

P. E. Dietz,¹ M.D., M.P.H.

Toward a Scientific Forensic Psychiatry

Every discipline must occasionally take stock of where it has been and where it is going, and this is nowhere more important than in a field such as legal medicine in which the practitioners are scattered around the world and have various professional identities and allegiances. Elsewhere I have described the tripartite structure of American legal medicine and the educational implications of the fractionation of the discipline into three divisions focused on psychiatry, pathology, and jurisprudence [1]. The implications for research are analogous and are complicated by the additional problem of coordinating research in legal medicine with research in criminology and criminalistics.

The purpose of the present paper is to explore some of the avenues that are likely to lead to the scientific development of forensic psychiatry.² The exposition will be organized around three general avenues for the advancement of science: the dissemination of existing scientific information, enhancement of the scientific value of whatever research is conducted, and the means by which new research is stimulated and made possible.

Dissemination of Existing Scientific Information

The conventional means by which new scientific information is disseminated, namely professional education, publications, and meetings, are relatively ineffective in bringing the findings of one profession to the attention of another profession. Attempts to remedy this difficulty include the formation of multidisciplinary training programs at the graduate [3] or postgraduate [4] level, multidisciplinary publications such as the *American Journal of Law & Medicine*, *Journal of Forensic Sciences*, or *Legal Medicine Annual*, and multidisciplinary organizations such as the American Academy of Forensic Sciences or the American Society of Law & Medicine.

These multidisciplinary efforts foster considerable cross-fertilization of ideas but are unsuccessful in disseminating scientific information for three reasons. First, the number of trainees in effective multidisciplinary programs is severely limited by the duration and expense of such programs. Second, papers reporting empirical research pertinent to forensic psychiatry are usually first submitted to the journals or meetings representing the authors' parent discipline, for publication or presentation there is more likely to enhance the authors' careers; thus, the most meritorious scientific papers may never reach the multidisciplinary periodicals or meetings. Third, even multidisciplinary organizations tend for a variety of reasons to attract participants from a limited range of disciplines.

Presented at the 29th Annual Meeting of the American Academy of Forensic Sciences, San Diego, Calif., 15-19 Feb. 1977. Received for publication 22 Feb. 1977; accepted for publication 21 March 1977.

¹Fellow in Forensic Psychiatry, Center for Studies in Social-Legal Psychiatry, University of Pennsylvania School of Medicine, Philadelphia, Pa.

²In this paper the term "forensic psychiatry" is used to denote the entire field of psychiatry and law rather than the more restricted denotation advocated by Curran [2].

For example, few psychologists or sociologists participate in the American Academy of Forensic Sciences or the American Society of Law & Medicine. The American Academy of Psychiatry and the Law, which is open for membership only to psychiatrists, attracts primarily psychiatrists and lawyers, but the American Society of Criminology attracts only a handful of psychiatrists and lawyers.

From the standpoint of forensic psychiatry, the major information gap seems to me to be an isolation from the scientific methods and findings of general criminology. Virtually every issue of such periodicals as *Criminology*, *Criminal Justice and Behavior*, the *Journal of Criminal Law & Criminology*, and *Victimology* contains one or more reports of empirical research pertinent to forensic psychiatry. Recent examples of pertinent research published in these journals include an epidemiological study of homicide in Atlanta that compares data from two different time periods [5]; a questionnaire survey of potential jurors examining their perceptions of the volition and responsibility of a hypothetical murderer who in the three experimental conditions has a psychiatric history, a criminal history, or neither [6]; a questionnaire study of college students examining correlations between perceived certainty and severity of punishment if they were to commit crimes, their self-reported involvement in crime, and their scores on four subscales of the California Personality Inventory [7]; and a study of the victims of a random sample of all females known to have attempted or committed homicide in Hungary since the end of World War II [8]. Studies such as these are clearly pertinent to forensic psychiatry.

