar to that of the forensic science expert in the bloody palmprint situation. Considerable controversy has emerged within the American Bar on the wisdom of this proposed ethical rule. If the legal profession does not expand the duty to disclose the whole criminal activity of a client, a legislative mandate could be forthcoming. In S.485 introduced 16 Feb. 1983 in the U.S. Senate under the title "Lawyers Duty of Disclosure Act of 1983," it is provided in Chapter 63 of title 18 U.S. Code:

SEC. 1344. An Attorney—

(a)(1) who has in the course of representing a client placed in any post office or authorized depository for mail documents that the attorney prepared or any other matter or thing whatever to be sent or delivered that could enable or assist the client to commit a criminal or fraudulent act, or

(2) who has prepared documents for or who has otherwise been instrumental in assisting a client who has placed in any post office or authorized depository for mail any matter or thing whatever to be sent or delivered in furtherance of a criminal or fraudulent scheme, and who

(b)(1) upon discovering that his client has committed a criminal or fraudulent act fails to make timely disclosure to Federal law enforcement authorities of his knowledge regarding such conduct in order to mitigate the consequences of his client's criminal or fraudulent act in the furtherance of which the attorney's services were used, shall be fined not more than \$5,000 or imprisoned not more than one year or both."

If the federal courts are reluctant to require the revelation of scientific evidence in a criminal case where either party has used an expert witness, the Federal Congress might well consider such a requirement to be in the best interests of justice. To require a party's expert to divulge the results of his scientific investigation is certainly no more devastating than to require a client's lawyer to disclose criminal activity. In both cases, the matter is moved from being an ethical dilemma of a profession to becoming a legal requirement under public law. Constitutional law is continually seeking a fair balance between the protection of the public and the accused. To require that both prosecution and defense should make available to the court the scientific results of the forensic scientists retained by either party when such expert witness is not to be called for trial testimony does not appear to unbalance the constitutional protection of the criminally accused.

Questioned Document Examiner

A document examiner working for a law enforcement agency prepares a report in a forgery investigation. The examination identifies a suspect in several forgeries but eliminates the sus-

pect in several other forgeries. The document examiner's report includes both incriminating and exculpatory matters concerning the suspect. When the prosecutor receives the examiner's report, he returns the report and instructs the examiner to revise it by eliminating the exculpatory material. Can the examiner ethically follow the prosecutor's instructions? Should this decision be made immediately or is the examiner obligated to ask the prosecutor these questions: Is the accused charged only with the forgeries which the examiner identified? If so, the exculpatory data are irrelevant and deletion may be ethical. If not, the examiner would be suppressing evidence favorable to the accused and such action could be unethical. If the data studied by the examiner is wholly integrated as evidence of part of a common, continuing series of criminal activity and both the incriminating and exculpatory data were a part of this criminal situation, the relevancy of the examiner's whole report would be important. The accused would be entitled to have both the incriminating and exculpatory data presented to the jury, and it would be unethical to redraft the expert witness's report to delete the exculpatory material. The ethical lesson for the document examiner is that often the examiner has the duty to obtain more information from the prosecution or defense before he or she can resolve what appears to be an ethical dilemma.

The Toxicologist

An attorney from the local legal aid society consults a toxicologist concerning a possible civil lawsuit to be brought on behalf of a large number of individuals who live in a low income public housing project. A number of years ago the public housing authority decided to give greater insulation protection to the buildings. An insulation contractor was hired. He used plastic foam under pressure to provide an upgrading of the buildings' insulation. The plastic foam was designed, manufactured, and sold by a large national chemical company. After a short period of time, the plastic foam allegedly began to exude formaldehyde vapor and apparently continues to do so. Several hundred residents, both adults and children, have complained of chronic illnesses. The attorney, after research on the subject, believes that the plastic foam insulation is the cause of this trouble and seeks both civil damages for health injury to the residents and injunctive relief to correct the condition so that the public housing project can become a healthy habitation. The attorney explains that he desires to retain the toxicologist to perform the necessary scientific studies: to establish the potential of a toxic environment in the public housing facility, to establish ill health in the residents who will be the complainants in the lawsuit, and to establish the causal relationship between the toxic environment and the ill health conditions. Also the toxicologist would be expected to testify as an expert witness. The attorney states that no funds are available at this time to underwrite the scientific study or the preparation and delivery of court testimony. Unless the toxicologist would be willing to proceed on a contingent fee basis, no lawsuit could be pursued and no justice could be attained for the allegedly injured public housing residents.

Contingent fees for scientific study and testimony are considered unethical by forensic scientists. The questioned document examiners have included in their Code of Ethics a specific prohibition against such arrangements. The problem is easily disposed of when the charge for scientific study and testimony is modest. Generally the attorney is permitted to include this item as a litigation expense to be paid for by the client upon conclusion of the lawsuit. Often the client cannot pay until monetary recovery has been made. If no recovery be forthcoming, the client still owes the attorney the expense advanced for the expert witness's fee. The forensic scientist provides professional services, and is paid by the lawyer. The attorney has a contract with the client for this expense to be paid after the litigation ends, hopefully successfully. If the lawsuit is unsuccessful, the attorneys contract will turn into a bad debt to be written off.

Where the costs of scientific investigation reach many thousands of dollars and where the plaintiffs are low income citizens with no assets, then attorneys may be reluctant to accept such a contract from poor clients. The opportunity for aggrieved citizens to have their day in court, an inherent right under the American system of justice, is denied.

A federal district court decision handed down several years ago considered such a dilemma. An attorney sought to have declared unconstitutional the disciplinary rule of the New York State Bar Association which stated:

A lawyer shall not pay, offer to pay, or acquiesce in the payment of compensation to a witness contingent upon the content of his testimony or the outcome of the case. But a lawyer may advance, guarantee, or acquiesce in the payment of:

1. Expenses reasonably incurred by a witness in attending or testifying.
2. Reasonable compensation to a witness for his loss of time in attending or testifying.
3. A reasonable fee for the professional services of an expert witness.

