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PTOLEMAISM IN THE LAW AND CONCOMITANT NEEDS FOR SCIENTIFIC STUDY OF THE LEGAL SYSTEM

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I. PROLOGUE

In the second century A.D., Claudius Ptolemy¹ displayed genius by developing fundamental concepts for plane and spherical trigonometry. His immortality was etched by other achievements, however. Ptolemy recognized the interdisciplinary relationships among mathematics, geography and astronomy, and used his mathematical skill to “prove” the earth was round—a fact Columbus undoubtedly appreciated centuries later. Perhaps his crowning achievement was the development of the geocentric theory. Loosely interpreted, this theory viewed the earth as the center of the universe, a view psychologically sound but astronomically misguided. It seems unfortunate that a man of such insight should have his reputation pegged upon what has proven to be an error of some magnitude. It is even more unfortunate that the legal profession continues to make similar mistakes about “what is the center of what.” Ptolemaism in the legal profession is the subject of this article.

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1. Ptolemy's intellectual activities are summarized in 18 *ENCYCLOPAEDIA BRITANNICA* 812-14 (1967). In addition, 19 *COLLIER'S ENCYCLOPEDIA* 480-82 (1973) notes how Ptolemy's engaging analytical style substantially retarded scientific progress in astronomy for many centuries. The following excerpt from *Collier's* appears to have some applicability to the legal profession:

Although Ptolemy was the most celebrated ancient authority, he was not the most gifted or creative mathematician, astronomer, or geographer. His genius lay rather in his extraordinary ability to assemble the research data of his predecessors, to introduce improvements of his own, and to present the results as a logical and complete system, written in a readily intelligible form. His very mastery of the art of compiling the equivalent of textbooks or handbooks on scientific subjects helped retain the level of knowledge in these subjects to the limitations of Ptolemy and his times. The modern scientific age may be said to have begun in these fields when the authority of Ptolemy's two works was overthrown.

Id. at 480.

Ptolemaism is evidenced by the profession's preoccupation with the internal dynamics of legal principles and institutions without concomitant attention to their social functions. The profession claims exclusive jurisdiction over charting its destiny. Intraprofessional criticism is relied upon to provide insights on the profession's shortcomings in serving societal needs and has stimulated judicious sampling of numerous proposed remedies for current inadequacies.² Many professional structures mute the progress this criticism stimulates, however. Dysfunctional components of the legal system persist long after they become a public embarrassment, thus encouraging substitution in traditional law areas of nonlegal institutions, mechanisms, principles and personnel.³ If this erosion of the profession's role in society is to be curbed, it is necessary to understand why legal Ptolemaism exists and what substantive and procedural strategies law researchers can employ to reduce its adverse implications.

II. SOURCES OF PTOLEMAISM IN THE LAW

Professions such as the law are structurally distinct from most common-interest groupings. The law's uniqueness is largely caused by the profession's boundary maintenance vis-a-vis "outsiders" and among sub-classifications of "insiders."⁴ These boundary controls often suppress meaningful exploration of linkages with its external environment and preclude periodic, critical evaluation of the profession's contributions to the social systems it serves. The profession's second distinctive feature is an educational structure that both screens and acclimates individuals desiring membership.⁵ The educational structure embodies strong forces that inhibit

2. Lawyers have been substantially involved in identifying the inefficiencies of lawyer and judicial involvement in auto accident claims and in proposing modifications to existing compensation systems that could reduce these inefficiencies. These efforts are surveyed in P. KEETON & R. KEETON, *CASES AND MATERIALS ON THE LAW OF TORTS* 781-807 (2d ed. 1977) and W. PROSSER, *HANDBOOK OF THE LAW OF TORTS* §§ 84, 85 (4th ed. 1971). Similar lawyer involvement has been extensive in areas such as underrepresentation of the poor, anticompetitive practices among attorneys and inefficient judicial practices. See generally R. LEFLAR, *INTERNAL OPERATING PROCEDURES OF APPELLATE COURTS* (1976); Cahn & Cahn, *The War on Poverty: A Civilian Perspective*, 73 *YALE L.J.* 1317 (1964); Martyn, *Lawyer Advertising: The Unique Relationship Between First Amendment and Antitrust Protections*, 23 *WAYNE L. REV.* 167 (1977).

3. Arbitration panels have replaced courts in a variety of contract disputes, due process procedures are being displaced in part by plea bargaining, and real estate salesmen, insurance agents and accountants are undertaking traditional lawyer tasks. For interesting views on future patterns of change and the forces behind such patterns, see Galanter, *Delivering Legality: Some Proposals for the Direction of Research*, 11 *LAW & SOC'Y REV.* 225 (1976); Lempert, *Questions for Research*, 11 *LAW & SOC'Y REV.* 387 (1976).

4. See Cohen, *Confronting Myth in the American Legal Profession: A Territorial Perspective*, 22 *ALA. L. REV.* 513, 523 (1970); Shuchman, *Ethics and Legal Ethics: The Propriety of the Canons as a Group Moral Code*, 37 *GEO. WASH. L. REV.* 244 (1968).

5. The *Journal of Legal Education* focuses primarily on major elements and activities of legal education. Its cumulative index allows easy entry to commentary and analysis on all facets

extraprofessional exploration and discourages scientific evaluation of the quality and quantity of services the profession provides to clients.

At least three major components of the legal education structure—admissions, curriculum and instructors—encourage preoccupation with intraprofessional matters. First, law student admissions rest heavily upon an aptitude examination (LSAT) designed primarily to predict successful progress within the legal education structure as now constituted.⁶ Thus, admittees represent those most likely to master and adopt various forms of rigorous intrasystem analysis. Supplementing aptitude and grade screening criteria is student self-selection. Presumably, many applicants prefer the work styles adopted by intrasystem lawyers. Thus, even prior to the orienting forces of legal education, several important factors maximize admission of students who will focus on the legal system's internal complexities rather than its relationship to other social systems.

Formal legal education reinforces these admission biases. Rudimentary content analysis of law school curricula across the country discloses a remarkable uniformity that has endured for many decades.⁷ With a few exceptions, the curricula dwell exclusively on the profession's internal workings. First year courses foster introspective analysis with frightening

of the educational process, although many titles fall short of the desirable product labeling standards. An excellent theoretical overview of the educational process is presented in Redmount, *A Conceptual View of the Legal Education Process*, 24 J. LEGAL EDUC. 129 (1972). The law school as a structure evolving over time is well defined in Stevens, *Two Cheers for 1870: The American Law School*, 5 PERSPECTIVES AM. HIST. 405 (1971). Stevens also has examined law school and law students from an empirical perspective in Stevens, *Law Schools and Law Students*, 59 VA. L. REV. 551 (1973). An integrated view of law school structure and process that also identifies a wide spectrum of quality articles on the subject can be found in Boyer & Cramton, *American Legal Education: An Agenda for Research and Reform*, 59 CORNELL L. REV. 221 (1974). Currently there is considerable empirical research on the role of law schools in the professional socialization process. See, e.g., J. Taylor & R. Schulman (The Menninger Foundation, Topeka, Kansas), *Socialization Structure and Process in Becoming a Lawyer* (NSF—75-14485, 1976) (summary of project on file in office of *North Carolina Law Review*).

6. See Lunneborg & Radford, *The LSAT: A Survey of Actual Practice*, 18 J. LEGAL EDUC. 313 (1966); Morris, *Equal Protection, Affirmative Action and Racial Preferences in Law Admissions*, 49 WASH. L. REV. 1 (1973); Comment, *Racial Bias and the LSAT: A New Approach to the Defense of Preferential Admissions*, 24 BUFFALO L. REV. 439, 451-55 (1975). See also *DeFunis v. Odegaard*, 416 U.S. 312, 321 n.1 (1974) (Douglas, J., dissenting). For an interesting proposal to lessen reliance on the LSAT, see Klein, Rock & Evans, *Predicting Success in Law School with Moderators*, 21 J. LEGAL EDUC. 304 (1969).

7. E. GEE & D. JACKSON, *FOLLOWING THE LEADER? THE UNEXAMINED CONSENSUS IN LAW SCHOOL CURRICULA* (1975), published by the Council on Legal Education for Professional Responsibility, Inc., presents a comprehensive empirical analysis of curricula of law schools over time and identifies the major articles that have specifically addressed the subject in recent years. For analysis of course stability over time, see *id.* at 17-28. See also Boyer & Cramton, *supra* note 5, at 227; Del Duca, *Continuing Evaluation of Law School Curricula—An Initial Survey*, 20 J. LEGAL EDUC. 309, 318-33 (1968); Stevens, *Law Schools and Law Students*, *supra* note 5, at 551-53. For an earlier comparison, see Agnor, *A Survey of Present Law School Curricula*, 2 J. LEGAL EDUC. 510 (1950).

efficiency. Law graduates appreciate this first year's unique potential for indoctrinating willing, and many unwilling, souls to the peculiarities of legal analysis.⁸ Second and third year curricula similarly emphasize the profession's internal rigors and complexities. Only recently have texts and courses appeared that consider both legal and nonlegal strategies for handling particular classes of problems; their number pales beside the multitude of traditional materials and courses. Even schools offering joint degree programs provide the law initiate slender opportunity to perfect the nonlegal skills and perspectives necessary to analyze critically the legal profession's basic tenets.⁹

Apart from the law curriculum's Ptolemaic tendencies, law teachers themselves are under strong pressures to adopt intrasystem perspectives. First, law school budgets normally provide for research assistants in limited numbers and without diverse disciplinary perspectives; it is therefore difficult for a law professor to map the profession's relationships to other systems of society according to acceptable standards of the social, communication and management sciences. Second, most teachers' reward structures are related to what the profession deems important, within both law schools and the practicing bar.¹⁰ These centripetal forces are reinforced by law schools' separate research facilities (mainly libraries physically distinct from university library and archive structures), which emphasize legal materials to the near exclusion of other information sources.¹¹ Since

8. Boyer & Cramton, *supra* note 5, at 256; Redmount & Schaffer, *Studies of Legal Education: A Review of Recent Reports*, 1 NOVA L.J. 9, 19 (1977); Watson, *The Quest for Professional Competence: Psychological Aspects of Legal Education*, 37 U. CIN. L. REV. 93, 116-41 (1968). Good overviews of first year student reactions to the educational environment are presented in Patton, *The Student, the Situation, and Performance During the First Year of Law School*, 21 J. LEGAL EDUC. 10 (1968); Comment, *Anxiety and the First Semester of Law School*, 1968 Wis. L. REV. 1201.