That criminology is one of the basic sciences of forensic psychiatry is no doubt obvious to members of the Psychiatry Section of the American Academy of Forensic Sciences, but it is a point which deserves reiteration in view of the frequency with which our colleagues who are less committed to this subspecialty resist our efforts to point them towards the criminology literature. For example, a young psychiatrist who is embarking on a career in forensic psychiatry recently asked me for references on the effects of climate on violent crimes to be used for a talk he was preparing on the subject. I gave him a copy of a manuscript I was working on that reviews seasonal patterns in homicide, and he returned to say that he would not be able to find the sources I had cited because they were in the criminology literature! Although I can offer only anecdotal support for my opinion that too many would-be authorities are unaware of the criminology literature, the frequency with which published literature reviews betray an exclusive reliance on *Index Medicus* seems sufficient justification for belaboring this point.

Researchers and authors would benefit greatly from an index comparable to *Index Medicus* in thoroughness, ease of use, and adaptability to computer storage and retrieval. *Psychological Abstracts* and *Dissertation Abstracts* are thorough but time-consuming, and *Sociological Abstracts* leaves one with the feeling that it was designed as part of a study on the relationship between frustration and miscommunication. One of the most valuable indexes, *Crime and Delinquency Abstracts*, covers material only up to 1972; paradoxically, by virtue of its apparent thoroughness, it tends to isolate the narrow-visioned criminologist from the psychiatric literature in much the same way that *Index Medicus* or the *Index to Legal Periodicals* tends to isolate the narrow-visioned psychiatrist or lawyer from the criminology or scientific literature, respectively. *Abstracts on Criminology and Penology*, *Forensic Science Abstracts*, and the *Index of Legal Medicine*, when combined with the other indexes mentioned above, provide effective coverage of the English language literature, though none is sufficient in itself. The *Criminology Index* [9] by Wolfgang et al covers the U.S. literature from 1945 through 1972 and is the most valuable single reference currently available, and it is time for it to be discovered by forensic psychiatrists.

The most promising avenue for the dissemination of scientific information pertinent to forensic psychiatry is the publication that focuses on a particular topic, drawing contributions from any pertinent discipline. Examples of such multidisciplinary and topical publications include the volumes edited by Helfer and Kempe on the battered child [10]

and by Rada on the rapist [11] as well as the volumes resulting from the Association for Research in Nervous and Mental Disease meeting on aggression [12] and the Ciba Foundation Symposium on the Mentally Abnormal Offender [13]. Of course, the value of such publications in disseminating scientific information depends largely on the scientific value of the contributions.

Enhancement of the Scientific Value of Research

I will not, in this paper, engage in the futile exercise of calling for courses in logic, research design, or statistics in medical schools, and this is not the forum for an introductory course in these subjects. Nonetheless, the forensic psychiatry literature is so rich in research that is almost of scientific value that it is worth pointing to some of the shortcomings that so often reduce the scientific value of an otherwise acceptable study. Three basic shortcomings which are easily rectified, at least in part, involve violations of the fundamental principles of sampling, classification, and comparison.

Sampling

The first principle of sampling is to define the population (universe) that is of interest and the means by which the members of that universe are identified for research purposes (the sampling frame). Failure to specify the sampling frame in a research report leaves the reader in the dark about the origin of the data and can raise serious questions about their representativeness. For example, Macdonald's monograph [14] on indecent exposure includes tables of original data based on "200 consecutive indecent exposures in Denver" but does not indicate whether these are consecutive arrests, convictions, court referrals, or something else [15].