The attorney represented ten plaintiffs in an antitrust action where \$300 000 000 in damages was sought [11]. The attorney alleged:

... that he is unable to prosecute the Nabcor action because neither National Auto Brokers Corp. nor any of the other plaintiffs in the suit, can afford adequate expert testimony in the fields of accounting, franchising, financing and economics, unless he is permitted to retain experts on a contingent fee basis, a practice not permitted under DR 7-109 C.

The United States District Court for New York held the prohibition against contingent fees in this case to be unconstitutional. The rationale of the court included the following observations:

* * * * *

... In the case where one party is of limited means the 'discrimination' in treatment is individual, pointed and specific as well as general in its tendency to handicap the less affluent and the indigent classes of litigants in their efforts to vindicate their rights. Yet a litigant, although without means, can obtain any lawyer whom the merits of his claim will attract to his case. But he may not obtain any expert whom the merits of his case can attract to study it and testify to his opinion.

* * * * *

... It is not meant to suggest that in the case of the expert a fee measured as a percentage of the recovery might not generally or in particular cases be regarded as *per se* unreasonable. But it is concluded that to treat contingency of payment as in and of itself improper is too irrational to survive Fourteenth Amendment analysis.

The Federal Court of Appeals, however, reversed the District Court and dismissed the attorney's complaint [12]. The appellate court made these comments in support of its action:

... We are not convinced, however, that there is no danger of the inducement of false expert testimony by such contingency arrangements.

The legislature has made a judgment that the need for discouragement of contingent fee arrangements outweighs the obstacle to financing litigation which a ban on contingent fees may create. We cannot say that this legislative judgment is irrational. The extent of the obstacle and the weight to be given its existence when balanced against the likelihood of false testimony and unfair results from permitting the procurement of expert testimony by the offer of a stake in the outcome are matters of judgment best confided to legislative not judicial bodies of the state.

This case caught the attentive eyes of several legal scholars who responded with articles concerning contingent fees for expert witnesses. The editors of the *Yale Law Journal* conclude [13]:

Contingent fees for expert witnesses should be permitted when set in reasonable amount by the trial court. The court's participation, coupled with the prospect of effective impeachment, would minimize the danger of bias in expert testimony. The contingent fee would improve access to civil litigation for budget-constrained and risk-averse claimants. Removal of the prohibition on expert contingent fees would, of course, also make available that payment option to litigants for whom access is not a problem. This is not, however, a substantial concern, for the threat of effective impeachment would encourage litigants who can afford noncontingent compensation to avoid contingency. Nevertheless, some litigants with a choice may select contingent compensation in spite of its harm to the expected value of their claims. But, by encouraging settlement of those claims, the contingent fee option would relieve some of the burden on the adjudicatory system aided by improved access.

Frederick N. Egler, Jr. writing in the *University of Pittsburgh Law Review* also stated [14]:

The prohibition of contingent expert witness fees can best be described as a relic of older attitudes and evidentiary practices, one of the last vestiges of the common law disqualification for pecuniary interest. Like its long-since-abolished cousins, it fails to achieve its only real purpose—the prevention of perjured testimony—while penalizing those least able to afford an increasingly expensive and increasingly essential judicial service. Its abolition would create no difficulties which present mechanisms could not absorb. The rule, on balance, does more harm than good, and thus has outlived its usefulness. Its abolition should be accompanied with a repudiation of its underlying rationale, which was thought by most to be discarded long ago—that the competency of a witness should be determined by reference to his financial stake in the cause.

Perhaps the time has come to reconsider the general prohibitions against contingent fees for expert witnesses. What may have been an unethical practice yesterday may not meet the practical needs of today. If forensic scientists are to serve the administration of justice their ethical standards must be compatible with the needs of justice in an everchanging society. Has the time arrived to eliminate the ethical rule against contingent fee arrangements for expert witnesses?

The Pathologist

This professional in the forensic sciences has many roles to play: a scientist who determines the cause and manner of death under legal authority; an expert witness who presents evidence at judicial, legislative, and administrative hearings; and a “family physician” to the bereaved. In the last capacity the forensic pathologist who practices in a coroner’s or medical examiner’s office confronts an ethical dilemma in explaining to the bereaved family and friends of the decedent the cause and manner of death. How much should he or she reveal? If a 17-year-old son is killed while driving the family car under the influence of a prohibited drug, should this fact be related to the grieving mother if it has no legal significance? Is it the truth, the whole truth, and nothing but the truth not to tell? Modern medical practice is increasingly under pressure to tell all the medical facts to the patient and the patient’s family. Modern legal practice similarly emphasizes the need to get all the facts. Are forensic scientists performing up to ethical standards when facts are withheld while performing the medical practice of family physician to the bereaved? Perhaps above the “scientific” and “legal” practices is a “humane” practice of medicine. At least one forensic pathologist has recognized this special role which can affect his professional ethics [15].

In contradistinction to the hospital pathologist, who customarily shares the results of his laboratory studies only with other physicians, the forensic pathologist may discuss various aspects of his patient’s illnesses or injuries with persons in many professional disciplines and official agencies, whether they be medical personnel (house and visiting staff and family physician), printed and electronic news media, registrars of vital statistics, law enforcement agencies, attorneys ‘on both sides of the table,’ and so on. Among the more important persons with whom he shares his observations and opinions are nonofficial, nonprofessional persons related to the decedent by blood or marriage.

Today, when the medical profession faces mounting criticism for becoming increasingly depersonalized (or, as some characterize it, dehumanized), the forensic pathologist is in a truly favorable position to restore the human (and humane) touch to the practice of medicine at a most stressful and distressful moment—when death has torn the emotions to tatters. This is a sacred and demanding responsibility deserving the best efforts of the postmortem (medicolegal) family physician, as I have called him when he functions in this frame of reference. Serving as an ombudsman of death, he is truly ‘involved in Mankind’.

To be humane and not to reveal all the facts may be the ethical resolution of this dilemma. Do you agree?

