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AN INTRODUCTION TO LEGAL LOGIC

by

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I

Most men will admit that they are not handsome. Many will concede they are not strong. But none will acknowledge that he is not logical. This is no peculiarity of our own age, for three centuries ago La Rochefoucauld remarked that men will often apologize for their memory, but never for their judgment. We might dismiss the situation as merely another idiosyncrasy of vanity were it not for the fact that the logic which each man confidently claims to possess is nearly always offered as the undeniable proof of some proposition which is quite contradictory to some other proposition that another man asserts with equal assurance to be indubitably established by his own logic.

The paradox of contradictory claims made in the name of logic is nowhere more evident than in the field of law. Logic, or reason, has been claimed by philosophers both as the special possession and as the principal foundation of law since at least the time of Aristotle. Indeed that great thinker, who was the founder of logic as a self-conscious discipline, identified the law with reason itself.¹ Following this concept, the whole school of scholastic philosophers takes the view that the law actually applied in society is—or ought to be—composed of rules, logically deduced from certain immutable “natural” principles which are themselves discovered by man through the operations of reason. Many whose names are well known to lawyers, from Thomas Aquinas and William Blackstone down to contemporary figures, have adopted essentially this position.

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1. *A TREATISE ON GOVERNMENT, OR, THE POLITICS OF ARISTOTLE*, bk. III, c. 16 (Ellis translation, Everyman's Library ed., 1943).

The most important modern challenge to this view stems from the thinking of Jhering and Holmes, and is often epitomized in Holmes epigrammatic slogan, "The life of the law has not been logic; it has been experience."² Like most slogans, this is at least superficially misleading. Holmes did not mean to minimize the importance of rational thinking in the law, but, quite on the contrary, to urge a more conscious and rational recognition of the grounds of judicial decision. Later Holmes elucidated on what he dubbed "the fallacy of logical form."

The fallacy to which I refer, is the notion that the only force at work in the development of the law is logic. In the broadest sense, indeed, that notion would be true. The postulate on which we think about the universe is that there is a fixed quantitative relation between every phenomenon and its antecedents and consequents. If there is such a thing as a phenomenon without these fixed quantitative relations, it is a miracle. It is outside the law of cause and effect, and as such transcends our powers of thought, or at least is something to or from which we cannot reason. The condition of our thinking about the universe is that it is capable of being thought about rationally, or, in other words, that every part of it is effect and cause in the same sense in which those parts are with which we are most familiar. So in the broadest sense it is true that the law is a logical development like everything else. The danger of which I speak is not the admission that the principles governing other phenomena also govern the law, but the notion that a given system, ours, for instance, can be worked out like mathematics from some general axioms of conduct. . . . This mode of thinking is entirely natural. The training of lawyers is a training in logic. The processes of analogy, discrimination, and deduction are those in which they are most at home. The language of judicial decision is mainly the language of logic. And the logical method and form flatter that longing for certainty and for repose which is in every human mind. But certainty generally is an illusion, and repose is not the destiny of man. Behind the logical form lies a judgment as to the relative worth and importance of competing legislative grounds, often an articulate and unconscious judgment, it is true, and yet the very root and nerve of the whole proceeding. . . . I think that the judges themselves have failed adequately to recognize their duty of weighing considerations of social advantage. The duty is inevitable, and the result of the often proclaimed judicial aversion to deal with such considerations is simply to leave the very ground and foundation of judgments inarticulate, and often unconscious, as I have said. . . . I cannot but believe that if the training of lawyers

2. HOLMES, *THE COMMON LAW* 1 (1881).

led them habitually to consider more definitely and explicitly the social advantage on which the rule they lay down must be justified, they sometimes would hesitate where now they are confident, and see that really they were taking sides upon debatable and often burning questions.³

Between the traditionalists of the "natural law" school and those who, in distinction from them, are sometimes called "realists", the point of controversy has been less as to the role of logic, than as to the material with which it should work. The traditionalists maintain that there are certain transcendental basic principles, which can be discovered by immediate intuitive apprehension, and that from these we can by deductive reasoning infer the most important rules of law. The realists reject both the transcendental concept and the intuitive method of discovery, and insist that the basic principles of law must be directly based upon empirical data, or experience.⁴ There are a multitude of "schools" of legal philosophy, but most reflect one or the other of these two basic viewpoints, and all profess to employ logic in some form.

Even that great school of practicing lawyers and judges who refuse to recognize any "philosophical theories" invoke the sanction of logic quite as frequently and considerably more fervidly than the philosophers. Legal decisions, whether by a lawyer advising a client or a judge deciding a case, are nominally determined by statutes and precedents. But it is seldom that a question arises concerning a situation that is so clearly and squarely within the terms of a statute or a former case that there can be no doubt about the applicable rule. Consequently it is part of the daily task of every lawyer to argue, and of every judge to decide, whether one or another situation should be governed by this or that rule. Sometimes all of those concerned will agree upon the proper result. Far more often, opposing lawyers will take contrary positions as to the law applying to particular facts; and not infrequently judges of higher and lower—and even sometimes of the same—court will disagree as to the appropriate decision of the questions presented by a single record.

Yet invariably contending counsel and disagreeing judges will assert the "logical" validity of their respective positions. It would hardly be too much to say that the one single point on which all legal thinkers agree is the necessity for the use of "logic" in determining rules and deciding cases. It is most surprising, therefore, to find that in all the

3. Holmes, *The Path of the Law*, 10 HARV. L. REV. 457, 465-8 (1897) in COLLECTED LEGAL PAPERS 167, 180 *et seq.* (1920).

4. For a fuller discussion of the differing philosophical approaches to law, see Loevinger, *Jurimetrics*, 33 MINN. L. REV. 455 (1949).

vast mass of legal literature relatively little has been devoted to the subject of logic, as such, in the legal process. Indeed, not much has been added in this century to the perspicacious comments of Holmes in the last.