9. In 1968, a prominent social scientist observed: "[T]here is no curriculum in a major university organized to provide a grounding in the basic social science disciplines relevant to the use of these disciplines in solving contemporary social problems." Riesman, *Some Observations on Legal Education*, 1968 Wis. L. REV. 63, 67.

In 1970, another commentator observed:

[I]t is apparent that opportunities short of studies beyond the first degree are varied, and newly so, but that it will still be likely that most students graduating from law school with the first degree will not have attained any competency in social sciences methods relevant to research in the law.

Frampton, *Training for Socio-Legal Research: Law School Programs of Study*, 23 J. LEGAL EDUC. 246, 249 (1970). Outside the area of law and economics, there are few sustained trends among law schools to offer joint degrees that foster a scientific perspective of the legal system. In schools where joint J.D.-Ph.D. programs are available, the first critical year must be devoted solely to the jealous mistress.

10. See Assessment Conference, *Developments in Law and Social Science Research*, 52 N.C.L. REV. 969, 1066 (1974) (L. Walker director) (remarks of Marc Galanter); Siegfried & Scott, *The Determinants of Academic Lawyers' Salaries and Non-Institutional Professional Income*, 28 J. LEGAL EDUC. 281, 289 (1977).

11. AMERICAN BAR ASSOCIATION, *APPROVAL OF LAW SCHOOLS* 17, 30-33 (1977).

the professor has few convenient resources with which to explore beyond the law and the keys to access to such nonlegal materials are inconvenient and time-consuming to master, the law professor's activities normally are limited to law libraries and "heuristic" field research. Such an approach is highly acceptable to a professor's peer group; there is little tendency to sample seriously literature filling the main university library. In fact, preoccupation with nonlegal sources actually may impair a law scholar's relations with colleagues.¹² Thus, law schools tend to be isolated intellectually from their university environs and legal research remains distinctly intraprofessional in tone. Seldom do law school residents question the professional model of behavior, which has remained remarkably stable for over a half-century.¹³

Competition among law texts should provide some decentralizing influence, but in fact few stimuli exist for exploring extralegal perspectives. There are four sizeable publishers of law school materials,¹⁴ two of which are commonly owned.¹⁵ Assuming these enterprises operate pursuant to conventional economic wisdom, they seldom will seek profit through radical departures from established thought. Published texts in any single law field are predictably limited.¹⁶ Each publisher is concerned with its law school market share. In furtherance of this fiscally responsible attitude, it is most reasonable to finance texts that are only sufficiently distinct from those of competitors to capture an adequate market share in a particular substantive field.¹⁷ Few incentives exist to pursue the market's fringe of law teachers who are systematically exploring alternative views of the existing legal system or its parts.¹⁸

12. See Assessment Conference, *supra* note 10, at 1040, 1067 (respectively, remarks of Fredrick Huszagh and Marc Galanter); Riesman, *supra* note 9.

13. Boyer & Cramton, *supra* note 5, at 223-29.

14. The Bobbs-Merrill Co., Indianapolis, Indiana; The Foundation Press, Inc., Mineola, New York; Little, Brown & Co., Boston, Massachusetts; and West Publishing Co., St. Paul, Minnesota.

15. The Foundation Press, Inc., Mineola, New York; and West Publishing Co., St. Paul, Minnesota.

16. Professors attempting to personalize instruction formats may also produce mimeographed materials. *E.g.*, THE BOBBS-MERRILL CO., UNPUBLISHED LAW SCHOOL TEACHING MATERIALS (1976).

17. Most of the textual expansion in tort and administrative law, for example, involves either new pedagogical approaches or increased focus on sub-areas such as products liability. In labor law, much expansion has been in the employment discrimination field. Within these standard casebooks, however, more material is now being included that provides nonlegal analysis, especially economic analysis. See, *e.g.*, B. MELTZER, LABOR LAW: CASES, MATERIALS AND PROBLEMS 54-94 (2d ed. 1977).

18. For examples of these few entries, see L. FRIEDMAN & S. MACAULAY, LAW AND THE BEHAVIORAL SCIENCES (2d ed. 1977); R. POSNER, ECONOMIC ANALYSIS OF LAW (1972).

Law school learning materials, therefore, focus primarily on the legal system's internal dynamics and provide meager support for analysis of its performance in the broader environment. Most learning materials reinforce the value preferences inherent in law school admission procedures and curricular development. The result is an educational process that nurtures and protects legal parochialism that generates few resources for efficient elimination of mismatches between the law system and its external environment.

Once a student completes law school's rigors and swears symbolic allegiance to the profession's inward perspective by passing a state bar examination,¹⁹ the structure of the practicing bar continues to foster a Ptolemaic attitude. First, in-service training and continuing education activities reinforce the substantive orientation characteristic of law school courses. Bar committees and continuing legal education courses are appropriately labeled by standard legal subjects.²⁰ These activities, as well as the practice materials that lawyers rely upon daily, focus on internal refinements of legal subfields. The pressures of daily work and billing routines provide few incentives for lawyers to question the adequacy of the profession's legal approaches. Thus, the active bar further reinforces patterns inherent in initial legal education; correlatively, legal educators pay considerable deference to the economic realities of the practicing profession.

Professional ethics could guide lawyers on an enlightened path, but are not now structured or administered to do so. Professional ethics normally codify a group's dominant value preferences regarding conduct between members, service standards to clients and the profession's collective role in the society it serves.²¹ They embrace current preferences as well as remnants of past values and future aspirations. Apart from forbidding blatant misconduct, which is frequently punishable under conventional criminal or civil law, ethical codes, canons and associated enforcement practices center mainly on the members' deference to standards concerning intraprofessional relationships. While they dwell on possible wrongs to individual clients, seldom do such clients recover directly pursuant to such prohibitions or have meaningful participatory rights concerning their application.²² Conse-

19. See Beytagh, *Prescribed Courses as Prerequisites for Taking Bar Examinations: Indiana's Experiment in Controlling Legal Education*, 26 J. LEGAL EDUC. 449 (1974); Chapin, *Scary, Ain't It?*, 4 STUDENT LAW., May 1976, at 42.

20. See, e.g., CALIFORNIA CONTINUING EDUCATION OF THE BAR, NEW CEB PUBLICATIONS FALL 1976 (State Bar of California, University at California Extension, 1976); Joint Committee on Continuing Legal Education, *Report*, 98 A.B.A. REP. 715 (1973).

21. See Cohen, *supra* note 4; Marks & Cathcart, *Discipline Within the Legal Profession: Is It Self-Regulation?*, 1974 U. ILL. L.F. 193, 198; Shuchman, *supra* note 4, at 244-50.

22. Huszagh & Molloy, *Legal Malpractice: A Calculus for Reform*, 37 MONT. L. REV. 279, 322 (1976).

quently, an important source of extraprofessional perspective and criticism—client complaint, praise or comment—is severely limited. This situation has prompted some to conclude that the ethics are primarily for protection of the profession's members.²³ Such an interpretation comports with the notorious lack of diligence and uniformity in enforcing ethical precepts in the absence of explicit public disclosure of obvious misconduct.²⁴

A problem of perhaps equal magnitude is the Code of Professional Responsibility's disregard of conduct with adverse impact upon societal interests, but of de minimis importance to the individual client. By ignoring conduct seriously affecting non-client or broad-based interests the Code fails to activate individuals and groups likely to identify and seek constructive response to professional misfeasance and nonfeasance, which severely limit the profession's contributions to society.²⁵ It is ironic that an individual lawyer acting to the detriment of either a client or his colleagues may be subject to disciplinary proceedings or colleague disdain, yet a whole segment of the profession can act to the disadvantage of large social groups without incurring any form of professional sanction or even violating internal professional values. Little wonder lawyers are not viewed as society's first line of defense in protecting the interests of various social groups.

III. COMBATING PTOLEMAISM

A. Preliminary Comments

Centuries of observation and experimentation concerning human and institutional interaction have created an inventory of materials and tools to affect such interaction in diverse ways. The American legal system is composed of a limited number of basic materials mixed in diverse ways. A few mixtures manifest such fundamental utility across time and/or cultures that they are viewed as basic materials in themselves.²⁶ Most mixtures prove to be unstable compounds and recede in importance almost from their genesis.²⁷

Enduring progress for the legal profession must rest largely on identification of its basic materials and their discrimination from the plethora of

23. Shuchman, *supra* note 4, at 268.

24. See AMERICAN BAR ASSOCIATION SPECIAL COMMITTEE ON EVALUATION OF DISCIPLINARY ENFORCEMENT, PROBLEMS AND RECOMMENDATIONS IN DISCIPLINARY ENFORCEMENT (Final Draft, 1970); Marks & Cathcart, *supra* note 21.

25. Huszagh & Molloy, *supra* note 22, at 292.

26. *E.g.*, judges with lifetime tenure, hearing examiners independent of agency commissioners, basic principles of procedural due process and freedom of expression, and administrative agencies.