A more sophisticated ethical dilemma may be presented to the medicolegal pathologist consultant. Consider this verbatim report from a distinguished forensic pathologist in the American Academy of Forensic Sciences.

In 1978 a 35-year-old woman developed a lump in her left breast which resulted in further evaluation by her physician followed by a frozen section diagnosis of cancer of the breast. A radical mastectomy was performed. The mastectomy included the breast and the associated lymph nodes and axillary contents which were subjected to "permanent" tissue sections. The cancer (carcinoma) was confirmed in the mass with no evidence of local or distant spread. Thirty nine lymph nodes were individually sectioned and interpreted by the pathologist as showing no evidence of metastasis.

The patient did well postoperatively and no chemotherapy was undertaken. In 1980 the malignancy showed up in lymph nodes of the supraclavicular chain on the opposite side from the operative site and ultimately appeared in the opposite lung as well. The physicians at the "new" hospital out-of-state requested the tissue slides for review by their own hospital pathologists to help evaluate the recurrence. The primary pathologist now re-reviewed his own slides and report and found a single area of metastasis in one of the original sections of the 39 lymph nodes. He promptly marked the slide and wrote a revised report indicating the new finding. He immediately notified the original treating physicians, the new treating physicians and the hospital and departmental records and files, all in writing over his own signature. The case subsequently went to litigation alleging "malpractice" on the part of the first pathologist in not finding and originally reporting the one positive node in the 39 examined which resulted in or contributed to the cause of this patient's death in 1980.

A pathologist's special skills as evidenced by special training and Board certification include, in general, the appropriate diagnosis of disease or absence of it and the extent of the involvement of the body tissues. This is usually done by gross (visual, by aided or unaided eye) examination, selection of appropriate tissue for the preparation of microscopic slides which is performed by a (histology) technician followed by examination under the microscope by the pathologist. Both gross and microscopic evaluation result in a surgical (or autopsy) diagnosis of disease, the extent of disease, the timing of the process, where appropriate, and microscopic details in certain cases.

In the breast carcinoma example it would have been appropriate to describe the histologic type of malignancy, the cell origin, local invasion of blood or lymphatic vessels and adjacent tissues and evidence of distant spread (the lymph nodes). The case describes evidence that one node that contained a metastasis was originally described as being free of metastasis along with thirty-eight still negative nodes. An oncologist is quoted as saying:

- a) Had a single lymph node been originally reported as positive he would have treated her with chemotherapy.
- b) The outcome of the recurrence would have been different with chemotherapy.

The medico-legal pathologist consultant after seeing the slides and reports was not asked for his opinion as to negligence or failure to exercise reasonable care on the part of the original pathologist. The problem concerns different perceptions in what constitutes reasonable care for a pathologist. As a physician can one establish this case as one of reasonable medical care despite a deficiency in the original report admitted in writing by the accused?

The diagnosis was totally accurate of the primary tumor by both frozen and permanent sections. The question is whether at the time of the error the state of a very rapidly changing oncology field would have dictated chemotherapy and in fact, whether this therapist would have used it. An expert states that in 1978 (when this occurred) most therapists would *not* have used it. In 1983 perhaps more therapists would have used it but not universally with only a single lymph node out of thirty-nine.

A reasonable number to examine (statistically) would be ± 20 nodes on a breast case. Thirty-nine would suggest more than the usual reasonable care and contradict the claim of inadequacy or unreasonable care. The consultant found the single metastasis with some difficulty because he *knew* it was there despite his initial lack of that specific information. There is no way of being totally, equally, reasonably careful (and no more) in reviewing such a case despite mutual attempts by the attorney and the consultant not to prejudice the independent objective examination. Common sense interferes with evaluation of the reasonable care issue by the very nature of the consultation. It must be added that the metastasis is not *obvious* but was found only under the above described conditions along with rather extensive cellular prominence (of nonmalignant cells) or hyperplasia in the peripheral sinusoids of the nodes. Would the consultant have found and described it if he had been in the primary pathologist's original shoes? He cannot honestly say that he would or would not have done so. Can the consultant therefore resist a direct "yes" or "no" answer to the lawyer's question of "reasonable care" in terms of "reasonable medical certainty," a "51% determination" or "more likely than not."

With this discussion considered, the consultant believed he was ethically not able to say that reasonable medical care was not exercised despite the error in fact. There is a general misconception that pathology, more than almost any of the other medical specialties, is an exact science which will be dealt with identically by all skilled practitioners of the specialty. The specialty is more artful than scientific in many applications. One problem is the romance of numbers since

pathologists often express themselves in numerical terms in describing their cases. Since thirty-nine lymph nodes are probably less than five percent of the body total their evaluation has only statistically useful information relating to long range outlook or prognosis. The axillary location in the lymphatic drainage catchment area of the breast heightens their importance. However when recurrence or persistency did become obvious in this case it was in a different node chain than would ever be included in the original biopsy material and was already in those nodes at the time of the original surgery.

The issue of the oncologist's response requires a separate comment. At the time of the original surgery a standard protocol for treating a single metastasis case was universally accepted and would not accept as reasonable that chemotherapy was the only treatment alternative. With its many serious (even fatal) side effects it was just one alteration in the balance of benefit vs. risk evaluation. Admittedly, the judgment equation was not based upon completely accurate information if considered at that time. The treatment modalities and drugs available at the time of surgery are no assurance of cure or even suppression of further growth. When the risk of the powerful drugs is taken into consideration it is possible that death would have occurred at an earlier time than it actually did occur. No one can say with certainty otherwise.

Do you agree with the medicolegal pathology consultant's resolution of his ethical dilemma created by the legal requirement of responding to the lawyer's technical question of "reasonable medical certainty"?