One of the first, following Holmes, to write on this subject was the scholarly philosopher Morris Cohen, not himself a lawyer.⁵ Essentially his view was that of Holmes, though he makes a few points in addition. He points out that the case method is merely a pedagogical device and is not an adaptation of inductive scientific logic to legal problems. Metaphysical philosophies of law that pretend to have no empirical foundation are attempting the logically impossible, he states, and, in fact, do smuggle in under a disguise the main facts of the social order. The law at any given time is administered by men who cannot help taking for granted many of the prevalent ideas and attitudes of the community. But an undue reliance upon traditional logic leads to a failure to distinguish between logical division and natural classification. The courts are forced to recognize the existence of natural classes, but they tend to regard them as absolute logical divisions. Thus they fail to realize the difference between the useful approximation, which is the natural classification of an empirical science, and the absolutely accurate distinction which exists between the classes of a theoretical logic. This difference has a great practical consequence. If we realize our classification is only approximate we will apply it cautiously expecting to find cases that it will not fit. Logic has great utility in the law in helping to analyze and classify legal material; but the raw material must come from a study of social needs. And the application of logic must be tempered by a recognition of the need for judicial discretion in dealing with the atypical cases. The judge should be neither a logical automaton nor a puppet of psychological impulses, but should have logically and scientifically trained feelings.

A few years later, Cardozo, one of our greatest judges, sought to give an account of the methods by which a judge selects the principles which will guide him from among the many available precedents for a doubtful case.⁶ He began by asserting the great difficulty of the task and his own uncertainty. The problem, he said, is first to extract the principle from the precedents, and then to determine the path or direction along which this principle is to develop. There are four kinds of paths or lines along which the directive force of a principle may be

5. Morris R. Cohen, *The Place of Logic in the Law*, 29 HARV. L. REV. 622 (1915) in *LAW AND THE SOCIAL ORDER* 165 (1933).

6. CARDOZO, *THE NATURE OF THE JUDICIAL PROCESS* (1921).

exerted. First, is the line of logical progression, which he calls the rule of analogy or the method of philosophy. Second, is the line of historical development, or the method of evolution. Third, is the line of the customs of the community, or the method of tradition. Fourth, is the line of justice, morals and social welfare, the mores of the day, or the method of sociology. One or another of these methods is ordinarily dominant in the thinking of a judge called upon to decide a doubtful case. In addition, the judge is often influenced by the social end to be served, although this influence has usually been a subconscious one. However, the philosophy of the common law is, at bottom, pragmatism, and more conscious recognition is being given to the ends to be served. "The springs of action are disclosed where once they were concealed."⁷

Roscoe Pound, perhaps the leading academic expositor of the law in our time, was even more frankly pragmatic.⁸ "Whether working upon the materials of the tradition with the case-knife or pickaxe of the beginnings of legal science or with the more complicated instruments of the modern legal armory," he declared, "judicial activity must be directed consciously or unconsciously to some end."⁹ Although Pound conceived of the ends to be served in broad and general terms, he emphasized that this doctrine requires the jurist to keep in touch with life. "Wholly abstract considerations do not suffice to justify legal rules under such a theory."¹⁰ The law cannot be measured by standards drawn from within itself. In fact, we are moving away from such attitudes, and the history of law is a record of continually wider recognition and more efficacious securing of social interest. Not the least of the problems presented in this century by such an evolution is to discover a rational mode of advising the court of facts of which it is supposed to take judicial notice.

The viewpoints expressed during the first two decades of this century were vigorous, though moderate and reflective. But the third decade began with a startling report heard throughout the fields of jurisprudence. In 1930, Jerome Frank, then a practicing lawyer and since a government administrator and judge, launched what was widely regarded as a broadside attack upon all prevailing conventional legal

7. *Id.* at 117.

8. POUND, *THE SPIRIT OF THE COMMON LAW*, esp. c. VIII, *Legal Reason*, 193 *et seq.* (1921).

9. *Id.* at 194.

10. *Id.* at 205. Compare Pound's statement, "Nowhere, indeed, has the deductive method broken down so completely as in the attempt to deduce principles upon which contracts are to be enforced." POUND, *AN INTRODUCTION TO THE PHILOSOPHY OF LAW* 264-5 (1922).

attitudes.¹¹ Both lawyers generally and the public, he declared, suffer from a basic illusion about the law. This is, that the law is or can be made certain and predictable. The source of this illusion, or myth, is the persistence in most adults of an infantile longing or need for a father-authority. The law thus becomes a substitute for the attributes of firmness, certainty and infallibility ascribed in childhood to the father. This analysis exposes the weakness of formal logic as employed in law. Courts can decide any case either way and make their reasoning appear equally flawless. In law it is the conclusion which determines the premises, rather than the contrary. The chief use of legal rules and principles is to enable judges to give formal justifications of the conclusions at which they otherwise arrive. These formulas are thus devices for concealing rather than revealing what the law is. At their worst they hamper the clear thinking of judges, compelling them to put their thoughts into traditional forms, thus impeding the spontaneous running of ideas. At their best, when properly employed, they enable a judge to check a conclusion otherwise arrived at to see if it can be linked with the generalized points of view previously held acceptable.

Frank proposes no positive program or formula, rather indicating that the only hope for a wise administration of the law is somehow to insure the selection of wise, mature and well-adjusted judges. He has continued to contribute to legal literature, the main theme in many of his contributions being an emphasis on the crucial importance of fact-determination in litigation. This, together with his distrust of legal rules and principles, finally leads him, in his latest work, to propose a considerable expansion of the area of judicial discretion in all lawsuits.¹²

In one of the numerous discussions engendered by Frank's 1930 contribution, Mortimer Adler and Walter Wheeler Cook, both eminent academicians, debated the role of legal logic. Adler said that Frank was attacking a straw man in denouncing logic as a basis of judicial reasoning.¹³ The subject matter of formal logic does not embrace the psychological phenomenon of thinking, as Frank seems to believe. Demonstration properly consists in finding grounds for conclusions, and thus testing them by the availability of adequate grounds. Formal logic is properly not an instrument of discovery but of demonstration. The study of law in the empiric observational sense and in the formal academic sense are different subjects, which are related but not identical.