The second principle of sampling is to specify the criteria or procedures used to select cases from the sampling frame. Failure to do so can again raise questions about the representativeness of the data and can make replication impossible, even for another researcher with access to the same raw material. For example, in order to compile information on 100 "consecutive" alleged rapes, Schiff [16] reviewed 215 consecutive Dade County sexual offense investigations and excluded an unspecified number of cases of other sexual offenses and an unspecified number of "blatantly fabricated accusations"; this required "a certain culling and a selective weeding out of cases which never should have been brought to the attention of the authorities and which resulted in the waste of many man-hours. . . ." With only this knowledge of the procedure by which the 100 cases were selected, it is difficult to interpret the observation that "After a complete investigation, 16 cases were classified 'Unfounded' " [16].

The third principle of sampling is to avoid introducing bias into the selection of cases. By this I do not mean that one must use sophisticated techniques of probability sampling, but only that it is pointless to go out of one's way to bias the sample. For example, the value of Guttmacher's otherwise enlightened Stanford lectures on sex offenses is unnecessarily reduced by his having combined 150 consecutively referred offenders with 22 others "selected from a group of earlier cases because of some feature of special clinical interest" [17].

Classification

Man cannot reason, much less develop a science, without classifying the objects, events, and processes of the natural world. Although it can be difficult to choose between alternative schemes of classification, in scientific work it is generally desirable to use schemes providing a sufficient number of mutually exclusive, meaningful categories.

Frequently data are aggregated in a manner that precludes comparisons between recognized subgroups, as in studies which combine into one category all sex offenders or all felons. For example, Apfelberg et al [18] report data on 250 sex offenders but do not separate types of sex offenders in their presentation of data on race, religion, or marital status. Of course, categories are often combined to simplify the presentation of complex data, but it is worth stating that no significant differences were observed between sub-categories rather than leaving the reader to draw this sometimes mistaken inference.

Sometimes categories are used which are not mutually exclusive. For example, Ellis et al [19] present a correlation matrix for 37 variables describing a series of 200 convicted sex offenders. Only two of the variables indicate the type of sex offense: one is denoted "major sex offense—meaning, sexual assault, rape, incest, sex relations with a minor, homosexual acts, and bestiality"; the other is denoted "deviational sex offense—meaning, sex relations with a minor, exhibitory acts, homosexual acts, and bestiality." Any differences between categories that overlap to this extent tend to be obscured by the shared cases, and certain useful statistical tests cannot be applied to data in overlapping categories.

Whether a classification scheme is meaningful or not depends, of course, on the uses to which it is to be put. For example, Gebhard et al [20], in a major study of male sex offenders, used a classification based on the use of force, physical contact, age and sex of victim, and whether the offense was incestuous or not; these criteria were used because they are "of basic psychological and sociological importance." For the purpose of analyzing the factors associated with types of behavior, the resulting typology is probably superior to the standard typology of sex crimes, but it complicates the task of making meaningful comparisons with the majority of other studies, which employ the standard typology.

Comparison

In order to test hypotheses it is usually necessary to have data on two or more phenomena. Frequently hypothesis testing is precluded by omissions in the presentation or collection of data. Three common types of omission are missing cells, missing denominators, and missing alternative comparison groups.

Missing cells are instances in which it is apparent that the investigator has gathered the desired information but has omitted it in the research report. For example, Macdonald's monograph [21] on rape reports the percentage of rapes occurring between 10 p.m. and 4 a.m., between 7 a.m. and 1 p.m., and between 9 a.m. and 6 p.m., but gives no indication of the frequency or percentage occurring in complementary intervals of equal duration.

The problem of missing denominators reflects failure to report the size of the base population in which cases were identified. For example, Hirning [22] reports data on 165 sex offenders referred for psychiatric examination to a particular institution during a 10-year period and is careful to indicate that the frequency of cases studied is no indication of the frequency of offenses in the community. The value of the study would have been enhanced if the author had presented the best available data on the frequency of arrests and referrals to other institutions during the same time period, for this would have provided a rough index of the extent of sampling bias which might have been involved.