The Psychiatrist and the Jurisprudent (Judge)

A unique ethical dilemma confronting the forensic psychiatrist involves his or her relationship with the judiciary. A majority of the U.S. Supreme Court justices created this dilemma by their widely criticized decision in *Barefoot v. Estelle* [16, p. 3383] rendered in July 1983. Barefoot was a convicted murderer in Texas. In accordance with Texas law and Federal constitutional requirements for imposing the death sentence, the trial court was obliged to hold a separate capital sentencing procedure, using the same jury which had convicted Barefoot, to determine whether the death penalty should be imposed. The jury considered two issues: whether it was probable that the defendant would commit further acts of violence and be a continuing threat to society, and whether the killing had been deliberate. An affirmative answer to each question was given. At the capital sentencing hearing, the prosecution had introduced as expert witnesses two forensic psychiatrists. Both, without requesting a personal examination of Barefoot and in response to a hypothetical question, stated with reasonable medical certainty that Barefoot would continue to be violent and a threat to society. In fact, one forensic psychiatrist stated that the probability of such happening was "100 percent and absolute." Perhaps this particular expert witness wanted to retain his perfect record of always testifying with reasonable medical certainty that the convicted defendant would commit a violent act again if released as he had done in about 70 prior cases.

The American Psychiatric Association filed an *amicus curiae* brief in support of the defendant. This professional organization stated that "the unreliability of psychiatric predictions of long-term future dangerousness is by now an established *fact* (emphasis added) within the profession." Note that the word is *fact* not *opinion*. The best scientific estimate is that two out of three predictions of long-term future violence made by psychiatrists are wrong. If the state's two forensic psychiatrists state their *opinion* as to Barefoot's future dangerousness when the scientific *fact* is that this conclusion is unreliable, what ethical issues are raised? When one of the state's forensic psychiatrists says that he is scientifically capable of testifying that the probability of future dangerousness in the defendant is "100 percent and absolute" does this not raise a most serious challenge to the application of ethical standards in the psychiatric profession?

An appellate court has the inherent right to reject testimony of a forensic psychiatrist which it considers to be false when such consideration is based on a belief beyond a reasonable doubt [17]. A majority of six justices, however, upheld the prosecution's legal right to use these two forensic psychiatrists because of the opportunity for the defense to cross-examine and for the

jury to reject their testimony. Several quotations from the dissenting opinion of Justice Blackmun, joined by Justices Brennan and Marshall, underscore the severe breach of scientific authenticity in this difficult area of psychiatry.

... The Court holds that psychiatric testimony about a defendant's future dangerousness is admissible, despite the fact that such testimony is wrong two times out of three. The Court reaches this result—even in a capital case—because, it is said, the testimony is subject to cross-examination and impeachment. In the present state of psychiatric knowledge, this is too much for me. One may accept this in a routine lawsuit for money damages, but when a person's life is at stake—no matter how heinous his offense—a requirement of greater reliability should prevail [16, p. 3406].

* * * * *

... Neither the Court nor the State of Texas has cited a single reputable scientific source contradicting the unanimous conclusion of professionals in this field that psychiatric predictions of long-term future violence are wrong more often than they are right [16, p. 3408].

* * * * *

... Thus, while Doctors Grigson and Holbrook were presented by the State and by self-proclamation as experts at predicting future dangerousness, the scientific literature makes crystal clear that they had no expertise whatever. Despite their claims that they were able to predict Barefoot's future behavior 'within reasonable psychiatric certainty,' or to a 'one hundred percent and absolute' certainty, there was in fact no more than a one in three chance that they were correct [16, p. 3409].

* * * * *

It is impossible to square admission of this purportedly scientific but actually baseless testimony with the Constitution's paramount concern for reliability in capital sentencing. Death is a permissible punishment in Texas only if the jury finds beyond a reasonable doubt that there is a probability the defendant will commit future acts of criminal violence. The admission of unreliable psychiatric predictions of future violence, offered with unabashed claims of 'reasonable medical certainty' or 'absolute' professional reliability, creates an intolerable danger that death sentences will be imposed erroneously [16, p. 3410].

* * * * *

Thus, the Court's remarkable observation that '[n]either petitioner nor the [APA] suggests that psychiatrists are *always wrong* with respect to future dangerousness, only most of the time,' *ante*, at 3398 (emphasis supplied), misses the point completely, and its claim that this testimony was no more problematic than 'other relevant evidence against any defendant in a criminal case,' *ante*, at 3400, is simply incredible. Surely, this Court's commitment to ensuring that death sentences are imposed reliably and reasonably requires that nonprobative and highly prejudicial testimony on the ultimate question of life or death be excluded from a capital sentencing hearing [16, p. 3412-3413].

* * * * *

... But the Court simply ignores hornbook law that, despite that availability of cross-examination and rebuttal witnesses, 'opinion evidence is not admissible if the court believes that the state of the pertinent art or scientific knowledge does not permit a reasonable opinion to be asserted. [16, p. 3413].

It would have been proper for the High Court to expunge the testimony of the state's two expert witnesses in psychiatry thus negating the evidence upon which the jury imposed the death sentence. But a majority of the Court declined to do so.

Where public law generates such error by its use of unscientific facts and opinions in the administration of criminal justice is there not an obligation for the forensic science professions, especially forensic psychiatry, to establish ethical standards with appropriate sanctions to assure at least a modicum of scientific authenticity to psychiatric testimony? Is it asking too much to establish an ethical standard of professional practice that: (1) requires a forensic psychiatrist to examine the individual before testifying concerning that individual and (2) requires that scientific opinions which contradict scientific facts manifest an inadequate expertise in any expert witness which bars his or her testifying in both the present case and future cases under the guise of being a forensic psychiatrist? Such minimum ethical standards for the forensic psychiatry profession would appear to be in order [18].

More importantly, did the majority of six U.S. Supreme Court justices meet the ethical standards required of legal decision makers in this most sensitive area of the death penalty? Is it an ethical dilemma which the majority of justices failed to recognize or is it only a matter of public law without any ethical implications?