11. JEROME FRANK, *LAW AND THE MODERN MIND* (1930).

12. JEROME FRANK, *COURTS ON TRIAL* (1949). Full and frequent citations of Frank's previous publications will be found in the footnotes of this book. For a critical review, see Loevinger, *The Semantics of Justice*, 8 ETC. 34 (1950).

13. Adler, *Legal Certainty*, 31 COL. L. REV. 91 (1931).

Walter Wheeler Cook replies that the disclaimer filed on behalf of logic ignores the fact that lawyers and logicians have long claimed logic to be in some manner the science of correct thought.¹⁴ If the formal academic study of law is truly a purely formal discipline, then it is not law but simply a generalized branch of mathematics. We shall make the most progress in our thinking if we keep in mind that deductive logic is not a method of proof, but simply the most compendious and economic method of dealing with a multiplicity of facts yet developed. But its use is possible only when a high degree of precision has been attained and the interrelation of different classes are well understood. The conclusion, clearly implied, is that these conditions not yet having been reached in the law, deductive logic is not usefully applicable.

During the 1930's several writers, apparently influenced by Frank, said, with a good deal of charm and biting wit, that the reasoning and language of the law were merely a facade, covering and concealing the real working of the legal system from lawyers and layman alike.¹⁵ Naturally enough there was little interest in attempting to analyze or formalize this meaningless hocus-pocus of legal ratiocination. During the last decade, however, there have been some signs of a growing concern with the subject of legal logic together with an inclination to try to come to grips with its nature and problems.

In an article published in 1942, Patterson draws from some of the shifts in viewpoints of modern philosophy and logic suggestions for new views of the place of logic in the law.¹⁶ To begin with, they dispel the view that logic can guarantee either that self-evident or a priori truths can be discovered and used deductively to formulate legal rules, or that legal rules can be so formulated as to leave the judge no discretion in applying them. The logic of law is the logic of probability in the Keynesian sense—that conclusions *partially* (or probably) follow from certain premises, rather than that they *necessarily* follow. Law should also use the instrumental logic of Mill, Peirce and Dewey, which denies that decisions by a blind hunch will, in the long run, produce as good results as those which are preceded by conscious, reflective inquiry, even though the conclusions are not susceptible of mathematical demonstration. The giving of reasons for decisions by judges is similar to, but not necessarily the same as, logic. The three types of argument which are most popular with reason-giving judges are analogy, *reductio ad absurdum* and a *fortiori*. Reasoning by analogy consists of reason-

14. Cook, *Legal Logic*, 31 COL. L. REV. 108 (1931).

15. ARNOLD, *THE SYMBOLS OF GOVERNMENT* (1935); *THE FOLKLORE OF CAPITALISM* (1937); RODELL, *WOE UNTO YOU LAWYERS* (1939).

16. Patterson, *Logic in the Law*, 90 U. OF PA. L. REV. 875 (1942).

ing from particular to particular (or from case to case) without explicit generalization. Reductio ad absurdum rests on the logical theorem that if a proposition implies its own contradictory it must be false. However, it is a dangerous argument in the legal field, because it encourages over-generalization and failure to make important discriminations. It often is used in a manner to conceal an assumption which is the crux of the argument, and so involves the fallacy of question-begging. This form of reasoning is easily used against any innovation, and thus appeals to cautious judges who fear novelty in any form. Argument a fortiori depends upon logical relations of class-inclusion. It is a valid form of argument provided that it is based upon a classification sufficiently precise to control the meaning of its terms. This is not the case in the contextual setting of the law, and therefore it is not ordinarily a fruitful form of discourse in this field. As a whole, Patterson believes, legal reasoning is more likely to be materially erroneous than formally fallacious, since lawyers and judges usually reason in a way consistent with the rules of logic even though they do not know the rules. In the long run, however, we will get better results if the resources of logic are utilized in the law.

A few years later Becker pointed out that both the traditional method of legal reasoning by seeking to bring the facts of a case within the general statement of some legal principle, and the method of reasoning by analogy, in which cases are related on the basis of facts without express formulation of a principle, necessarily involve the omission from consideration of some of the facts.¹⁷ Such an omission implies a judgment as to relevance, which, in turn, must be based upon a moral or ethical principle or preference. Thus both methods of legal reasoning involve moral assumptions inherent in their classifications but not explicit in their formulation. Ultimately the questions as to whether or not the body of past cases permits significant generalizations and whether or not future judicial decisions are predictable cannot be decided by argument about philosophical theories, but must depend upon experiment and sound scholarship. The difficulty with the theories of legal philosophy and logic to date has been their failure to present a methodology capable of application to the analysis and decision of the daily grist of problems.

Stone, in a brilliant critical essay, remarks that English courts since medieval times have legislated under the pretence of logical deduction from existing legal principles.¹⁸ He lists and gives examples of a num-

17. Becker, *Some Problems of Legal Analysis*, 54 YALE L.J. 809 (1945).

18. Stone, *Fallacies of the Logical Form in English Law*, c. 33 in *INTERPRETATIONS OF MODERN LEGAL PHILOSOPHY* (1947).

ber of legal categories which do not yield any one necessary answer by their use, but invite and even compel the court to decide cases on the basis of preference or social considerations. In effect, he says that the legal categories in common use are either meaningless, multiple or indeterminate in reference, overlapping and duplicitous in reference, or circular. However, the consideration of precedents does tend to direct the judicial attention to the conditions of problems and present a rapid if incomplete review of social contexts. But the failure of judges to recognize their own logical freedom may cause them to ignore important social considerations.

One of the most extensive and elaborate inquiries into legal reasoning is contained in a recent book by Dean Levi of Chicago.¹⁹ Levi takes his point of departure from Frank's thesis that it is mere pretence to regard the law as a system of known rules applied by a judge. Legal rules are never clear enough for unmistakable application; and if it were necessary that a rule should be this clear before becoming law, then it would be impossible to secure sufficiently wide community approval of any rule to enable it to become law. Legal categories are, and must be, vague²⁰ in order to permit their adaptation to new situations and the infusion of new ideas. Levi analyzes in detail the development of particular doctrines in three fields: case law, statutory interpretation, and constitutional construction. He concludes that the pattern of legal reasoning is that of inference by example or analogy. However, he states that this is a three step process, in which, first, similarity is observed between the case in hand and a prior case; second, the rule of law inherent in the first case is announced; and third, the rule of law is made applicable to the second case. The analogies drawn from legal precedents can be expanded to include new subject matter, and thus provide the flexibility needed in the law. Legal reasoning is unique, with a logic of its own. Its virtue is that it is adapted to dealing with vague categories, which enables it to command the loyalty of the community even though there is not complete agreement as to the precise meaning of any of the categories.