27. *E.g.*, forms of action, ombudsmen in the United States and mechanical rules for limiting liability.

transient compounds. With identification accomplished, scarce analytical resources can be allocated prudently to improve knowledge concerning the performance characteristics of and costs inherent in each basic material. As this knowledge improves in quantity and quality, so will the profession's capacity to efficiently craft blends and mixtures that meet precise societal needs without causing unnecessary and unanticipated side effects.

Basic to the law system are *principles* such as substantive and procedural due process; *institutions* such as administrative agencies and trial courts; *mechanisms* including rule-making proceedings, contracts and subpoenas; and *personnel types* such as general practitioners, Washington lawyers and plaintiff malpractice specialists. Lawyers' intimate involvement with society's diverse transactions and the intellectual synchronization among law schools for over six decades have enabled the profession to assemble these basic elements into mixtures such as professional licensing agencies, commissions, small claims courts and model family laws. These creations are applied in environments varying greatly in their levels of political and economic development, ethical values and social homogeneity. For the most part, the primary effects of these applications are anticipated by their creators. The direct costs and benefits associated with these primary effects, however, are often poorly understood and the side effects of these applications are frequently not anticipated in a quantitative or qualitative sense.²⁸

Should scarce resources be allocated to produce detailed knowledge of the side effects as well as the primary effects of basic law principles, mechanisms, institutions and personnel applied in diverse environments? At present many programs that lawyers design for sizeable segments of a community, state or nation are normally not accompanied by information sufficient to give notice of the risks involved. This will continue to be the case as long as individual, group or institutional clients or the society at large bear the major costs of professional ignorance. Little wonder public disdain for the profession has endured for centuries.²⁹

The profession should internalize the major costs associated with dysfunctional application of its basic legal materials. If it were to do so its members and service institutions would soon embrace as a fundamental

28. For example, Food and Drug Administration regulations regarding drugs have precluded some harmful drugs from being introduced into the stream of commerce, but, according to some leading scholars, have also limited the flow of useful drugs to the market. See G. ROBINSON & E. GELLHORN, *THE ADMINISTRATIVE PROCESS* 3-18 (1974).

29. Cf. *DICTIONARY OF QUOTATIONS* 36, 131, 377-79 (B. Evans ed. 1968); *THE MACMILLAN BOOK OF PROVERBS, MAXIMS, AND FAMOUS PHRASES* 437-39, 1358-73 (B. Stevenson ed. 1965) (quotations about law and the legal profession).

mission scientific research on the full range of effects (quantitative and qualitative) of such materials when applied to different environments. Even without such changes in attitude, an economically more sophisticated public may tire of bearing the costs of relatively "unorganized" experimentation supervised by lawyers through the courts, administrative agencies and legislatures. Should this happen, the virtues of basic research will become more obvious.³⁰

Legal and law-related literature indexes suggest that basic research activities are already fundamental to law school missions. Unfortunately, most reported basic research analyzes complex behavioral issues from a narrow legal perspective and does not involve the meticulous observation and testing procedures that skilled scientists deem essential for replication. The few worthy products that cast the issues in a nonparochial manner and employ scientific investigation techniques are not separated from the multitude of nonscientific and pseudo-scientific studies. This explains in part why "reported" research results seldom shape the decisionmaking process.³¹

Legal Ptolemaism's adverse consequences cannot be abated until substantial intellectual resources are applied to at least three levels of tasks: (1) performance characteristics of materials and tools must be itemized carefully with regard to their application in various settings;³² (2) credible

30. See Loevinger, *Jurimetrics: The Next Step Forward*, 12 JURIMETRICS J. 3, 22 (1971); Massel, *Legal Institutions in a Changing Society: The Need for Appraisal*, 21 J. LEGAL EDUC. 125 (1968).

31. The National Science Foundation has funded two projects designed to examine systematically the extent of legal system use of social science data. They are F. Askin & H. Levin (Rutgers University), *Judicial Use of Social Science Data* (NSF—GS-43056, 1974); V. Rosenblum (Northwestern University), *The Uses of Social Science Judicial Decision Making* (NSF—GS-42985, 1974) (summaries of projects on file in office of *North Carolina Law Review*). For some nonempirical examinations of reasons for limited uses of social science research by the legal system, see Symposium, *The Courts, Social Science, and School Desegregation*, 39 LAW & CONTEMP. PROB., Winter 1975, at 1, 39-149. See generally Fuller, *An Afterword: Science and the Judicial Process*, 79 HARV. L. REV. 1604 (1966).

32. For example, what are the costs and benefits in various decisional contexts of impact statements, paralegals, professional codes, requirements of informed consent, concepts of fairness, plea bargaining, the adversarial process, form contracts or small claims courts? Many of these topics are already being studied from many perspectives. See generally the following studies: D. Chambers (University of Michigan), *Child Support Enforcement Process* (NSF—GS-43196, 1974); L. Friedman (Stanford University), *Comparative Study of Trial Courts* (NSF—P2S1142, 1972); W. Gould (Stanford University), *Arbitration Models in Labor-Management Relations* (NSF—75-17563, 1976); B. Kozolchik & P. Hammond (University of Arizona), *Models of Fairness and Legal Systems* (NSF—GS-38286, 1972); F. Lacy (University of Oregon), *Pre-Trial Discovery Procedures* (NSF—GS-42799, 1974); R. Levy (University of Minnesota), *Custody Investigations in Divorce Cases* (NSF—P2S1202, 1972); C. Peck, R. Black & W. Fordyce (University of Washington), *Compensation Claims and Pain Behavior* (NSF—GS-42734, 1974); J. Sweet (University of California), *Law Making Through Standard Form Contracts* (NSF—75-17123, 1975); J. Taylor & R. Schulman, *supra* note 5; H. Zeisel (University of Chicago), *Analysis of the Traditional Voir Dire System* (NSF—GS-33825, 1973) (sum-

explanations—not plausible speculations—must be constructed to determine why performance characteristics for specific materials and tools vary across settings;³³ and (3) coherent theories about the operating mechanics of materials and tools, which will allow colleagues to anticipate performance characteristics in settings to which they have not yet been applied, must be synthesized.³⁴

A comprehensive strategy for accomplishing these tasks might involve three discrete efforts performed simultaneously. First, scholars could review predecessors' efforts to extract reliable field data on performance of each major legal principle, mechanism or institution. Gaps in existing field data could be filled by commissioned studies involving laboratory experiments, natural experiments and suitable cross-cultural studies. During a subsequent period all collected data could be catalogued and analyzed by another group of scholars. This effort should generate explanations of central forces, inherent costs and benefits, and variations between consequences of application in diverse settings. Finally, legal scholars could analyze these explanations and synthesize fundamental theories that would remain sound under disparate conditions.

Lawyers, however, are not amenable to such systemic efforts; more eclectic strategies are probably necessary. For some tools the suggested

maries of projects on file in office of *North Carolina Law Review*). For an example of the outputs of such projects, see Walker & Thibaut, *An Experimental Examination of Pretrial Conference Techniques*, 55 MINN. L. REV. 1113 (1972).

33. See J. EISENSTEIN & H. JACOB, *FELONY JUSTICE: AN ORGANIZATIONAL ANALYSIS OF CRIMINAL COURTS* (1977); Friedman & Percival, *A Tale of Two Courts: Litigation in Alameda and San Benito Counties*, 10 LAW & SOC'Y REV. 267 (1976); Friedman & Percival, *Who Sues for Divorce? From Fault through Fiction to Freedom*, 5 J. LEGAL STUD. 61 (1976). See also C. Bohmer (Institute for the Study of Human Issues), *Social Change and the Law* (NSF—75-05310, 1975); S. Huszagh & F. Huszagh (University of Montana), *Enterprise Function as a Determinant of Responsiveness to Legal Principles and Implementing Institutions* (NSF—GS-43801, 1974); B. Kozolchyk & P. Hammond, *supra* note 32; R. Seidman (Boston University), *Legal Influences on Administrative Behavior* (NSF—75-16278, 1975); S. Wheeler, B. Cartwright & L. Friedman (Yale University), *Historical and Comparative Study of State Supreme Courts* (NSF—GS-38413, 1973) (summaries of projects on file in office of *North Carolina Law Review*).

34. See, e.g., J. THIBAUT & L. WALKER, *PROCEDURAL JUSTICE: A PSYCHOLOGICAL ANALYSIS* (1975); Evan, *Administrative Law and Organization Theory*, 29 J. LEGAL EDUC. 106 (1977); Galanter, *Why the "Haves" Come Out Ahead: Speculations on the Limits of Legal Change*, 9 LAW & SOC'Y REV. 95 (1974). The following projects have this objective: M. Eisenberg (University of California at Berkeley), *Negotiation as Rational Dispute Resolution Process* (NSF—GS-23888, 1972); M. Galanter (State University of New York at Buffalo), *Deployment Process in the Implementation of Legal Policy* (NSF—72-05376, 1972); S. Huszagh & F. Huszagh, *supra* note 33; A. Miller & J. Barron (George Washington University), *Models of Judicial Information Flow* (NSF—GS-42904, 1974); L. Walker & J. Thibaut (University of North Carolina at Chapel Hill), *Adversary System of Legal Decision Making* (NSF—GS-40601, 1974) (summaries of projects on file in office of *North Carolina Law Review*).

approach could be employed,³⁵ while other matters could be explored by starting with well established folklore theories and assessing their veracity through laboratory experiments, natural experiments, historical analysis or cross-cultural analysis.³⁶

Since basic research by the profession is not dominated by directions and incentives from a few sources,³⁷ strategy definition for an overall plan may be a pointless endeavor. Some value may flow, however, from commentary on the intrinsic merits of various substantive focuses for basic law research projects and of diverse procedures for their implementation.

B. Essential Substantive Focuses

1. Some Cautionary Notes

Increasingly, research efforts are directed at the tasks noted and are sometimes motivated solely by scholars' desire to understand specific system activities.³⁸ Much analytical law research, however, is executed primarily to support recommendations for change. A durable understanding of elements of the legal system requires a motive of analysis, rather than of recommendation. Conclusions about law system dynamics born from a spirit of advocacy often have limited longevity unless the tenets of scientific inquiry are carefully observed.