The Forensic Scientist

In the five previous categories, individual specialties of the forensic sciences have been considered: criminalistics and jurisprudence, questioned documents, toxicology, pathology, psychiatry, and jurisprudence. The common denominator, professionally speaking, for all these categories is the forensic sciences. Since the founding of the American Academy of Forensic Sciences in 1949, a constant effort has been made to unite these specialties and others, for example, engineering, general, odontology, and physical anthropology, into a single professional category called the forensic sciences. Widely divergent professional practices are now represented in the ten sections of the Academy. Each section, however, is involved in similar moral and ethical dilemmas. As a forensic scientist, the expert witness from each forensic science specialty has common personal moral obligation not to "lie, cheat or steal" and common professional ethical obligations as set forth in the Academy bylaws:

As a means to promote the highest quality of professional and personal conduct of its members, the following constitutes the Code of Ethics which is endorsed and adhered to by all members of the American Academy of Forensic Sciences:

Every member of the American Academy of Forensic Sciences shall refrain from any material misrepresentation of education, training, experience, or area of expertise.

Every member of the American Academy of Forensic Sciences shall refrain from any material misrepresentation of data upon which an expert opinion or conclusion is based.

In addition, Guiding Principles are accepted by each individual member of the Academy:

Separate and distinct from the Academy's mandatory Code of Ethics, yet essential to the attainment of the highest quality of professionalism, the following are deemed to be guiding principles—voluntarily endorsed by all forensic scientists:

(a) The forensic scientist should maintain his professional competency through existing programs of continuing education.

(b) The forensic scientist should render technically correct statements in all written or oral reports, testimony, public addresses, or publications and should avoid any misleading or inaccurate claims.

(c) The forensic scientist should act in an impartial manner and do nothing which would imply partisanship or any interest in a case except the proof of the facts and their correct interpretation.

Based on the Academy Code of Ethics and Guiding Principles, what is the proper resolution in the ethical dilemma suggested in this situation? A member is convicted of perjury based on allegedly false testimony given as an expert witness in a public adjudication involving a forensic science. Material misrepresentation of education, training, experience, area of expertise, and data upon which an expert opinion is based constitutes a denial of the ethical obligations imposed on Academy members. Is perjury really an ethical issue, or is it a personal morality problem involving "lying"? Does the conviction for perjury in the legal process require the Academy to invoke a sanction against the implicated member? Should an independent private, professional procedure conducted by the Academy consider the ethical and moral issues independent of the legal decision? Are the perjury conviction and professional sanction separate problems to be resolved independently of each other?

Another neglected area of the forensic sciences ethical concern can well be the competency of many forensic scientists to fulfill the role of expert witnesses in the legal process. The psychiatric dilemma previously discussed is not unique. At least one forensic scientist has unmasked another area of great incompetency. In a devastating article Levitt and Guralnick [19, pp. 235-237] graphically delineate the ethical and intellectual shortcomings of forensic chemists.

By insisting that forensic chemists conduct accurate and comprehensive analyses, Messrs. Shapiro and Shellow have wrought a revolution in forensic chemistry. The federal government and the states have had to free people on the basis of evidence that just a few years ago would have been sufficient grounds for conviction. Drug enforcement laboratories have had to purchase new equip-

ment. Forensic chemists have had to go back to school to study chemistry. Defense lawyers have had to learn what the 'chemical defense' is and how to use it. In short, every courthouse in America, advertently or inadvertently, has been affected by the 'chemical defense.'

The forensic scientist who wrought this revolution, Professor Robert Shapiro, has this to say [19, pp. 270–271]:

What I tried to do was teach the lawyers how to handle the expert witnesses in a trial—the prosecution chemists, in particular. These chemists come into court and use a lot of big words, thinking everybody will believe what they say. And if their testimony goes unchallenged, that's exactly what happens. After all, the jury is the judge of the facts; and if a chemist gives some unchallenged testimony, the jury is simply going to accept that testimony as fact. So frequently, prosecution chemists lie or tell half-truths on the stand; and—really by default—the jury, the judge, the defense attorney, and the prosecutor believe them. If lawyers have no education about what tests are good and what tests are bad, what results are expected and what mistakes chemists make, they can't cross-examine a forensic chemist properly. So my job with this college is mostly to educate the defense attorneys in handling a forensic chemist on cross-examination.

In the past two years, I've developed roughly a two-hour lecture, with visual aids, on the types of things that forensic chemists do or should do. I follow the lecture with a demonstration in which I play the part of a forensic chemist, and Jim Shellow plays the defense attorney who cross-examines me. Mostly, we try to teach these young lawyers the technique of handling expert witnesses for the prosecution. I very seldom get involved with expert witnesses for the defense, because most people don't have their own defense witnesses. Defense witnesses are very scarce in the area of chemistry, and they're very expensive. I certainly can't do all that I'm asked to do. I have too many other commitments, in particular my job at C.U. [Colorado University] as a Professor of Chemistry.

If incompetency is a major ethical dilemma in the forensic sciences, partisan favoring of one party or the other in the adversary adjudication of legal issues is also another. Suppose a forensic scientist provides testimony for a criminal prosecution. Upon completion of his role as expert witness, the forensic scientist sits beside the prosecutor as scientific adviser. After the defense expert witness has finished and the defense rests, the scientific adviser status is surrendered and the forensic scientist takes the stand as a rebuttal expert witness. All of this procedure has been accomplished after the judge has ordered that all witnesses be barred from the courtroom except when testifying. Has the forensic scientist met the American Academy of Forensic Sciences standard for impartiality?

Perhaps in the years immediately ahead, the forensic sciences profession, with all its subspecialties, as represented by the American Academy of Forensic Sciences, will be better able to grapple with the dilemmas of perjured testimony, to develop as an agency for the resolution of the ethical dilemma of inadequate scientific competency masquerading as professional expertise, and to enforce the ethical standard of unbiased nonpartisanship in the adversary procedures of American justice.

As a guiding light to achieve these goals, knowledge of a recent Georgia Supreme Court case, *Law v. State* [20, p. 904] is helpful. The court construed a statute which grants to criminal defendants discovery of written scientific reports to be introduced against them at trial. A majority of the justices held that the express words of the statute did not include discovery of oral reports, however. One dissenting justice appeared to recognize the true significance, both legally and ethically, of the forensic scientist's testimony whether it be written or oral [20, p. 908].