A somewhat similar viewpoint was expressed in the same year by an English writer, Dennis Lloyd.²¹ Referring to the comments of Holmes on the role of logic in the law, Lloyd suggests that logic has

19. LEVI, AN INTRODUCTION TO LEGAL REASONING (1949), first published in 15 U. OF CHI. L. REV. 501 (1948).

20. Levi himself uses the term "ambiguous" to indicate the property he considers necessary to legal categories. However it is obvious that he is referring to the property of vagueness. See BLACK, LANGUAGE AND PHILOSOPHY c. II (1949).

21. Lloyd, *Reason and Logic in the Common Law*, 64 L. Q. REV. 468 (1948).

about as much influence in the law as in everyday life—which he says is almost none. Regardless of the fact that courts sometimes use language indicating that they are making logical deductions, in fact there is no logical compulsion about a judicial decision, and the judges are merely applying their sense of reasonableness. Law is a rational process in the sense that its judgments are based upon reasoned principles, whether of expediency, the balance of convenience, moral principles, or similar considerations. But these are extraneous to the legal rules themselves. The extent to which the courts can apply such considerations is limited somewhat by the binding nature of precedents, but the process of reasoning from precedents leaves wide scope for discretion. The direction of development of the common law has been toward incorporation of the principles of “reasonableness” into both the formal rules of law and their judicial application.

A highly provocative viewpoint based upon the analogy of field theory in physics and the operation of judicial logic has recently been advanced by Felix Cohen.²² He suggests that as the forces of physical energy are deflected when passing through an electromagnetic field, so the lines of judicial reasoning will undergo a shift when they enter a neighborhood of high value tensions or feelings. Our judgments generally undergo such a shift as will strengthen and reinforce the basic valuations in any field of strong emotions. For example, in everyday life we tend to attribute our successes to our own virtues and our failures to external circumstances. When we view the work of others we are apt to find that their successes are due to the force of circumstances, whereas their failures were due to their own faults. Applying field theory to judicial logic, we can formulate some specific hypotheses: 1. The more reprehensible the conduct of the defendant, the more readily will judges find a causal connection between the conduct of the defendant and the injury of the plaintiff. 2. The more hateful the personality of the defendant the more readily will judges find a causal connection between his conduct and plaintiff's injury. 3. A judgment against a highly respected citizen has a larger precedent value than a judgment against a despised person; and conversely, a judgment in favor of a despised person has a larger precedent value than one for a pillar of society. 4. A value differential in the attitude of judge and jury towards a given class will be reflected in differences of judgment as to whether individuals of the given class are responsible for the wrongs complained of.

22. Felix S. Cohen, *Field Theory and Judicial Logic*, 59 YALE L.J. 238 (1950). Felix S. Cohen is the lawyer son of philosopher Morris R. Cohen.

Most recently, Julius Cohen has pointed out that what is said about judicial reasoning is usually equally applicable to the legislative process.²³ For the realist, policy-making is the common denominator of the judicial and the legislative process. Certain recent hearings indicate that Congress is not interested in securing evidence on the merits of proposed legislation, but only in hearing testimonials for the various viewpoints. By and large the "noise principle" suggested by William James is still the dominant force in legislative policy-making. While we cannot be as accurate in social as in physical sciences, yet there is both the need and the possibility of utilizing much of our scientific knowledge and objective methodology of investigation on the legislative level.

The writings that are mentioned here are, of course, not all of those explicitly considering the subject of legal or judicial logic. In addition to these, there is a body of literature too vast even to be listed within the compass of one article which, by virtue of concern with one or another problem involving legal reasoning, is at least relevant to this topic. However, the viewpoints summarized here do fairly indicate the general contemporary lines of thought in this field.

It is evident that most modern legal thinkers deny that legal reasoning does or can be made to follow the syllogistic pattern. There is some disagreement as to whether that pattern has any substantial utility for the legal process, but fairly general agreement that, in any event, there must be more conscious attention to the data of social experience than the traditional approach of the legal process allows.

What is most remarkable in a review of the literature of legal logic is the almost complete absence of any serious attempt at formal analysis of legal reasoning. Apparently to lawyers logic has meant, in a formal sense, reasoning by means of the traditional Aristotelian syllogism, or, in an informal sense, any use of legal rules that is somehow intuitively felt or thought to be correct. From this viewpoint, there obviously wasn't very much to be said about formal logic beyond what had been said many times in the standard textbooks. In the informal sense, all legal dialectic was an exercise in legal logic; but the logic itself, as an intuitive judgment, was not subject to analysis. Therefore, only the legal rules themselves, and not the form of the argument, were subject to critical examination. Occasionally the argument was dressed up a bit by observing that the "form" of reasoning adopted was that of analogy, or precedent. But this was hardly doing more than giving a name to the intuitive judgment. It is notable that Levi uses "analogy" to mean generalizing a rule from a prior case and then bringing a subse-

23. Julius Cohen, *Towards Realism in Jurisprudence*, 59 YALE L.J. 886 (1950).

quent case within the rule, whereas Patterson adopts the more generally sanctioned usage by employing the term to mean reasoning from case to case by observing similarities without explicit generalization. However Levi, who certainly offers the most thorough attempt to apply his own theories of legal reasoning, seems to illustrate first the one, then the other use of the term.

In general, legal writers have shown little knowledge or recognition of the fact that in modern thinking logic has progressed far beyond the simple dichotomy of syllogism or intuitive judgment. Perhaps this is because it is only within the last half century that the significant part of this development has taken place, and its influence is just beginning to extend to other fields. It may also be at least partially due to the fact that modern logic in all of its recondite ramifications is a most formidable and difficult discipline. If only those lawyers who were its thorough masters were qualified to speak, then—so far as this writer knows—there would be no one to express an opinion. Fortunately it is not necessary to master all of the subject matter and techniques of modern logic in order to utilize some of its insights.