35. One subject susceptible to such study is the plea bargaining system. Many studies have been made of this process as it is employed in various jurisdictions around the country. See A. ROSETT & D. CRESSEY, *JUSTICE BY CONSENT: PLEA BARGAINS IN THE AMERICAN COURTHOUSE* (1976); Church, *Plea Bargains, Concessions and the Courts: Analysis of a Quasi-Experiment*, 10 *LAW & SOC'Y REV.* 377, 400-01 (1976); Heumann, *A Note on Plea Bargaining and Case Pressure*, 9 *LAW & SOC'Y REV.* 515, 527 bibliography (1975). These studies are now ripe for comparative evaluations and synthesis. See Assessment Conference, *supra* note 10, at 1067 (remarks of Marc Galanter).

36. Subjects suitable to this method of study include arbitration, good faith and fact determination as under the adversarial process. This approach has been employed by the following projects: C. Bohmer, *supra* note 33; B. Danet & K. Hoffman (Boston University), *Role of Language in the Legal Process* (NSF—74-23503, 1975); J. Handler, J. Ladinsky & H. Erlanger (University of Wisconsin at Madison), *The American Legal Profession: Status, Mobility, and Work in the Public Interest* (NSF—GS-41569, 1974); S. Huszagh & F. Huszagh, *supra* note 33; B. Kozolchyk & P. Hammond, *supra* note 32; R. Seidman, *supra* note 33; J. Thibaut & L. Walker (University of North Carolina), *Human Behavior and the Legal Process* (NSF—GS-28590X2, 1973); S. Wheeler, B. Cartwright & L. Friedman, *supra* note 33 (summaries of projects on file in office of *North Carolina Law Review*). See, e.g., Church, *supra* note 35; Thibaut, Walker & Lind, *Adversary Presentation and Bias in Legal Decisionmaking*, 86 *HARV. L. REV.* 386 (1972); Walker, Thibaut & Andreoli, *Order of Presentation at Trial*, 82 *YALE L.J.* 216 (1972).

37. The National Science Foundation and National Institutes of Health have been the focal points for basic science funding. Their various evaluation panels, which are normally established along disciplinary lines, have substantial capacity to channel research efforts in specific directions through funding decisions for specific projects as well as for general programs related to national laboratories and research centers. *But see* Early, *National Institute of Justice—A Proposal*, 74 *W. VA. L. REV.* 226 (1972).

38. See sources and projects cited note 34 *supra*.

Apart from motives, a researcher's hierarchy of substantive interests can affect insights derived from a research project. A focus on a particular principle, institution or mechanism ideally will disclose internal interrelationships not forthcoming from an analysis that dwells only on an application to a particular environment.³⁹ Preoccupation with a particular group served by the legal system can generate insights about the group's peculiar requirements and resources not otherwise apparent.⁴⁰ Such insights can stimulate creation of legal service approaches unanticipated by standard legal scholars and specialists.⁴¹ None of these specialists can perceive fully the dynamics possible when a particular legal system element interacts with a specific subject or client group.⁴² Consequently, a comprehensive understanding of the law system's internal dynamics and relationships to other social, political and economic systems can flow only from integration of all these research approaches.

2. Mapping the Contours of Specific Law Elements

Research on Normal Operation of Law Elements

Researchers interested primarily in the intricacies of law system parts can select among several work strategies, each characterized by different resource needs and different research temperaments. One strategy involves

39. See, e.g., the following projects: M. Eisenberg, *supra* note 34; M. Galanter, *supra* note 34; A. Goldstein (Yale University), Structural Elements of Judicial Procedures (NSF—75-15620, 1975) (summaries of projects on file in office of *North Carolina Law Review*). See also S. WEAVER, DECISION TO PROSECUTE: ORGANIZATION AND PUBLIC POLICY IN THE ANTITRUST DIVISION (1977); Mohr, *Organizations, Decisions and Courts*, 10 LAW & SOC'Y REV. 621 (1976).

40. See, e.g., Symposium, *Children and the Law*, 39 LAW & CONTEMP. PROB., Summer 1975, at 1; Symposium, *Historic Preservation*, 36 LAW & CONTEMP. PROB. 309 (1971); Fitzgerald, *The Contract Buyers League and the Courts: A Case Study of Property Litigation*, 9 LAW & SOC'Y REV. 165 (1974); Graburn, *Eskimo Law in Light of Self- and Group-interest*, 4 LAW & SOC'Y REV. 45 (1969). NSF projects that seek such insights are: T. Anderson & R. Waldrop (Antioch School of Law), Evaluative Instruments for Measuring Lawyering Competencies (NSF—GS-43062, 1974); A. Carlson & R. Reilly (Educational Testing Service), Evaluation of the Performance of Lawyers (NSF—75-16153, 1975); S. Conn & A. Hippler (University of Alaska), Structural Reforms in Alaskan Rural Justice (NSF—GS-38284, 1973); S. Huszagh & F. Huszagh, *supra* note 33; C. Peck, R. Black & W. Fordyce, *supra* note 32; R. Seidman, *supra* note 33; A. Smith & A. Smith (University of Texas at Austin), Communicative Behavior of Law Students and of Law Professors (NSF—GS-42949, 1974); A. Stone (Harvard Law School), Workshop on New Directions in Law and Psychoanalysis (NSF—GS-35725, 1972); J. Taylor & R. Schulman, *supra* note 5 (summaries of projects on file in office of *North Carolina Law Review*).

41. See, e.g., Costonis, *The Chicago Plan: Incentive Zoning and the Preservation of Urban Landmarks*, 85 HARV. L. REV. 574 (1972); Davis & Schwartz, *Tenant Unions: An Experiment in Private Law-Making*, 2 HARV. C.R.-C.L.L. REV. 237 (1967); Smith, *The Feasibility of an "Injury Tax" Approach to Occupational Safety*, 38 LAW & CONTEMP. PROB. 730 (1974).

42. For a perceptive analysis of dynamics between legal system elements and client groups, see Galanter, *Why the "Haves" Come Out Ahead: Speculations on the Limits of Legal Change*, *supra* note 34.

detailed studies on how a particular principle, institution, mechanism or personnel group normally functions or functioned in specific contemporary or historic settings.⁴³

Aside from studies of contemporary activity, scholars should examine historical events and periods in both the United States and other countries to assess normal performance characteristics of principles, mechanisms, institutions and personnel in diverse environments. Entire periods of legal history in various cultural settings already have been described along with a limited number of interactions between specific functional activities and the legal system.⁴⁴ On a much more limited basis, particular system elements have been examined across time.⁴⁵ These efforts, however, only scratch the surface of historical analysis's potential to enhance understanding of critical system parts.

Historical investigations should also be coordinated with contemporary research to fill gaps in contemporary field data about behavior of an institution, mechanism, principle or personnel group.⁴⁶ This data is often critical to development of fundamental theories concerning such elements.

43. For example, during the last decade researchers from several disciplines produced considerable empirical data on plea bargaining. See sources cited in note 35 *supra*. Its dynamics were examined in a number of urban and rural settings by individuals concerned with the utility and legitimacy of plea bargaining in handling a limited class of problems. In terms of volume, the research crest has now passed. Yet the full scientific potential of these empirical efforts has not been realized.

Plea bargaining studies have been utilized individually and collectively to tune the plea bargaining mechanism to the urban, criminal justice environment, including traditional notions of due process, fair hearing and trial judge responsibilities. They have not been analyzed comparatively to map all the mechanism's intrinsic values and dynamics and to relate them to noncriminal settings. Furthermore, field observations about the mechanism have seldom been correlated with basic scientific literature dealing with bargaining, resource allocation and organizational behavior. *But see* Heumann, *supra* note 35; Mohr, *supra* note 39, at 638; Rhodes, *The Economics of Criminal Courts: A Theoretical and Empirical Investigation*, 5 J. LEGAL STUD. 311 (1976). The profession's ability to anticipate the consequences of various plea bargaining configurations would be greatly enhanced if (1) all existing studies were examined to develop a mosaic of how the mechanism functions in various environments with different mixes of institutional roles and social needs and (2) the mosaic was reviewed in the context of linkages with basic social science theory. Lawyers' capacity to apply beneficially the mechanism to noncriminal contexts would also surely improve, especially as a general field theory about the mechanism evolved.

44. Classics in this area are L. FRIEDMAN, *A HISTORY OF AMERICAN LAW* (1973); W. HURST, *LAW AND ECONOMIC GROWTH: THE LEGAL HISTORY OF THE LUMBER INDUSTRY IN WISCONSIN, 1836-1915* (1964). See also R. HUNT, *LAW AND LOCOMOTIVES: THE IMPACT OF THE RAILROADS ON WISCONSIN LAW IN THE NINETEENTH CENTURY* (1958).

45. See, e.g., Nelson, *Officeholding and Powerwielding: An Analysis of the Relationship Between Structure and Style in American Administrative History*, 10 LAW & SOC'Y REV. 187 (1975). See also P. GATES, *HISTORY OF PUBLIC LAND-LAW DEVELOPMENT* (1968); Stevens, *Two Cheers for 1870: The American Law School*, *supra* note 5.

46. This approach will be essential for the development of a sound understanding of the judiciary's role in society during distinct phases of evolution. See, e.g., S. Wheeler, B. Cartwright & L. Friedman, *supra* note 33.