A basic principle of scientific testing is that careful records of test procedure and results are to be scrupulously maintained. A scientific test without an accompanying report of the testing environment, number of trials, raw results and analyzed data is in reality no test at all. The majority opinion condones the performance and use of haphazard, hasty, inaccurate, unreliable and undocumented tests by the state where a man's liberty is at stake. *A plain common sense view of right and wrong dictates an opposite result.* Even if the same evidence can be presented either orally or in a written report by the expert, the statute implicitly recognizes the complexity of scientific evidence and helps to moderate the difficulty a defendant without laboratory resources may have in controverting it.

The purpose of the statute is to give the defendant an opportunity to examine and respond to complicated information dealing with topics not ordinarily encountered or understood by laymen.

The opportunity to examine combines two elements: (1) a ten-day period to make a thorough examination and evaluation; and (2) an accessible, tangible form, such as a writing. Without both of these parts the opportunity to examine does not exist.

* * * * *

In effect the defendant is told that since there was not time to prepare a report, he is not entitled to the benefits of the statute. This is *fundamentally unfair* and it was just such antics as this that created a compelling need for the statute in the first place. (*Emphasis added*).

This dissenting opinion, in addition to underscoring the forensic scientist's standard of care in the preparation of case study and court testimony, graphically illuminates the strong nexus between personal morality and professional ethics.

Improving the Human Capacity for Resolving Moral and Ethical Dilemmas

Since both personal morality and professional ethics rely on each person's individual values, it is essential to find ways and means of strengthening these moral and ethical values in each forensic scientist. America is having an awakening of the vital need to reestablish morality and ethics. Witness the current challenge in teaching high school students to recognize ethical dilemmas [21, p. 27].

No matter that the topic is computers. The lesson is ethics. And what must be taught—not to steal, not to trespass on, or damage someone else's property—is as old as the day the first teacher and the first student sat down together.

As the surge of new information technologies enters both the home and classroom, the number of young people roaming without authorization through some of the nation's most sophisticated computer systems has increased alarmingly. Estimates run into the hundreds and possibly thousands of students, according to experts on computer crime.

The potential for abuse presents a formidable but vital task for schools, because they cannot just teach computer literacy; they must teach computer ethics,' says Ken Komoski, executive director of a 15-year-old nonprofit organization called the Educational Products Information Exchange.

Remember these moral and ethical dilemmas are not new [21, p. 27].

At first glance, the problem appears to be a new issue for society and schools. 'But it isn't,' says Mr. Komoski. 'The only thing new is the technology—certainly not the ethics.' After parents, schools are the natural standard-bearers, he says. 'A computer isn't virtuous; individuals are.'

'The media are startled by how sophisticated kids are, but we've dealt with it right from the beginning. Ten years ago, it was plagiarizing term papers,' says Fred Keplinger, a teacher and programming instructor at a high school in Los Gatos, California. In programming class, he says, he asks students how they would like somebody to steal 30 or 40 hours of their time? Or invade their privacy? 'They can understand those terms,' says Mr. Keplinger.

One technique for improving an individual's competency to handle moral and ethical dilemmas can be the educational process [21, p. 29].

'Schools must teach students that it is not ethical to copy disks; it is not moral to get into [someone else's] data base,' says Pat Sturdivant, assistant superintendent of technology for the Houston Independent School District.

'Our students will deal with a world computers have made. So we're inculcating a value, not just a skill, when we talk of computer literacy,' says Ms. Sturdivant. 'The value is that each student will be responsible for his or her own lifelong learning in computer technology.'

One way the Houston public schools have tackled the problem was to create a new job category in the educational computing field—a teacher/technologist. The district spends 296 hours training an educator in all facets of educational technology. Ethics with computers is emphasized.

If education in morality and ethics is a process of nurturing better morality and ethics what is the precise "cutting edge" in this learning process [22]?

'The cutting edge of work in moral education at this time is decisionmaking—policymaking in the real-life context of the school rather than in the English or history curriculum,' says Ralph

Mosher, an education professor at Boston University, who serves as consultant to the Brookline schools.

Citing the theories of Jean Piaget, the childhood educational expert, and Lawrence Kohlberg, a Harvard University professor of moral education, Mr. Mosher says, 'Piaget and Kohlberg insist that morality is moral reasoning.' Both have identified stages through which moral reasoning progresses. In the lowest stages, it is emotional and personal; in the higher stages, is more complex, because it involves anticipating how others, as well as oneself, will be affected by the consequences of any decision about right and wrong. At the highest stage, it touches 'communality' (universality), with the best decision possible because it is best for most. Mosher and others believe it possible to create learning experiences that promote such higher moral reasoning in schools.

'One result of what you've seen [at Town Meeting at Brookline High] is measured increases in moral reasoning by kids who participate in such discussions,' Mosher explained.

'The decisions have to do with the process of deciding what's right and what's wrong,' Professor Mosher says. 'Coherent moral philosophy is the result of experience and reflection. It's not dependent upon chronology but on quality of experience. Therefore education has a large part to play,' Mosher maintains.

'Psychologists believe religious practice and tradition give us the language in which we think, but the quality of our understanding depends on social interactions, ability to think, influence of mentors,' says Mosher in defending Town Meeting as a means of moral education.

'We are not preaching a new code or morality, but this is the way we think people come to more complex moral reasoning. Complex thinking doesn't belong in a vacuum,' Mosher insists. 'The big issue is: Do we do right when we know what is right?'

The issues of morality and ethics are not limited to experiences in secondary education. Higher education represents a continuum of the moral and ethical dilemmas of life [23].

Conversations with a sampling of students across the country reveal that most of those interviewed view morality as a process rather than a standard. Many say they base their decisions about what is right and wrong on their total life experience and thinking, rather than on specific teachings or an explicit moral code. They credit family example as perhaps the strongest and most enduring influence on their moral outlooks.