II

In any view, logic is inseparable from the use and manipulation of symbols. The traditional or deductive logic consists of rules for the arrangement of propositions. These are themselves arrangements of symbols representing classes and relations between classes. It has long been recognized that the rules of deductive logic give no warrant for believing in the truth of conclusions arrived at, which depends upon the relation between the symbols and the things referred to, as well as upon the arrangement of the symbols in accordance with the rules of logic. This being so, even though the formal rules permit a number of combinations of propositions, the actual relations between the classes represented by the symbols limit the variety of combinations which we feel free to attempt with any given set of postulates. Conversely, the necessity of using conventional language and terms to represent classes of things limits the number and variety of relations that can be clearly expressed or manipulated.

These considerations led to the introduction of mathematical or postulational symbols into logic in place of terms.²⁴ This means the

24. Mathematical or "symbolic" logic began with the works of BOOLE, *THE MATHEMATICAL ANALYSIS OF LOGIC* (1847; republished 1948). The acknowledged masterwork in the field is WHITEHEAD AND RUSSELL, *PRINCIPIA MATHEMATICS* (1910-13). See TARSKI, *INTRODUCTION TO LOGIC* 19 (1941), or any standard work on "symbolic logic."

use in logic, as in mathematics, of symbols that have no specific meaning. Instead of propositions we have propositional functions, and logic becomes a kind of algebra.²⁵ To illustrate, the sentence, "Aristotle is a man" is a proposition. "Aristotle" is a symbol which is supposed to represent some specific individual; and "man" is a symbol to represent a class of things which contains the specific individual represented by the symbol "Aristotle". On the other hand, if we say "A is m" that is a propositional function. "A" and "m" are both variables that can mean whatever we wish them to mean, within the limits of rational reference. The propositional function can mean "Aristotle is a man" or "A horse is a quadruped".

The use of algebraic, or as it is usually called "symbolic", logic permitted a vastly wider range of permutations and combinations to be attempted than was possible with syllogistic logic, offered a much more precise method of formulation and arrangement, and thus enabled logic to deal with considerably more complex problems than had ever before been possible. Among other things, this has disclosed to scholars that four of the nineteen classical Aristotelian syllogisms are invalid and that the remainder can be reduced to five theorems, and has enabled logicians to solve complex and difficult problems in engineering, business and certain fields of law that were apparently insoluble by any other methods.²⁶

Concomitantly with the development of what might be termed the use of meaningless symbols in logic, there has developed a field of inquiry into the relations between symbols and symbols and between symbols and things which constitute the core of meaning itself. This area has been called "semantics".²⁷ Some regard it as a part of the field of logic; others regard logic as a subdivision of semantics. Having no great importance, that difference in viewpoint has engendered little controversy. No one doubts that modern logic and semantics are as closely related as law and politics or war and diplomacy.

25. See KEYSER, *MATHEMATICS AS A CULTURE CLUE 3 et seq.* (1947).

26. Pfeiffer, *Symbolic Logic*, 183 *SCIENTIFIC AMERICAN* 22 (1950).

27. A provocative discussion of the relation between logic and semantics by Bures and Hayakawa may be found in 9 *ETC.* 35 (1951). See also note 35 *infra*. The literature of semantics itself is too extensive for brief summary. Those interested might profitably start with the following: Rapoport, *What is Semantics?*, 40 *AMERICAN SCIENTIST* 123 (1952); OGDEN and RICHARDS, *THE MEANING OF MEANING* (8th ed. 1946); KORZYBSKI, *SCIENCE AND SANITY* (3rd ed. 1948); CHASE, *THE TYRANNY OF WORDS* (1938); MORRIS, *SIGNS, LANGUAGE AND BEHAVIOUR* (1946); HAYAKAWA, *LANGUAGE IN THOUGHT AND ACTION* (1949); RAPOPORT, *SCIENCE AND THE GOALS OF MAN* (1950). For an excellent—and unique—discussion of the significance of semantics for law, see Williams, *Language and the Law*, 61 *L.Q. REV.* 71, 179, 293, 384 (1945), 62 *L.Q. REV.* 387 (1946).

A third direction of exploration for modern logicians has been into the foundations of probability theory. The results in this area have, so far, been somewhat less spectacular than those in the fields of symbolic logic and semantics. Nevertheless enlightening and useful ideas have been developed. The vague undifferentiated idea of probability has been split into two distinct concepts.²⁸ The first, corresponding more closely to the popular usage of the term, can be roughly defined as the rational degree of expectation (of an event), or as the degree of confirmation of the logical relation between propositions. This is sometimes known as the Keynesian view after its most prominent modern exponent.²⁹ The second theory views probability as the relative frequency in the long run of an event, or, by derivation, of the truth of a proposition. This is the frequency theory, or the von Mises-Reichenbach view.³⁰ The frequency theory permits the attribution of a numerical value to a probability, which the Keynesian view does not. Both von Mises and Reichenbach, and many others, contend that the Keynesian view of probability must fundamentally rest upon the frequency concept, but this issue is not yet determined among philosophers.

Closely related to probability theory is the field of principles dealing with the measurement and description of groups of related phenomena—usually called “statistics”. A vast amount of concrete and very practical knowledge concerning the force and circumstances of permissible inductive inferences has been developed in this field. In particular, knowledge of the nature and theory of sampling has an almost universal application to the problem of drawing justified inferences from incomplete evidence of the facts.^{30a}

A fourth related, but distinguishable, aspect of the development of modern logic has been the contribution of a group concerned with the criticism and formulation of the methodology of empirical investigation—popularly, scientific method. Stemming largely from John Stuart Mill, this group includes an indeterminate number of distinguished thinkers.³¹ The most generalized statement of the view of this group is that of John Dewey, who holds that logical forms arise within

28. Carnap, *The Two Concepts of Probability*, in READINGS IN PHILOSOPHICAL ANALYSIS 330 *et seq.* (Feigl and Sellars ed. 1949); Weaver, *Probability*, 183 SCIENTIFIC AMERICAN 44 (1950).