Frequently more than one comparison group would be of value. To continue with examples from the study of sex offenses, it is of interest to know the distribution of a particular characteristic not only in the study group but also in the appropriate segment of the general population, the group of similar offenders who were not studied, various other offender groups, the parents, wives, or neighbors of the study group offenders, and so on. As a specific example, consider the data presented by Pacht et al [23] on parole violations among sex offenders: the authors contend that their violation rate "is considerably lower than that found with parole granted to the general prison population."

Even if this had been shown, it would have been valuable to have gathered comparable data from other jurisdictions, from other published reports, and from the time period prior to initiation of the program that the report attempted to evaluate; moreover, it would have been valuable to have estimated the frequency of the offenses, which in the study group constituted parole violations, among men of similar age and social status in the general population.

The above discussion has drawn examples from the study of sex offenses only because these examples are more familiar to me at the time of this writing. Similar examples can be found in the literature on other kinds of offenses and in the limited number of empirical studies on competency, informed consent, psychiatric malpractice, psychiatric testimony, and other issues central to forensic psychiatry. The types of shortcomings that have been discussed are not sophisticated methodological problems but rather are mostly oversights that can be easily avoided. Even those which require additional data gathering or the elaboration of tables in the research report are well worth the effort, for they can clarify the relationship between variables and can increase the usefulness of the data for purposes other than those for which they were gathered.

Stimulating New Research

Potential researchers, like other people, are influenced partly by the day-to-day contingencies of life. Traditional methods of stimulating research—rewarding those who do it and punishing those who do not—play upon this fact with varying degrees of success. Although most such methods are well known, one is becoming so important so rapidly that it warrants consideration. I am referring here to the increasing tendency of third-party payers and fund-granting agencies to require proof of need before condoning new services and proof of effectiveness before sponsoring existing services. At this stage, the tendency is most visible in the requirement of many fund-granting agencies that any successful grant proposal demonstrate built-in mechanisms for adequate evaluation. This is a well-known policy of the National Institute of Mental Health and is expected to be an increasingly salient policy of the National Institute of Law Enforcement and Criminal Justice [24]. The preliminary program of the National Conference on Criminal Justice Evaluation, sponsored by the National Institute of Law Enforcement and Criminal Justice, provides ample support for this expectation.

Evaluation research represents a challenge to anyone providing a service to other people, for it requires that a service be justified not by honorable intentions and high standards of quality but by its impact on the population served, which means that success is ultimately judged by cost-effectiveness. Cherished institutions will be rationally judged, as in a recent study of burn care in Florida which showed no evidence of better outcomes for patients treated in special burn units despite the greater cost of such units [25]. It will soon be unacceptable to sponsors, editors, and one's peers for services to be described in terms of such "process measures" as number of patients evaluated or treated, distribution of diagnoses, or proportion of patients found competent. Instead, "outcome measures" will be demanded, such as judicial disposition and recidivism of patients evaluated or treated by two or more competing methods, the legal or financial success of patients found competent to sue or to contract by two or more competing methods of determining competency, and the actual level of functioning of patients granted psychiatric disability awards by two or more competing methods of disability evaluation.

Evaluation research presents special problems for physicians because the emphasis on cost-effectiveness often conflicts with traditional medical concern for individual welfare. Nonetheless, dwindling resources emphasize the fact that we cannot, as a society, provide all services to all people. Only the "most fit" services will survive, and under the new utilitarianism the measure of fitness of human services will be cost-effectiveness.

Finally, I would like to mention some of the measures that administrators and clinicians

in forensic psychiatry can take to stimulate new research. The basic principle is to increase the feasibility of meaningful research without a substantial increase in operating expenses.