Historical scholars, by examining a particular law element over a long period of time, can also materially advance our understanding of the variables that significantly affect performance or development of the element. When guided by skillful multidisciplinary brainstorming, historical research based on adequate historical material can often identify such variables in less time and cost than that involved in contemporary studies.⁴⁷ Once identified, the variables' relative significance can be defined precisely by laboratory experimentation and select contemporary field study. Historical research can also be employed to grasp quickly fundamental interrelationships between clusters of legal elements, relationship changes over time and their dependence on specific cultural variables.⁴⁸ Finally, historical analysis may be indispensable in disclosing long-term evolutionary patterns apparent only from longitudinal data.⁴⁹

Despite its inherent values, many factors may limit the utility of historical analysis as regards particular law elements. First, primary reference materials vary greatly as to quantity and quality depending upon the topic.⁵⁰ Thus, useful studies are restricted to areas in which the material quality is adequate in terms of completeness and objectivity, or creative analysis of collateral or secondary documentation can resolve ambiguities in primary data.

A second problem arises from efforts to deal with the problems noted by training individual researchers to utilize both social science and historical methods. Each method requires a wide variety of information retrieval skills. Innovations in indexing techniques make it difficult for a legal

47. The hypotheses of the following projects were based on contemporary social science theory concerning group and institutional behavior: L. Friedman, *supra* note 32; J. Quigley (Ohio State University), Impact of Government Programs on Family Life: The Soviet Experiment (NSF—P2S1171, 1972) (summary of project on file in office of *North Carolina Law Review*); S. Wheeler, B. Cartwright & L. Friedman, *supra* note 33. Historical materials were used primarily as the most efficient method for testing hypotheses about the interactions of laws, legal institutions and the people and entities within their ambit. See generally Friedman & Percival, *A Tale of Two Courts: Litigation in Alameda and San Benito Counties*, *supra* note 33, and sources and projects cited in note 48 *infra*.

48. A variety of legal research aimed at these objectives has been evaluated by historical and contemporary legal scholars. See, e.g., Nelson, *The Impact of the Anti-slavery Movement upon Styles of Judicial Reasoning in Nineteenth Century America*, 87 HARV. L. REV. 513 (1974); Tushnet, *The American Law of Slavery, 1810-1860: A Study in the Persistence of Legal Autonomy*, 10 LAW & SOC'Y REV. 119 (1975); tenBroek, *California's Dual System of Family Law: Its Origin, Development and Present Status* (pts. 1-3), 16 STAN. L. REV. 257, 900 (1964); 17 STAN. L. REV. 614 (1965); J. Katz (Yale University), *Informed Consent—An Analysis of its Current Status in Law and Other Disciplines* (NSF—GS-38449, 1973) (summary of project on file in office of *North Carolina Law Review*).

49. See Tushnet, *supra* note 48, at 177-80.

50. Major reference works that identify such materials are listed in C. WHITE, *SOURCES OF INFORMATION IN THE SOCIAL SCIENCES* 104-08 (2d ed. 1973).

historian to know all available indexes, use them efficiently and appreciate their inherent defects as to completeness and accuracy.⁵¹ Similarly, it is dangerous for social scientists to work with historical indexes since many are chronologically fragmented and are also of uneven completeness and accuracy.⁵²

Finally, even when historical analysis is practically possible, its utility in a legal context may be limited. Historians often do self-contained analyses on matters of cause and effect regarding individuals and institutions. Consequently, they often ignore basic, contemporary social science theory regarding individual and institutional behavior, which frequently is constant across time.⁵³ Thus, historic analysis may rest on the investigator's assumptions about behavior that is at odds with behavioral research. Existing linkages between contemporary and historic analysts are now poorly developed and existing institutional forces within academic centers tend to frustrate the development and maintenance of new linkages.⁵⁴

Research on Aberrations of Law Elements

An important adjunct to contemporary and historical studies concerning an element's normal performance characteristics is detailed research on performance dysfunctions. Careful analysis of such situations often can quickly disclose their critical components and the ramifications flowing from a failure of such components. These ramifications are at times difficult to anticipate from a mere description of an element or studies of its functioning under normal conditions. Once a failure has occurred, however, unforeseen consequences frequently become apparent. Retrospective analysis can then reveal the precise reasons for both the failure and its particular consequences.⁵⁵

With this information on failure in hand, scholars probably can eliminate several plausible theories concerning normal element dynamics that are not compatible with the specific failure that occurred. Further, if studies of

51. See generally *id.* at 1-82.

52. See generally *id.* at 83-137.

53. For a perceptive analysis of this problem as regards a great historical and jurisprudential scholar, see Tushnet, *Lumber and the Legal Process*, 1972 WIS. L. REV. 114, 122 & n.24. But see C. WHITE, *supra* note 50, at 87, 88.

54. Assessment Conference, *supra* note 10, at 1060-73 (remarks of Marc Galanter & Lawrence Friedman); Galanter, *From the Editor*, 10 LAW & SOC'Y REV. 5 (1975).

55. See C. STONE, *WHERE THE LAW ENDS: THE SOCIAL CONTROL OF CORPORATE BEHAVIOR* (1975). This book represents the results of an NSF funded study, C. Stone (University of Southern California), *Relationships Between Corporate Structure and Efficacy of Laws* (NSF—P2S1158, 1972) (summary of project on file in office of *North Carolina Law Review*). Another failure analysis project funded by NSF was J. Quigley, *supra* note 47. See also articles cited in Galanter, *supra* note 3, at 228 n.3.

failures of a specific element in diverse environments or failures of different elements in the same environment can be linked, avenues may open to develop comprehensive legal theories that transcend particular elements.⁵⁶ This can be a significant bridge between empirical and jurisprudential efforts.⁵⁷

Research on Creation of Law Elements

Careful documentation and analysis of an element's "birth" can be a third major approach to discern the hierarchy of forces that drive an element and condition its relationships with various environments. Legal literature indexes note many purported "creation" studies, but these studies seldom involve the meticulous sifting of documents and opinions that produces truly objective comprehension.⁵⁸ Due to the tradition of advocacy in which they were trained, legal researchers often produce special arrangements of raw data that highlight or mute particular aspects. Consequently, independent validation of conclusions is most difficult when based solely upon the initial researchers' findings of fact. Further, creation studies subliminally contaminated with subjective insights seldom provide sufficient data to enable outsiders to evaluate data independently and identify the relative places and purposes of element components in different environmental situations.

3. Understanding How Characteristics of Law System Users Affect Utilization of the Law System

Detailed knowledge of performance curves for each law element by itself will not ensure optimal application to people, entities or activities

56. This was the objective of an NSF grant, S. Huszagh & F. Huszagh, *supra* note 33.

57. Unfortunately, failure analysis is commonly prompted by desires to structure reforms that are conceived long before empirical study begins. So guided, the research may focus unduly upon certain data extracted from the failure condition and overlook other data or interrelationships critical to a scientific understanding of fundamental features of normal operation. For example, corporate bribes to foreign government officials prompted enactment of laws and regulations to preclude these bribes. *E.g.*, Act of Dec. 19, 1977, Pub. L. No. 95-213, 91 Stat. 1494 (codified at 15 U.S.C.A. §§ 78dd-1, -2 (West Supp. Pamphlet No. 4, 1978)). These laws and regulations were enacted and will be implemented, however, without the benefit of a clear understanding of differences between bribes and legitimate commissions in different cultural settings. Such selective observation and reliance upon data beyond the limits of its significance retard rather than advance objective understanding, although both may give research participants temporary access to power.

58. For example, the Communications Satellite Corporation (COMSAT) and the International Telecommunications Satellite Consortium (INTELSAT) are the subject of numerous books and articles that purport to record the details of their birth and early life. Several unpublished dissertations substantially capture parts of this process, but the published articles and books for the most part are little more than impressionistic glimpses of this process or parts thereof. In contrast, see E. JOHNSON, *JUSTICE AND REFORM: THE FORMATIVE YEARS OF THE OEO LEGAL SERVICES PROGRAM* (1974) which was produced in connection with grants from the Russell Sage Foundation and the National Science Foundation.

("recipients") because most elements involve many recipients with widely diverse value preferences and needs.⁵⁹ Thus, the legal system and its agents must know these preferences and need to anticipate the potential reactions of and impact upon various groups over time. Sociologists, psychologists, economists and political scientists have assembled considerable data on many possible recipients likely to be affected by various law elements.⁶⁰ This information normally is collected and analyzed in forms that are not easily translated into the data lawyers can understand and use to develop impact statements on various law elements. Consequently, law scholars must become directly familiar with this work and supplement it with field studies that identify the peculiar legal requirements of diverse recipients to facilitate the translation and use of this material.⁶¹

The need for intensive focus on recipients is apparent if one considers the urban-rural dichotomy present in almost every state. Many legal activities fashioned in response to problems aggravated by the confines of urban living are applied in rural settings where their value preferences are at tension with those underlying the rural culture.⁶² Some of the resultant incompatibilities are dampened through differential treatment of the laws by judicial and administrative authorities in the two settings.⁶³ Many remain to produce unintended, harmful consequences.⁶⁴

The law profession and its institutions normally respond to the demands of power groups and exposés of gross inadequacy, but many matters and people in need of legal craftsmanship do not have high visibility. To serve properly such low visibility interests, the profession must be more systematic in examining each category of individuals and entities possibly affected by a particular law and its implementing structure. Such examination can be pursued by several strategies—each having distinctive capacities

59. This point is highlighted with regard to legal service delivery systems in Marks, *Some Research Perspectives for Looking at Legal Need and Legal Services Delivery Systems: Old Forms or New?*, 11 LAW & SOC'Y REV. 191 (1976).

60. A very convenient tool for law researchers to access this data is C. WHITE, *supra* note 50.

61. Much of this work is now being done and reported in journals like those identified in note 90 *infra*.

62. No fault divorce, environmental zoning, proposed OSHA regulations on the proximity of toilet facilities to work stations, the national 55 m.p.h. speed limit and the decriminalization of marijuana are a few obvious examples.