29. KEYNES, A TREATISE ON PROBABILITY (1921).

30. VON MISES, PROBABILITY, STATISTICS AND TRUTH (1928); REICHENBACH, EXPERIENCE AND PREDICTION 297 *et seq.* (1938).

30a. Weaver, *Statistics*, 186 SCIENTIFIC AMERICAN 60 (1952).

31. See, *e.g.*, MILL, A SYSTEM OF LOGIC (1st ed. 1843; reprinted 1947); PEARSON, THE GRAMMAR OF SCIENCE (1st ed. 1892; reprinted 1943); BRIDGMAN, THE LOGIC OF MODERN PHYSICS (1st ed. 1927; reprinted 1948); DEWEY, LOGIC: THE THEORY OF INQUIRY (1938).

the operation of the process of inquiry, so that logic is concerned with the control of inquiry in order that it may yield warranted assertions.³² A characteristic of the thinking of this group is a rigorous semantic discipline, which requires that every concept justify itself in the process of inquiry. An example of the application of this procedure is the demand to know the physical meaning of "space" and "time" which led Einstein first to the special, then to the general theory of relativity, which resulted in the feat of "splitting the atom", and which burst upon popular consciousness with the detonation of the atom bomb.³³ It may be questioned whether the consequences of this application of modern logic are "practical", but it can hardly be doubted that they are significant.

The use of a similar approach to the field of legal logic immediately indicates that one of the principal reasons for the relative poverty of production in the field is the failure either to define the subject matter or the problem to be examined, or to formulate a frame of reference for the inquiry.

At the outset it should be obvious that there is no warrant for assuming that there is any kind of thing such as "legal reasoning" or "legal logic" in the sense of some distinguishable pattern generally present in the thinking of lawyers or judges. The uncritical implicit assumption that there is such a thing is probably due to the influence of the Aristotelian view that there are a few basic "laws of thought" which establish necessary patterns for all valid thinking. While most modern legal writers realize that other patterns besides the syllogism are required for a complete logic, the unconscious assumption seems to persist that there is a "kind" of thinking which can be ascribed to each intellectual activity.

But, as Northrop points out, the scientific method, even in the natural sciences, varies from one stage of inquiry to another.³⁴ It is meaningless to talk about method without specifying the character of the problem and the stage of inquiry. The method of thinking, or of inquiry, varies from one stage of a problem to another. With particular reference to law, analysis will show that there are at least six distinct stages in reaching a conclusion on a doubtful case or legal problem, whether it is presented in a court trial, administrative proceeding, law office conference or elsewhere.

(1) The judge (lawyer or administrator, as the case may be) must determine the point of conflict and the problem or issues involved.

32. DEWEY, *LOGIC: THE THEORY OF INQUIRY* c. 1 (1938).

33. See PHILIP FRANK, *MODERN SCIENCE AND ITS PHILOSOPHY* 19-20, 297 (1949).

34. NORTHROP, *THE LOGIC OF THE SCIENCES AND THE HUMANITIES*, Preface (1947).

Usually this is relatively easy for a judge who has pleadings presented to him by lawyers presumably skilled in sifting facts and presenting legal issues. It is even easier for an appellate court which has the assistance not only of the lawyers but also of the lower court. However, as every practising lawyer knows, this is often a vexing problem in dealing with clients. Many a man is certain he has been grievously wronged without having the slightest idea what, if any, the nature of his legal injury may be. That this matter is not always simple even for appellate courts is shown by the occasional disagreements on the upper benches as to what issues the appellate courts should decide on appeal.

(2) Having discovered the issues or points of conflict, the judge must decide on the area of relevance. This does not mean that a decision must be made in advance on all points of evidence, such as the possibility of collateral impeachment of witnesses. It does mean that the lawyers and court must know what the elements involved in the legal concept at issue are, and what the nature of the facts to prove such elements will be. Without such a mental outline a lawyer could not tell whether his client had a case worth suing on and a judge could not tell whether pleadings stated a case appropriate for relief or a cause of action, or whether a plaintiff had made a *prima facie* case. Further, this outline must be exclusive as well as inclusive. A lawyer cannot list all of his client's grudges against an adversary in the complaint, but only such as relate to the issues. Likewise, a judge will not permit the reception of evidence that does not bear upon what he has decided to be an issue in the case.

(3) Having defined the issues and the areas of relevance as to each, the judge and lawyers must then select the evidence tending to establish the facts relevant to each issue, and the judge must select from among conflicting bits of evidence those to which he will give probative value and must determine the relative probative values to be assigned to the various items of evidence.

(4) Having thus postulated the relevant facts, the judge must then select some standard of decision. Some issues may be easily determined by reference to a statute, once the facts are decided. In other cases, the judge may rely upon the precedent of former decisions. Other standards that may be used are the custom and tradition of the community, generally accepted ideas of social welfare, justice and community mores, and even the judge's own private ideas of morals, ethics or justice. It was essentially this problem that Cardozo was discussing in his analysis of the judicial process.

(5) Having selected a standard of decision, the judge must still analyze the controlling considerations implicit in the standard selected. With rare exceptions, self-evident principles are not to be gleaned from statutes, cases, traditions, ideas of social welfare, or even personal codes of justice. Statutes must be construed, cases must be gathered and analyzed, traditions and mores must be interpreted. Conceivably this might be done in terms so narrow as to fit only the case in hand. But the law strives to generalize. Thus the controlling principle distilled from whatever standard is resorted to will ordinarily be stated in terms at least slightly broader than the immediate case.

(6) Finally, the judge will reach the actual decision of the case by applying the principle thus arrived at to the facts thus determined. Where a single individual has taken each of the preceding steps, the final step of applying the principle selected for the case to the facts may be nearly automatic. But here again the dissents and reversals from our appellate courts warn that even where there is substantial agreement on issues, facts and applicable principles, there is still room for occasional disagreement on the final result. If the amount of damages or the provisions of a remedial decree are involved, this may even be the most difficult and doubtful step in the entire process.