'Honesty is the first thing I think of in morality,' says a senior at a Big Ten state university in the Midwest. 'You should be able to trust people, you know. I don't like any kind of dishonesty.'

Yet, 'there's cheating everywhere,' she continues. 'I think the business school is notorious for cheating, because of the stiff competition. The temptation to cheat is strongest in courses which depend on memorization.' But other types of classes are also prone to cheating, she says. 'I was in a large psychology class. When we had a test, the prof posted the answers just outside the exit, so, as you left, you could figure out about how well you had done. Someone stood out there with a radio transmitter and gave the answers to a student inside.'

She also says fraternities on her campus use a 'cheating wedge': 'They put a couple of smart guys at the bottom and then angle other students up who copy from each other.'

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Two more women from widely separated universities worry about the sabotage of academic projects at their institutions. 'It's most prevalent in med school, but you also have it in undergrad bio classes,' one explains. 'If somebody's growing a bacterium, somebody might flush it, move it away from under light, or douse it with a chemical.' Students do this so their own projects won't be compared unfavorably with better projects.

Hiding books or removing assigned readings from them—and thus deliberately depriving other students of access to needed information—is a problem in the business and law schools, another student says.

The bubbling up of concerns over moral and ethical dilemmas in the educational hierarchy is now reaching the professional schools. The 1983 message of the president of the Association of American Law Schools to law faculties emphasizes the need for the professional academicians to grapple with their own private morality and professional ethics [24].

Over the years many of us in law teaching have been active in commenting on the professional responsibilities of our colleagues in practice and on the bench and in the development of various codes of professional responsibility for them. We have been substantially less active in commenting on and developing a code of professional responsibility for ourselves. The Plenary Session at the 1984 AALS Annual Meeting in San Francisco will focus on problems of faculty ethics and, I hope, will serve as a starting point for a wide spread consideration of the subject in the law school

world and in academe generally. The matter of faculty ethics obviously has not been ignored. Some interesting things have been written; some AAUP policy statements deal with the subject. It is a fact, however, that we in the law school world and in academe generally have spent comparatively little time focusing on our own ethics.

At some institutions, the opportunity to focus on the broad range of professional ethics is great. Five years ago, the Center for Professional Ethics was established on the campus of Case Western Reserve University by the University Christian Movement, a Protestant religious facility. Today the graduate students and faculties in the professions of law, medicine, dentistry, nursing, social work, and management meet in seminars, conferences, and study sessions "which reach out to the preprofessional and professional community." These activities provide an "opportunity for study, dialogue and exploration of relevant ethical issues confronting both students and practitioners."

If the movement to understand better and to act more wisely in moral and ethical dilemmas is under way at the high schools, colleges, and graduate schools is it not time to quicken the concern of professional organizations like the American Academy of Forensic Sciences? Where are the organized educational experiences sponsored by our Academy which come to grips with our moral and ethical dilemmas? Where are the organized decision-making experiences for each Academy member to exercise private morality and professional ethics so that today's no win dilemmas can become tomorrow's always win resolutions of the moral and ethical issues facing the forensic sciences?

Conclusion

For the forensic scientist, as it is for most people, the resolution of moral and ethical dilemmas rests on the individual's faith. The health and justice segments of the triad of life are significant but the segment of faith is not generally perceived as important. How does one answer the ultimate question of faith—why am I? If each person is to resolve ethical and moral dilemmas, he or she must first search the soul. Why is he or she a forensic scientist? A unique revelation of this procedure—searching the soul—is manifested by Seymour Wishman, author of *Confessions of a Criminal Lawyer*, in a column published by *Newsweek* magazine [25].

It is a fundamental principle of our system of justice that every criminal defendant is entitled to a lawyer, but too much of what I've done in the courtroom is beyond justifying by that abstract principle. I've humiliated pathetic victims of crimes by making liars out of them to gain the acquittal of criminals: I've struggled to win for clients who would go out and commit new outrages. This is not what I had in mind when I entered law school.

One of the reasons I became a criminal lawyer was to defend the innocent, but I haven't had much opportunity to do that. Instead, I find myself facing a difficult question: why have I fought so hard for the interests of the guilty?

The answers I come up with are disturbing. Much of the satisfaction I get from my work is connected to a lifelong emotional identification with the underdog, even a despicable underdog, against authority. Although I do enjoy, for its own sake, performing well during a trial, my courtroom performances more than anything else express a need for power and admiration.

Note Wishman's faith—a supreme need for power and admiration, not gold. The power to turn the adversary process of truth-finding to achieve justice into a process to win liberation for an accused regardless of truth or justice is neither moral nor ethical.

All the lawyer's emotions and skills are deployed for one purpose—winning. During a cross-examination, all energy is spent on beating the witness. With a tough witness, the duel can be thrilling. Few lawyers would admit that anything other than the pleasure of craftsmanship had been involved in subduing a witness. And yet I have seen lawyers work a witness over, control him, dominate and beat him—and then continue to torment him. Deriving enjoyment from inflicting that unnecessary measure of pain might be rare, but not that rare. If the witness is a woman, there

might even be sexual overtones to the encounter. Half joking, a colleague once told me, 'It's better than going home and hitting my wife.'

While this illustration represents one forensic scientist's (the jurisperudent lawyer) confession to personal morality in the professional practice, it can well demonstrate the primary need for every forensic science practitioner to take stock of and truthfully answer his or her basic perplexity—why am I.

The second step in resolving ethical and moral dilemmas is to recognize that the remaining years of the 20th century will demand new approaches to the intellectual and moral problems confronting America. Ethical values of individuals, professions, and the American people are profoundly changing in areas like reproductive biology, genetic engineering, and death and dying as well as the use of the forensic sciences in the administration of civil and criminal justice. Henry Steele Commager recognized this need for new approaches to the problems of intellectual and moral interests and values [26].