63. See tenBroek (pt. 3), *supra* note 48, at 619, 675-82; R. Levy, *supra* note 32. For an interesting analysis of why distinctions in law application are important, see Graburn, *supra* note 40. See generally Shuchman, *An Attempt at a "Philosophy of Bankruptcy,"* 21 U.C.L.A. L. REV. 403, 413 (1973); Friedman & Percival, *A Tale of Two Courts: Litigation in Alameda and San Benito Counties,* *supra* note 33.

64. For examples of laws having different effects on different recipient groups, see generally Jacob, *Black and White: Perceptions of Justice in the City,* 6 LAW & SOC'Y REV. 69 (1971); Swett, *Cultural Bias in the American Legal System,* 4 LAW & SOC'Y REV. 79 (1969).

to disclose particular relationships among recipients or between recipients and law elements. Many interdisciplinary studies provide new insights on different law element consequences caused by cultural diversities.⁶⁵ Studies of this type, which have segregated recipients according to age and sex both within and across law subjects, have been especially enlightening by disclosing data relationships that are not normally apparent.⁶⁶

Study of law recipients by dividing them into groups with specific characteristics, while providing much essential information now lacking, will not efficiently document why people, entities and activities migrate in and out of the legal system's purview. This important question will require coordinate study of recipient classes that (1) were served previously by the law system but have now migrated, in whole or in part, out of its ambit, (2) are now highly dependent on the legal system and (3) are not under the legal system's influence, but possess interests that could be well served by that system.⁶⁷

Careful study of the full spectrum of ex-law recipients will highlight the need for complex explanations of disenchantment with law and lawyers. If discontinuities between a group's philosophical values and those inherent to the legal system prove to be the primary stimuli for some disengagements, researchers will need to utilize academic disciplines other than economics.⁶⁸

Groups now served by the legal system increasingly are being studied to document and analyze (1) the extent of legal services rendered, (2) impediments to further utilization of such services, (3) the processes by which group members individually access the law system and (4) the utility of various new approaches for the provision of legal services.⁶⁹ Many such

65. E.g., H. JACOB, *DEBTORS IN COURT: THE CONSUMPTION OF GOVERNMENT SERVICES* (1969); Hallauer, *Low Income Laborers as Legal Clients: Use Patterns and Attitudes Toward Lawyers*, 49 DEN. L.J. 169 (1972); Hermann, *Families in Bankruptcy—A Survey of Recent Studies*, 28 J. MARR. & FAM. 324 (1966); Shuchman, *Impact Analysis of the 1970 Bankruptcy Disclosure Amendments*, 51 N.C.L. REV. 233 (1972). See also sources cited in note 64 *supra*.

66. See, e.g., Zimring, *The Medium is the Message: Firearm Caliber as a Determinant of Death from Assault*, 1 J. LEGAL STUD. 97 (1972).

67. For some examples of these categories, see generally Galanter, *Why the "Haves" Come Out Ahead: Speculations on the Limits of Legal Change*, *supra* note 34, at 124-35; sources cited in note 73 *infra*.

68. Marks, *supra* note 59, at 195-99.

69. B. CURRAN & F. SPALDING, *THE LEGAL NEEDS OF THE PUBLIC* (1974); R. MARKS, R. HALLAUER & R. CLIFTON, *THE SHREVEPORT PLAN: AN EXPERIMENT IN THE DELIVERY OF LEGAL SERVICES* (1974); Symposium, *Delivery of Legal Services*, 11 LAW & SOC'Y REV. 167 (1976); *Survey of Legal Needs*, 3 ALTERNATIVES, Jan. 1976, at 1; Lochner, *The No Fee and Low Fee Legal Practice of Private Attorneys*, 9 LAW & SOC'Y REV. 431 (1975). The above noted symposium also contains an exhaustive bibliography on the delivery of legal services. Symposium, *supra* at 399-415.

studies correlate group characteristics with legal service utilization rates in particular legal categories and carry the objective of modifying existing service arrangements to increase overall demand. So motivated, these projects risk unconscious prejudgment of data, especially in the design of questionnaires or techniques for obtaining data.

If more research in this area were undertaken in the anthropological tradition of participant-observer, there would be a higher likelihood that findings and insights would progress beyond mere identification of major barriers to the use of legal services.⁷⁰ A detailed understanding of particular groups and their general attitudes toward the legal system, in contrast to preoccupation with recipient reactions to specific law mechanisms, would facilitate development of general theories regarding law system/recipient interaction and should aid practitioners working with particular groups on a broad range of legal service matters.⁷¹

Finally, law scholars should analyze groups that generally do not use the legal system but are in need of mechanisms to resolve disputes, enforce promises and integrate complex interests. To date, most study on this subject concentrates on interests already at the legal system's periphery.⁷² There are, however, many groups remote from the periphery that might benefit substantially from dependence on various legal principles and institutions. For example, the supersonic transport dispute, largely handled through a scientific dialogue that lacked focus and depended for its credibility on the speakers' reputations, might have been handled more efficiently if the matter had been joined in a courtroom context where adversaries confronted one another.⁷³ Examination of these extralegal solutions and practices should provide perceptive researchers with invaluable insights into

70. See, e.g., Conn & Hippler, *Conciliation and Arbitration in the Native Village and the Urban Ghetto*, 58 JUDICATURE 229 (1974); Nader & Metzger, *Conflict Resolution in Two Mexican Communities*, 65 AM. ANTHROPOLOGIST 584 (1963).

71. This was the objective of an NSF project, S. Conn & A. Hippler, *supra* note 40. See also G. SUTTLES, *THE SOCIAL ORDER OF THE SLUM: ETHNICITY AND TERRITORY IN THE INNER CITY* (1968); Graburn, *supra* note 40. Lawyers successfully representing citizens on welfare, particular minorities or similar distinctive groups could be a good starting point for researchers seeking this information.

72. See, e.g., Symposium, *Athletics*, 38 LAW & CONTEMP. PROB. 1 (1973); Symposium, *Children and the Law*, *supra* note 40.

73. See Yarmolinsky, *Responsible Law-Making In a Technically Specialized Society*, in LAW IN A CHANGING AMERICA 97 (The American Assembly, Columbia University, 1968); AALS/AAAS Joint Panel Discussion on the Law-Science Interface, 16 JURIMETRICS J. 24, 34 (1975); Green, *The Risk-Benefit Calculus in Safety Determinations*, 43 GEO. WASH. L. REV. 791 (1975); Handler, *A Rebuttal: The Need for a Sufficient Scientific Base for Government Regulation*, 43 GEO. WASH. L. REV. 808 (1975); Kantrowitz, *The Science Court Experiment*, 17 JURIMETRICS J. 332 (1977). See generally SCIENTISTS IN THE LEGAL SYSTEM (W. Thomas ed. 1974).

defects in the legal system that preclude it from beneficially servicing particular areas of activity.

4. Discerning Fundamental Dynamics Between the Legal System and Its External Environment

Mere compilation and classification of law element and recipient study results, even when aided by jurisprudential theories, do not produce durable theories concerning fundamental dynamics between the legal system and various social, economic and political units. What is needed is a further effort by systems-oriented law researchers, collaborating with representatives of the social, scientific and humanistic disciplines specializing in macroanalysis.

Already a few analyses of existing research data concerning both elements and recipients have produced some broad but enlightening generalizations concerning fundamental interactions.⁷⁴ Proliferation of scientifically reliable element and recipient data undoubtedly will stimulate more interaction research. Study of fundamental interactions need not, and should not, wait for massive accumulation of such data, however. The economic and social costs of miscalculations now being made by various legal system actors necessitate immediate quests for interaction principles.⁷⁵

No doubt interaction research pursued without the benefit of numerous new element and recipient studies will engender skepticism. In most instances, however, it will produce foundations for contemporary policy decisions at the local, state and federal levels that are more trustworthy than the "finger in the wind" approaches so pervasive in current individual and institutional decisionmaking.⁷⁶

74. Galanter, *Afterword: Explaining Litigation*, 9 *LAW & SOC'Y REV.* 347 (1975); Galanter, *Why the "Haves" Come Out Ahead: Speculations on the Limits of Legal Change*, *supra* note 34.

75. A good example of gross miscalculations about interactions between a law and its subject is OSHA. For a survey of the magnitude of the interaction problems, see 11 *TRIAL*, Sept./Oct. 1975; 9 *TRIAL*, July/Aug. 1973. See also Symposium, *Occupational Safety and Health*, 38 *LAW & CONTEMP. PROB.* 583, 669-757 (1974). On the subject of miscalculations about corporation control by laws, see C. STONE, *supra* note 55.

Existing data and theories on bureaucratic behavior, power and influence at all levels, and the economics of nonlegal systems provide adequate foundation for serious exploration concerning results to be expected from (1) any legal institution or mechanism that is under- or over-funded, (2) many legal principles or mechanisms established or maintained solely as a result of partisan politics or (3) law elements servicing law recipients that are highly homogeneous or heterogeneous in terms of social values, economic status or political beliefs. Some serviceable theories also may be constructed concerning deviations in an element's normal development when recipients demand accelerated development.

76. Loevinger, *supra* note 30, at 22. Interaction research also will give element and recipient researchers additional guidance in structuring basic research projects. For example, if an element researcher knows that under-funding of an organization or concept precludes

C. Procedures for Implementing Substantive Objectives

Regardless of substantive formats devised to guide interdisciplinary research, procedures implementing individual research projects will remain a critical determinant of success. These procedures include initial project definition, selection of execution and validation techniques, and development of strategies for the distribution of findings.

A sound initial project design should make the investigator's motives and hierarchy of interests explicit, thus permitting outsiders to counsel constructively on their potential impact on stated research goals. The design also discloses needed commitments of financial and human resources and the timing of such commitments. Normal grant requirements include these details as well as disclosures of the investigator's current grasp of the topic and knowledge of related work by others.