Since these steps are merely stages in a single inquiry, they are, of course, not discrete or mutually exclusive. Even before determining the issues, it is obviously necessary to learn some of the facts. However, it will avoid much confusion to remember that what is true of legal reasoning at one stage of the legal process is not necessarily true at another. Thus it becomes useful to have a division into stages. The analysis suggested seems to be a convenient and useful one, but it is assuredly not intimated that it is the only possible one, or even the best or most useful one.

Before attempting to examine the patterns of legal reasoning at the several stages of the legal process, the semantic principles of modern logic require that the frame of reference to be used should be specified. There are at least four distinguishable viewpoints or levels of analysis which may be employed in examining the operation of the legal process at any one of its stages.

(A) The most common is what we may call the *ostensible*. Decisions of courts and opinions of lawyers are almost always accompanied by or based upon some kind of ostensible reasoning. They assume certain facts and employ some legal rules or principles to relate these facts to the conclusion reached. An examination of the opinions of courts and

the attempt to relate and systematize the principles stated is an example of analysis at the ostensible level. What lawyers call "research" is nearly always conducted within this frame of reference. The questions which can be asked within this frame of reference are: What facts are assumed in reaching the decision? and What reasoning or rationale is employed to relate these facts to the conclusion reached?

(B) The *logical* viewpoint or frame of reference implies quite a different approach. Whereas the ostensible level of analysis accepts the language of legal opinions at substantially its face value, the logical analysis inquires into the implications and significance of the terms and the context used. In the modern view, logic itself constitutes a different frame of reference than ordinary language. Logic, in the modern lexicon is a meta-language.³⁵ To put it simply, language is a system of terms that refer to objects or things, whereas logic is a system of terms that refer to language; or, as Carnap puts it, logic is the syntax of language.³⁶ The necessity for so regarding it arises from the fact that an inquiry into the validity of reasoning demands the use of some tools other than the reasoning itself. Reasoning, of whatever order, cannot validate itself. It was the failure to recognize this that led to the concern over the classical logical paradoxes that have puzzled and amused so many generations of college students. A simple example is this:

Every statement within these lines is false.
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If that proposition is true, then, since the proposition is itself a statement within the lines, it is false. But, if the proposition is false, then, since it refers to itself it must be true. No matter how regarded, the proposition implies its own contradictory. The solution of the paradox is in the principle that a class cannot be a member of itself. Statements about things represent a class of propositions of one order (the linguistic level); statements about statements represent a class of propositions of another order (the logical level). Thus a logical proposition about statements may refer to other statements but not to the one containing that proposition. It is important to remember that any attempt to analyze legal reasoning on the logical level means an inquiry into the validity of the reasoning, and therefore implies something more than an examination of the reasoning itself on its own terms. A comparison of the ostensible reasoning

35. The definitive work on this subject is CARNAP, *LOGICAL SYNTAX OF LANGUAGE* (Eng. ed., 1937). See also REICHENBACH, *THE RISE OF SCIENTIFIC PHILOSOPHY* c. 13, *Modern Logic*, esp. p. 226 *et seq.* (1951); MORRIS, *SIGNS, LANGUAGE AND BEHAVIOR* 181 *et seq.* (1946); TARSKI, *INTRODUCTION TO LOGIC* 58 *et seq.* (1941).

36. CARNAP, *LOGICAL SYNTAX OF LANGUAGE* (1937).

of other cases is not a logical analysis of the reasoning of one case. So long as the inquiry is confined to the reasoning employed in the opinions of any number of precedents and legal principles, the examination remains on the ostensible or linguistic level. However, when the inquiry extends beyond the language used to its necessary meaning and implications or to the form of reasoning used, then it is adopting the logical frame of reference. The questions that can be asked within this frame of reference are: What are the meanings of the terms and contexts used? What are the implications of the principles and conclusions adopted? What is the form of the reasoning employed? In the circumstances, is this valid reasoning?

(C) To be clearly distinguished from the ostensible and the logical viewpoints is the *psychological* inquiry.³⁷ Neither the ostensible nor the logical foundations of a decision are necessarily the reason for its adoption. This is most obvious in law office practice, where the lawyer frequently is called upon either to justify some action already taken or to invent a rationale that will permit his client to take some desired action. Although it is seldom the avowed judicial procedure, it is the contention of the "realists" that judicial conclusions are usually arrived at for psychological reasons unrelated to the ostensible or logical process of justification which subsequently appears in the opinion.³⁸ To take an extreme instance (which happily may be assumed to be rare), when a judge is bribed, his actual motives for reaching the decision announced will clearly have little to do with whatever reasons he may give publicly. Although less dramatic, a judge's prejudices, attitudes, experience and temperament all will influence him, perhaps decisively, in his judicial conduct. These influences may or may not be expressed in the ostensible reasoning given by the judge. They may or may not be revealed by logical analysis. Ultimately the determination of the psychological basis for judicial action can be established only by empirical investigation. An examination of cases can be, at best, only suggestive of psychological conclusions. The questions which are within the psychological frame of reference are: What are the motives that have impelled a judge to reach the conclusion, adopt the reasoning and assume the facts that he has accepted in any given situation? Such an inquiry can be generalized to

37. See RUSSELL, AN INQUIRY INTO MEANING AND TRUTH 106, 164, 238 *et seq.* (1940).

38. JEROME FRANK, LAW AND THE MODERN MIND (1930); *What Courts Do in Fact*, 26 ILL. L. REV. 658 (1931); *Say It With Music*, 61 HARV. L. REV. 921 (1948); COURTS ON TRIAL (1949); Hutcheson, *The Judgment Intuitive: The Function of the "Hunch" in Judicial Decisions*, 14 CORNELL L.Q. 274 (1929); *Lawyer's Law and the Little, Small Dice*, 7 TULANE L. REV. 1 (1932); ARNOLD, THE SYMBOLS OF GOVERNMENT (1935).

seek to discover the influences which usually move a particular judge, or even, what influences are predominate in the action of a group of judges. However, no inquiry confined to the usual legal sources can be more than suggestive of an answer. The psychological level of inquiry is concerned not with apparent or formal reasons or the implications of decisions, but with actual influences that are operative upon specific real individuals. These constitute objective facts the nature of which can be known with assurance only on the basis of scientific investigation.