One of the most important measures to be taken is the use of systematic case records. Generally, a case can be defined as any potential client or patient. It would be valuable to have printed forms filled out by whoever screens potential cases. If it is the potential patient himself who calls, his name, address, phone number, age, sex, race, educational level, type of problem, and source of referral can be recorded at the time of first contact, thus facilitating comparison of the population served with the population seeking services. If it is some other party who calls, such as an attorney, one can ask for the same information about the potential patient, as well as information about the calling party's affiliation and needs. Clinical evaluations can be recorded in a standardized format which includes a checklist of basic information which might otherwise not be gathered, such as income, property holdings, involvement in disability claims or litigation, criminal history, and sexual history. Obviously these will be recorded when pertinent, but recording them even when they are not pertinent to the particular case is essential for subsequent comparative research. The use of precoded forms suitable for computer data processing can in many cases greatly facilitate subsequent retrospective research without interfering with routine operations. Some effort should be devoted to making patients traceable in the future, such as recording social security, driver's license, and Selective Service numbers, or even recording the names of magazines to which the patient subscribes; naturally one should have each patient sign a form expressing consent to the release of his address in the future. A logbook or indexing system is especially valuable, if meticulously maintained. Because index systems frequently break down, I would recommend a logbook in which cases are consecutively entered with case number, date first seen, nature of problem, diagnosis, and any other two or three facts pertinent to the particular service's activities. An annual logbook of this kind has been the starting point for dozens of research projects at the Office of the Chief Medical Examiner of Maryland, and many projects would not have been undertaken without this book.

In closing, I would suggest that the greatest initiator of new research is the scientific turn of mind which causes one person to see research opportunities where another does not. When in doubt about the value of two equally reasonable ways of doing something, why not try it each way in a randomly selected 50% of cases and see what works? Such experimentation is not only the basis of much needed research but also lies at the heart of the ethical practice of medicine [26,27].

Acknowledgments

This paper was prepared while the author was clinical scholar and M.D.-Ph.D. fellow in the Department of Psychiatry and Behavioral Sciences and the Department of Social Relations, and lecturer in the Division of Forensic Pathology, at The Johns Hopkins University. Preparation of the paper was assisted by grants from the Robert Wood Johnson Foundation, Princeton, N.J., and the National Institute of General Medical Sciences (Training Grant No. 5 T01GM02191-06). The opinions, conclusions, and proposals in the text are those of the author and do not necessarily represent the views of the Robert Wood Johnson Foundation or the National Institute of General Medical Sciences.

References

- [1] Dietz, P. E., "Clinical Approaches to Teaching Legal Medicine to Physicians: Medicolegal Emergencies and Consultations," *American Journal of Law & Medicine*, Vol. 2, No. 1, 1976, pp. 133-145.
- [2] Curran, W. J., "Titles in the Medicolegal Field: A Proposal for Reform," *American Journal of Law & Medicine*, Vol. 1, No. 1, 1975, pp. 1-11.