The crucial problem for the next generation is whether it can develop the inventiveness and resourcefulness necessary to counter the forces making for a dangerous kind of bigness and conformity in America. It is something of an illusion to believe that there was anything especially liberating about the 'frontier' or anything especially liberating about the small rural societies of America. They had their limitations. But somehow, cut off as we were from the Old World, we did discover in the eighteenth century and in the early nineteenth most extraordinary resources, intellectual and moral, inventive resources in the realm of politics beyond those of any other people.

Whether the American character can prove itself equally resourceful in inventing new ways of cherishing intellectual and moral interests and values, new ways of developing revolutionary change without necessarily upsetting everything, is the kind of question that fascinated Henry Adams in the eighteen-nineties and I think must still fascinate us.

Getting our personal moral and ethical values in order and recognizing the need for developing new ways to nurture these values in the changing world of mankind will permit us to activate a common process for the resolution of moral and ethical dilemmas [27].

What it all comes to is that we make the best practical adjustment we can by experience developed by reason and reason tested by experience in order to solve problems of human relations in a complex social and economic order which do not admit of satisfactory solution by simple moral maxims as universally valid.

Moral and ethical dilemmas in the forensic sciences present a challenge to every forensic scientist, not just in private living but also professional practice. Each forensic professional can participate in making the practical adjustments needed to make ethical and moral resolutions through a balancing of experience and reason. Every forensic professional can share his or her personal adjustments with others in the forensic sciences professions. We begin with the individual, we advance through the profession, and we conclude with the improvement of America's administration of civil and criminal justice. Ethical and moral dilemmas are not no win situations. Ethical and moral dilemmas are opportunities to build a better justice by which all can be winners.

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Notes

- [1] For an excellent explanation of the need for the human race to move from adversary relationships which establish "I win, you lose" situations into relationships which create "we both win" situations, read Salk, J., *The Survival of the Wisest*, Harper and Rowe, New York, 1973.
- [2] *Genesis* 4:6-7, Revised Standard Version, Thomas Nelson & Sons, 1952.
- [3] The following professional organizations' codes of ethics were studied: American Academy of Forensic Sciences, American Bar Association, American College of Hospital Administrators, American Dental Association, American Medical Association, American Society of Questioned Documents Examiners, Direct Selling Association, International Association of Chiefs of Police, National Association of Broadcasters, National Association of Football Coaches, National Association of Newspaper Editors, National Association of Realtors, National Association of Social Workers, National Society of Professional Engineers, and Public Relations Society of America. For an exhaustive collection of codes of ethics with interpretive comment see *The Ethical Basis of Economic Freedom*, Hill, J., Ed., American Viewpoint Inc., Chapel Hill, NC, 1976.
- [4] Editorial, *The Plain Dealer*, 14 Dec. 1983, p. 28A and William F. Buckley, Jr. column, and 21 Dec. 1983, p. 25A Walter E. Williams' column.
- [5] Letters to the editor, *The Plain Dealer*, 21 Dec. 1983, p. 3AAA.
- [6] Kwitny, J., "Returning State Department Files," *Wall Street Journal*, 30 Nov. 1983, p. 32.
- [7] Schroeder, O. C., "Court Appointment of Experts," *Forensic Sciences 1981*, Cyril H. Wecht, Ed., Mathew Bender, New York, Chap. 18.
- [8] *Miller v. Pate, Warden*, 386 U.S. 1 (1967).
- [9] For a criminal case which imposes a duty on the defense attorney to disclose after an investigation reveals new evidence incriminating defendant see *People v. Meredith*, 29 Cal.3d 682, 175 Cal. Rptr. 612 (1981).
- [10] Graffeo, J. M., "Ethics, Law and Loyalty: The Attorney's Duty to Turn Over Incriminating Physical Evidence," *Stanford Law Review*, Vol. 32, 1980, p. 977.
- [11] *Person v. Association of the Bar of the City of New York*, 414 F.Supp. 144 (D.C., N.Y. 1976).
- [12] *Person v. Association of the Bar of the City of New York*, 554 F.2d 534 (2d Cir. 1977). All quotations come from this Court of Appeals opinion.
- [13] Note, *Yale Law Journal*, Vol. 86, 1977, pp. 1680 and 1714.
- [14] "Contingent Witness Fees," *University of Pittsburgh Law Review*, Vol. 39, 1978, pp. 511 and 535.
- [15] Adelson, L., "The Forensic Pathologist, Family Physician to the Bereaved," *Journal of the American Medical Association*, Vol. 273, 1977, pp. 1585 and 1588.
- [16] *Barefoot v. Estelle*, 103 S.Ct. 3383, 3406, 3408-3413 (1983).
- [17] *Petition of U.S. Steel Corp. v. Lamp*, 436 F.2d 1256, 1262-1264 (1970).
- [18] Cunningham, S., "High Court Distorts Results of Research on Dangerousness," *Monitor*, Vol. 14, No. 3, Sept. 1983.
- [19] "Chemist in the Courtroom: An Interview with Professor Robert Shapiro About Drugs, Forensic Chemists, and the Law," *Journal of Criminal Defense*, Vol. 3, 1977, pp. 235 and 236-237.
- [20] *Law v. State*, 307 S.E. 2d 904, 908 (1983).
- [21] "Computer Ethics: Students Must Learn Values, Not Just Skills," *Christian Science Monitor*, 14 Nov. 1983, p. 27.
- [22] "Moral Muscle: Students Discover, Develop It," *Christian Science Monitor*, 21 Nov. 1983, pp. 39-40.
- [23] "Students Talk About the Moral Issues Facing Them on Campus," *Christian Science Monitor*, 23 Nov. 1983, pp. 32-34.
- [24] "Newsletter," *Association of American Law Schools*, Sept. 1983, p. 1.
- [25] Wishman, S., column, *Newsweek*, 9 Nov. 1981, p. 25.
- [26] Commager, H. S., "The American Character," in *1982 Conversation*, The Center for the Study of Democratic Institutions.
- [27] Pound, R., "Natural Law and Positive Natural Law," *Law Quarterly Review*, Vol. 68, 1952, pp. 330 and 335-336.

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