Unfortunately, the profession's basic structures, educational programs, research materials and ethics have not encouraged law scholars to engage in such elaborate preliminaries, even when basic scientific research is contemplated. Overall, the application of professional intuition, analytical projections of current action and preoccupation with practical problem-solution are the normal hallmarks of lawyer-initiated research.

In contrast, a basic science researcher studies the legal system primarily to improve a classificatory scheme of the environment and in his pursuit thus gains the power to predict behavior within the legal system and/or between that and other societal systems.⁷⁷ Often research is prompted by a desire to test an existent or recently enunciated theory. Data is gathered to refine a theory rather than solve a problem. Successive research efforts of an individual are frequently in a pattern of vertical integration, while a lawyer's research efforts traditionally follow a more horizontal pattern of exploration.

If conditions of legal Ptolemaism are to be specifically identified and rectified, more law scholars must employ scientific methods for exploring issues.⁷⁸ Research problems should be cast in a much broader social context

essential planning activities, he can readily anticipate that the element under study will exhibit a greater incidence of abnormal performance or failure if under-funding exists and the planning function is critical to its success.

77. Examples of such efforts are: J. THIBAUT & L. WALKER, *supra* note 34; Galanter, *Why the "Haves" Come Out Ahead: Speculations on the Limits of Legal Change*, *supra* note 34. For good discussions of fundamental differences between lawyers and social scientists, see Fuller, *supra* note 31, at 1623; Rosenberg, *Comments*, 23 J. LEGAL EDUC. 199 (1970); Scriven, *Methods of Reasoning and Justification in Social Science and Law*, 23 J. LEGAL EDUC. 189 (1970).

78. Cavers, "Non-traditional" Research by Law Teachers: Returns from the Questionnaire of the Council on Law-related Studies, 24 J. LEGAL EDUC. 534 (1972), provides reliable insight on the current level of law researcher reliance on scientific methods. See also Kalven,

in terms of information, and research designs ought to be detailed so analysis is not modified inadvertently during project execution to facilitate findings reinforcing preconceived notions.

In summary, basic research projects ought not be initiated until the following material is in hand:⁷⁹ (1) statement of problem to be explored; (2) review of relevant literature in all fields; (3) research design including (a) major hypotheses and relation to existing theory, (b) measurement of key variables, (c) data collection methods, (d) analysis design; (4) projected outcomes of study; (5) projected timetable for study components; (6) resource requirements (money, personnel and facilities); and (7) resource allocation plan.

The law scholar involved with a specific subject over the years and familiar with many different research methods may be able to develop and implement such a project without much assistance. Most law researchers undertaking scientific type research, however, will be confronted with finding and using unfamiliar materials and methods in order to design, implement, validate and publicize project results. The problems inherent in this situation frequently can be minimized by developing linkages with students or scholars familiar with nonlegal materials and highly specialized legal materials.⁸⁰ The merits of this approach are best appreciated by reviewing critical elements of the execution process.

A project seeking objective knowledge about a specific law element, particular legal service consumers or interactions between a law element and consumer group must first inventory existing knowledge on the subject. This inventory should focus on pre-existing studies involving the same subject by law researchers and scholars from other disciplines. It should also survey research having substantive or methodological implications for the project but not involving the project's specific subject matter. Finally, it should refer to theoretical literature dealing with fundamental human or

The Quest for the Middle Range: Empirical Inquiry and Legal Policy, in *LAW IN A CHANGING AMERICA*, *supra* note 73, at 56; Rehbinder, *The Development and Present State of Fact Research in Law in the United States*, 24 J. LEGAL EDUC. 567 (1972). Mechanisms for producing competence in diverse scientific methods are outlined in Auerbach, *Perspective: Division of Labor in the Law Schools and Education of Law Teachers*, 23 J. LEGAL EDUC. 251 (1970); Carlin, *Graduate Programs for Which Law Faculties Have No Responsibility*, 23 J. LEGAL EDUC. 249 (1970); Frampton, *supra* note 9; Hopson, *Training for Socio-legal Research: College Prior to Law School, Self Help and On-the-job Training*, 23 J. LEGAL EDUC. 242 (1970).

79. For greater detail on basic elements of sound research projects, see P. RUNKEL & J. McGRATH, *RESEARCH ON HUMAN BEHAVIOR: A SYSTEMATIC GUIDE TO METHOD* (1972).

80. See generally Miller, *The Role of the University Law School in the Evolutionary Scheme*, 1971 U. ILL. L.F. 1, 23 (1971); Savoy, *Toward a New Politics of Legal Education*, 79 YALE L.J. 444, 499 (1970); Twining, *Law and Anthropology: A Case Study in Interdisciplinary Collaboration*, 7 LAW & SOC'Y REV. 561 (1973).

institutional behavior detached from reference to any specific subject context. Such literature could reveal overall patterns operating with regard to a subject that are not self-evident from a detailed study of the subject alone.⁸¹

Efficient searches for all relevant published literature can be performed only by individuals familiar with the major search tools as well as the nomenclature inherent to each discipline. This talent frequently exists among law students who previously trained in a number of disciplines at both the undergraduate and graduate levels.⁸²

Once a compendium of collateral research is developed, it can be reviewed by the primary researcher and persons with other disciplinary perspectives to identify project elements already researched adequately and to reframe other elements to reflect current knowledge. Review of other research should also (1) provide details concerning various methodological approaches, (2) disclose difficulties associated with each and (3) identify individuals and institutions qualified to render assistance on various project elements.

After project revision, it should be obvious which disciplinary perspectives are central to the research and which will require dependence beyond the principal investigator. Reliance on others will normally be extensive if exotic research methods are employed.⁸³ Dependence is also likely when the implications of various types of data or methods are not easily understood.

81. The work of Max Weber has proven a fertile construct for inquisitive law professors. More definitive works in the same area by such commentators as March, Simon, Cyert, Penon, Mohr and others have enjoyed less attention by lawyers but are now frequently discussed in law related journals. See, e.g., Evan, *supra* note 34; Meldman & Holt, *Petri Nets and Legal Systems*, 12 JURIMETRICS J. 65 (1971); Mohr, *supra* note 39.

82. To identify all existing research, however, the investigator must do more than search for published articles and books. Pertinent work may not be published or noted in the periodical indexes, where there can be a one- or two-year lag time. Access to on-going research is more difficult but usually can be achieved efficiently by contacting scholars from various advisory committees and editorial panels who track research underway in their respective fields. Currently, the Smithsonian Science Information Exchange maintains computerized abstracts of most projects funded by the federal government. It will search these abstracts for a modest fee and identify projects in subject areas of interest to other researchers. Many researchers have sought to establish similar clearinghouses for nonfunded research, but progress in this area has been slow. The ideas of a major advocate of such a clearinghouse are set forth in Nagel, *Some Proposals for Facilitating Socio-legal Teaching and Research*, 24 J. LEGAL EDUC. 590 (1972). Personnel from funding agencies and prominent scholars from appropriate disciplines also can provide needed information, or at least references to the individuals who have such information.

83. See generally Miller, *supra* note 80. Such reliance has been a central feature of many projects employing complex methods. See, e.g., J. THIBAUT & L. WALKER, *supra* note 34; Assessment Conference, *supra* note 10, at 999-1012 (remarks of Robert Levy & Julie Fulton); Getman, Goldberg & Herman, *The National Labor Relations Board Voting Study: A Preliminary Report*, 1 J. LEGAL STUD. 233 (1972).

Frequently a particular type of data base or method has limits of application that only researchers who identify, create or perfect it fully appreciate.⁸⁴ This appreciation is borne out of a deep understanding of the discipline from which it sprang.

Obviously, the law researcher has many options for securing expertise and for assistance in selecting appropriate data bases and analytical methods, aside from reliance on co-workers. He can use small workshops involving diversely trained people to dissect specific problems and recommend the methods and kinds of personnel most fruitfully employed.⁸⁵ If travel costs or the lack of appropriately trained individuals on campus make a workshop of marginal utility, he can initiate a round-robin correspondence with suitable individuals. Under this format each writer has access to thoughts of previous correspondents and can build responses that reflect accumulated information and reassessments of initial judgments.⁸⁶

Since most law researchers are not familiar with basic research projects involving integration of many different skills and personnel, important facets of research management easily can be overlooked. When diverse disciplinary personnel are involved, management plans are essential to integrate and allocate skills. Appropriately constructed plans ensure that contributions of such diverse perspectives are fully realized.⁸⁷ If the wisdom

84. Campbell, *Legal Reforms as Experiments*, 23 J. LEGAL EDUC. 217 (1970), illustrates the types of problems inherent in application of social science methods to the legal environment. Professor Campbell's sensitivity to these problems is a reflection of his landmark achievements in this area. See also Getman, *A Critique of the Report of the Shreveport Experiments*, 3 J. LEGAL STUD. 487 (1974).

85. Such workshops are routinely employed in projects funded under the Research Applied to National Needs (RANN) Program of the National Science Foundation to acquire research insights as well as disseminate research results. See, e.g., G. Miller & N. Fontes (Michigan State University) *Effects of Videotaped Court Materials on Juror Response* (NSF-RANN—G-75-15815, 1975) (summary of project on file in office of *North Carolina Law Review*). Research workshops have also been funded by the Law and Social Sciences Program of NSF to identify important research issues and match them with appropriate methods and personnel. Examples are G. Dorsey (Washington University), *Workshop on Legal and Social Philosophy* (NSF—GS-40624, 1974), J. Ladinsky (University of Wisconsin at Madison), *Research Workshop on Effective Legal Action* (NSF—GS-41502, 1974) and A. Stone, *supra* note 40 (summaries of projects on file in office of *North Carolina Law Review*).

86. This approach is being used extensively in two current projects involving the legal system. C. Moore (Kent State University), *Reducing Trial Delay* (LEAA—1977); A. Smith (University of Texas), *Lawyers in the Next Generation: Changes in Legal and Communication Technologies* (NSF-RANN—76-18485, 1976) (summaries of projects on file in office of *North Carolina Law Review*).