- [3] Rubin, R. R., Elkes, J., Maris, R. W., and Dietz, P. E., "Medicine and the Behavioral Sciences: The Johns Hopkins M.D.-PH.D. Program," *Johns Hopkins Medical Journal*, Vol. 136, No. 6, 1975, pp. 268-270.
- [4] Sadoff, R. L., "Comprehensive Training in Forensic Psychiatry," *American Journal of Psychiatry*, Vol. 132, No. 2, 1974, pp. 223-225.
- [5] Munford, R. S., Kazer, R. S., Feldman, R. A., and Stivers, R. R., "Homicide Trends in Atlanta," *Criminology*, Vol. 14, No. 2, 1976, pp. 213-232.
- [6] Monahan, J. and Hood, G. L., "Psychologically Disordered and Criminal Offenders: Perceptions of their Volition and Responsibility," *Criminal Justice and Behavior*, Vol. 3, No. 2, 1976, pp. 123-134.
- [7] Bailey, W. C. and Lott, R. P., "Crime, Punishment and Personality: An Examination of the Deterrence Question," *Journal of Criminal Law & Criminology*, Vol. 67, No. 1, 1976, pp. 99-109.
- [8] Raskó, G., "The Victim of the Female Killer," *Victimology*, Vol. 1, No. 3, 1976, pp. 396-402.
- [9] Wolfgang, M. E., Figlio, R. M., and Thornberry, T. P., Eds., *Criminology Index: Research and Theory in Criminology in the United States, 1945-1972*, Elsevier, New York, 1975.
- [10] Helfer, R. E. and Kempe, C. H., Eds., *The Battered Child*, 2nd ed., University of Chicago, Chicago, 1974.
- [11] Rada, R. T., Ed., *Clinical Aspects of the Rapist*, Grune & Stratton, New York, in press.
- [12] Frazier, S. H., Ed., *Aggression: Proceedings of the Association for Research in Nervous and Mental Disease*, Vol. 52, Williams & Wilkins, Baltimore, 1974.
- [13] deReuck, A. V. S. and Porter, R., Eds., *The Mentally Abnormal Offender: A Ciba Foundation Symposium*, Little, Brown, Boston, 1968.
- [14] Macdonald, J. M., *Indecent Exposure*, Charles C Thomas, Springfield, Ill., 1973, p. 12.
- [15] Dietz, P. E., Book Review, *Bulletin of the American Academy of Psychiatry and the Law*, Vol. 2, No. 1, 1974, pp. 57-59.
- [16] Schiff, A. F., "A Statistical Evaluation of Rape," *Forensic Science*, Vol. 2, No. 3, 1973, pp. 339-349.
- [17] Guttmacher, M. S., *Sex Offenses: The Problem, Causes and Prevention*, W. W. Norton, New York, 1951, p. 58.
- [18] Apfelberg, B., Sugar, C., and Pfeffer, A. Z., "A Psychiatric Study of 250 Sex Offenders," *American Journal of Psychiatry*, Vol. 100, May 1944, pp. 762-769.
- [19] Ellis, A., Doorbar, R. R., and Johnston, R., III, "Characteristics of Convicted Sex Offenders," *Journal of Social Psychology*, Vol. 40, No. 1, 1954, pp. 3-15.
- [20] Gebhard, P. H., Gagnon, J. H., Pomeroy, W. B., and Christenson, C. V., *Sex Offenders: An Analysis of Types*, Harper & Row, New York, 1965, p. 15.
- [21] Macdonald, J. M., *Rape: Offenders and Their Victims*, Charles C Thomas, Springfield, Ill., 1971, p. 30.
- [22] Hirning, L. C., "Indecent Exposure and Other Sex Offenses," *Journal of Clinical Psychopathology*, Vol. 7, No. 1, 1945, pp. 105-114.
- [23] Pacht, A. R., Halleck, S. L., and Ehrmann, J. C., "Diagnosis and Treatment of the Sexual Offender: A Nine-Year Study," *American Journal of Psychiatry*, Vol. 118, March 1962, pp. 802-808.
- [24] Twentieth Century Fund Task Force on the Law Enforcement Assistance Administration, *Law Enforcement: The Federal Role*, McGraw-Hill, New York, 1976, p. 31.
- [25] Linn, B. S., Stephenson, S. E., and Smith, J., "Evaluation of Burn Care in Florida," *New England Journal of Medicine*, Vol. 296, No. 6, 1977, pp. 311-315.
- [26] Shaw, L. W. and Chalmers, T. C., "Ethics in Cooperative Clinical Trials," *Annals of the New York Academy of Sciences*, Vol. 169, Art. 2, 1970, pp. 487-495.
- [27] Byar, D. P., Simon, R. M., Friedewald, W. T., Schlesselman, J. J., DeMets, D. L., Ellenberg, J. H., Gail, M. H., and Ware, J. H., "Randomized Clinical Trials: Perspectives on Some Recent Ideas," *New England Journal of Medicine*, Vol. 295, No. 2, 1976, pp. 74-80.

Forensic Psychiatry Clinic
 201 Piersol Building
 Hospital of the University of Pennsylvania
 Philadelphia, Pa. 19104