87. Appropriate construction of plans will require provisions for horizontal integration of the work products of different individuals, either through the use of a simple milestone chart or more sophisticated task integration formats. For an example of the latter, see H. EVARTS, *INTRODUCTION TO PERT* (1964). Vertical integration provisions should form a part of the plan

generated from a project is to shape the legal system's evolution, research results including insights on work methods, data bases and specific training must be expressed in formats easily assimilable by practitioners and traditional scholars. Thus, the researcher frequently must translate results into a number of articles, talks and seminars as well as one-to-one discussions with central policymakers.⁸⁸

Law reviews are efficient vehicles for publishing results in a form usable to the broadest spectrum of law scholars. There is often considerable time delay, however, because of publication schedules and routines employed by the major indexes. Critical dimensions of research involving interdisciplinary perspectives (most frequently insights on methodological breakthroughs) are often muted or eliminated during the editing process, which seeks copy congruent with intrasystem perspectives.⁸⁹ Thus, the value of research for other researcher constituencies is reduced. In recent years there has been considerable expansion of separate nonstudent forums for full presentation of the details of scientific research on the legal system.⁹⁰ Finally, workshops among "communication elites" occasionally can be a highly effective mechanism to disseminate results promptly and also to avoid some of the content mutation problems noted.

and arrange hierarchical task assignments that will prevent unnecessary and cost-inefficient commitments of the primary researcher's time.

During the progression of a research project the investigator must be prepared to make tough resource allocation decisions. See generally U.S. NATIONAL SCIENCE FOUNDATION, GUIDELINES FOR PREPARATION OF UNSOLICITED PROPOSALS 9 (1977); Assessment Conference, *supra* note 10, at 1009-12 (remarks of Robert Levy). The investigator also faces the challenge of keeping the research open ended so that he can follow interesting leads related to fundamental project objectives while avoiding detours impairing maintenance of accuracy of critical components and compliance with projected time and cost limits. A research design fashioned from a real understanding of existing knowledge forms a powerful weapon for achieving this objective.

88. This multimedia approach for disseminating research results is frequently employed by projects funded by the RANN Division of the National Science Foundation. See U.S. NATIONAL SCIENCE FOUNDATION, *supra* note 87, at 4.

89. For example, compare how some of the results of the Thibaut and Walker project, J. Thibault & W. Walker, *supra* note 36, are reported in Thibaut, Walker & Lind, *supra* note 36, and in Walker, LaTour, Lind & Thibaut, *Reactions of Participants and Observers to Modes of Adjudication*, 4 J. APPLIED SOC. PSYCH. 295 (1974).

90. The *Journal of Law and Human Behavior* was recently established as an interdisciplinary journal with some tendency toward the psychology end of the social science spectrum, while the *Journal of Law and Society* has long been a forum for articles embodying sociology and political science perspectives of the legal system. Other professionally edited journals like the *Journal of Legal Studies* and *Law and Economics* are now basic mediums for economic research on the legal system. The student journals remain subject oriented for the most part, but are more frequently dedicating many pages to reports on scientific investigation of the law system. See, e.g., Symposium, *The Use of Videotape in the Courtroom*, 1975 B.Y.U.L. REV. 327. An empirical study of these changes is presented in Gazell, *An Overdue Revolution Deferred: Researching the Law*, 1972 UTAH L. REV. 22. See also Hurst, *Research Responsibilities of University Law Schools*, 10 J. LEGAL EDUC. 147, 155 (1957).

A more difficult dissemination task involves correlation of project results with other subject areas. Such dissemination is essential to the development of broad theories about relationships within legal systems and with other social systems and to facilitate independent work in other disciplines.⁹¹ Since insights for correlations are frequently acquired during the literature search used to design the project, the project investigator is the best person to relate the results to a wider system of information. Contacts during the project with people of various disciplinary perspectives also help this correlation process.

Ultimately, multiple media distribution of results will increase the already heavy flow of information from the academic community. Thus, some effort should be undertaken to maintain this flow at a manageable level for the serious scholar. More effective screening mechanisms should be used by law reviews to ensure that published articles promise durable contributions to basic knowledge.⁹² More effort should be expended in publishing evaluations of research projects to highlight those having particular value for scientific study of the law system.⁹³ Useful evaluations also are provided by highly focused law review colloquia,⁹⁴ literature searches and analyses in research projects and dissertations,⁹⁵ counts of the number

91. One approach to this problem is illustrated by two NSF-sponsored conferences. H. Jacob (Northwestern University), Conference on Organizational Theory and Trial Court Behavior (NSF—75-16012, 1975); S. Katz (University of Chicago), Research Conference on Law and Economic Development in U.S. (NSF—P2S1133, 1972). These conferences were designed to join two disciplinary perspectives in order to evaluate the mutual value of existing research. See also Kalven, *supra* note 78, at 62.

92. These mechanisms are now used by professionally edited journals. See journals discussed in note 90 *supra*. The trend toward refereed journal articles should increase as university-wide standards for promotion and tenure regarding publication are applied to law schools.

93. Examples of existing surveys are: Ellsworth & Levy, *Legislative Reform of Child Custody Adjudication: An Effort to Rely on Social Science Data in Formulating Legal Policies*, 4 LAW & SOC'Y REV. 167 (1969); Erlanger, *Jury Research in America: Its Past and Future*, 4 LAW & SOC'Y REV. 345 (1970); Furubotn & Pejovich, *Property Rights and Economic Theory: A Survey of Recent Literature*, 10 J. ECON. LIT. 1137 (1972); Hermann, *supra* note 65; Sarat, *Studying American Legal Culture: An Assessment of Survey Evidence*, 11 LAW & SOC'Y REV. 427, 459-82 (1977); Yngvesson & Hennessey, *Small Claims, Complex Disputes: A Review of the Small Claims Literature*, 9 LAW & SOC'Y REV. 219 (1975).

94. Symposium, *supra* note 69, at 173-415. Of course, there are many articles that seek to identify good research projects and relate them to specific law areas. For example, see Koch, *Law and Anthropology: Notes on Interdisciplinary Research*, 4 LAW & SOC'Y REV. 11 (1969), and the selected bibliography that was published in each issue of the *Law and Society Review* through the spring of 1973.

95. See, e.g., COLORADO STATE UNIVERSITY, BENEFITS AND COSTS OF PUBLIC REGULATION OF THE PRODUCTION, PROCESSING, AND DISTRIBUTION OF GROUND BEEF 8, 42 bibliography (1977); Huber, *Thou Shalt Not Ration Justice: A History and Bibliography of Legal Aid in America*, 44 GEO. WASH. L. REV. 754 (1976).

of citations to particular projects⁹⁶ and funded projects whose sole purposes are to evaluate literature in a subject area.⁹⁷

IV. CONCLUSION

Traditional law review and text development efforts ensure the internal integrity of the law system. This article has attempted to explore research approaches that can improve the quality and quantity of the linkages between the law and other systems. Inherent in the approaches advocated is reliance on the data, theories, methods and personnel associated with the physical science, social science and humanistic disciplines.

Constructive reliance on other disciplines, however, is not easily achieved, since the parts of each major discipline are so disparate and their yearly achievements so substantial. In most instances, their import for the law system cannot be fully grasped by law scholars, even if they are trained in a particular discipline at the doctorate level. Thus, law researchers undertaking interdisciplinary studies must acquire the skills necessary to (1) anticipate the fields of scientific knowledge relevant to a particular law topic, (2) identify individuals within each field having appropriate expertise and (3) efficiently communicate and collaborate with such individuals. Most importantly, on a question of apparent relevance to each discipline, lawyers must sense when to give deference to the solutions of others and when to trust their own intuition.

Enriching relations between law and nonlaw scholars should not be our only objective. Law students ought to be encouraged to maintain proficiency in their undergraduate and graduate majors through various carefully selected research activities. This maintenance of heritage should ensure sensitivities within the student body to other scholarly perspectives that may at one time or another give proper scope to issues under consideration and analysis.

Apart from stimulating disciplinary diversity in classrooms and research offices, law professors should seek better mastery of the techniques of delegation to research assistants, which are characteristic of scientific research. Greater application of accepted management principles for allocating human effort would provide important "clinical" training to law stu-

96. Many of the science disciplines have abstract publications from which one can readily assess the importance of articles on the basis of reference frequency. *Shepard's Law Review Citations* can be used in a similar way for research projects reported in most law reviews, but unfortunately most of the major professional journals cited in note 90 *supra* are not covered by the citator.

97. See, e.g., M. WOLFGANG, R. FIGLIO & T. THORNBERRY, *CRIMINOLOGY INDEX: RESEARCH AND THEORY IN CRIMINOLOGY IN THE UNITED STATES, 1945-1972* (1975).

dents comparable to science training traditions. Simultaneously, senior personnel would be freed from certain time-consuming tasks.

If improved management skills and interdisciplinary receptivity are integrated for systematic exploration of the legal system's external environment and internal functioning, law practitioners, teachers and researchers could benefit greatly. The profession, however, must be aware of unproven prophets who brandish new religions and make sweeping claims about how lawyers can be set on the right path by worshipping their idols. Lawyers' intuitions gained through the rich experiences recorded in the law reports across the land are a good beginning for any serious research. When procedures or results of colleagues elsewhere on campus conflict with these intuitions, lawyers' reactions must be measured. Misplaced confidence can delay by many years the journey to more enlightened laws and can chill future interest in interdisciplinary ventures. Conversely, patient dissemination of legal knowledge to other disciplines can provide them with invaluable perspectives on the critical components of important issues and how such issues may be approached to further validate "laboratory" theories about human behavior. After all, a major social justification for each of our independent pursuits is to gain greater predictive powers and apply them to improve the quality of life for mankind.

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