(D) Related to each of the foregoing viewpoints, but constituting an independent frame of reference for the investigation of the legal process is the *empirical* inquiry. As has been stated, the questions arising within the psychological frame of reference can be definitely answered only by empirical inquiry. However, the empirical frame of reference is not confined to investigating the psychological foundations of legal and judicial opinions. It is legitimate to ask whether or not the facts assumed by a court in its decision are consistent with the facts to be ascertained by an objective scientific investigation, and whether the implications to be logically derived from a decision are compatible with observable facts relating to the subject matter of the propositions thus derived. Such questions as these are not to be answered by a formal analysis of legal material, but require scientific investigation by the techniques independently established in the natural and social sciences.

By distinguishing the various aspects of the legal process and the viewpoints from which they may be regarded, we can reconcile many of the apparent conflicts in the earlier writings on this topic. Holmes and those following his lead are quite right in asserting that the logical form does not compel any particular decision in a specific legal controversy. They are probably correct in asserting that the determinants of judicial action are attitudes, preconceived ideas regarding social advantage, prejudices and similar influences, although this does not necessarily follow from a demonstration of the fallacy of logical form. On the other hand, the traditionalists are justified in demanding that regardless of motivation legal decisions should be capable of logical formulation, justification and analysis. However, they err in assuming that the ability to put the ostensible justification for legal action in a logically valid form supports any inference as to the psychological foundation for the action.

With the exception of Jerome Frank, who has attempted to emphasize the influence of the selection of facts in determining the legal result,³⁹ most of the writers on this subject have tended to consider

39. See references cited for Jerome Frank in preceding note.

only the factors involved in selecting, analyzing and applying a standard of decision to a disputed case. Some, like Cardozo,⁴⁰ have emphasized the factors involved in the selection of an appropriate standard of decision. Others, like Stone,⁴¹ have emphasized the stages of application of the controlling principles to the case in hand. Levi handles his material almost wholly within the framework of ostensible or conventional legal reasoning.⁴² Stone⁴³ and Patterson⁴⁴ adopt and maintain the logical viewpoint rather consistently. Jerome Frank⁴⁵ and Felix Cohen⁴⁶ base much of their analysis upon material derived from the psychological frame of reference. Morris Cohen,⁴⁷ Roscoe Pound⁴⁸ and Julius Cohen⁴⁹ tend to emphasize the empirical viewpoint as the foundation for their views.

Some legal thinkers have fallen into fallacies by seeking to base conclusions within one frame of reference upon premises drawn from another. Logical validity requires that conclusions be based only upon premises arising within the same frame of reference. This does not preclude the exchange of data between viewpoints, but it does require that data be cast in concepts of the frame of reference within which they are to be used.

Nearly all legal writers to the present time, apparently misled either by the limited outlook of traditional scholastic logic or by remarks such

40. See note 6 *supra*.

41. See note 18 *supra*.

42. See note 19 *supra*. It should be noted that since the present article was written Levi has expressed ideas similar to some of those suggested here. He recently said: "Legal research cannot be fully effective if it is confined to the reported decisions of courts of last resort. What lawyer has not had the experience of reading a decision in a case he has tried, even a favorable decision, with the uneasy realization that the facts recited in the opinion, or on which the reasoning is based, are interesting—but are significantly different from what actually occurred Because the law is not an exact science we talk and act sometimes as though it were merely an art. We talk as though we did not believe in knowledge as distinguished from skill. But it is knowledge, integrity and perspective which distinguish lawyers from fixers. They make law valuable in society and essential to its continuity. Knowledge implies knowing the truth and truth is correspondence between our idea of a thing and the reality of the thing itself. Truth in the law is something more than a set of self-consistent principles (although that is important too). Truth in the law requires that the ideas of law coincide with the realities of the society which it governs. Thus research in the law must encompass both the ideas and the facts." Levi, *The Graduate Legal Clinic: Restoring Lawyers' Research Responsibilities*, 38 A.B.A.J. 189 (1952). It appears that Levi is here indicating the need for legal research on the empirical level. However he does not consider what significance this may have for legal reasoning.

43. See note 18 *supra*.

44. See note 16 *supra*.

45. See notes 12 and 38 *supra*.

46. See note 23 *supra*.

47. See note 5 *supra*.

48. See notes 8, 9 and 10 *supra*.

49. See note 23 *supra*.

as the epigrammatic comment of Holmes, have mistakenly assumed a false alternative between the use of logic and experience or empirical data in the legal process.

III

Every legal controversy is, of course, decided on certain facts. The facts may be agreed upon, assumed or inferred by the court from evidence. It is fundamental doctrine of the common law that the facts which shall be considered in connection with any particular case shall be only those relating directly to that case. In other words, the facts that may be considered by a court in determining a given controversy are limited to those which are sufficient to bring that controversy within one or another established legal category. Thus the common law conventionally establishes an area of relevance for all matters to be decided by it which almost inevitably excludes evidence relating to considerations of the kind ordinarily invoked by the phrase "social significance" (although as pointed out later, this does not prevent such considerations from exercising a covert, but often potent influence).

As a result, the techniques for which the law has had utility and which have been developed within it are limited to those appropriate to the investigation and consideration of controversies arising within a very narrow scope.

Modern codes, including the rules of civil procedure applicable in federal courts, generally provide that the pleading of a party seeking the aid of a court shall contain merely a short and plain statement of the claim showing that the party is entitled to relief, together with a demand for the relief to which he deems himself entitled.⁵⁰ Theoretically the technical requirements of the old common law cause of action have been abolished. Nevertheless the courts in this initial stage of the process universally require that a party seeking their aid should assert facts which are more or less similar either to those assumed by the court to exist in some prior case in which relief was granted or specified by statute. In the initial stage of the inquiry when courts are called upon to determine whether or not there is a situation presenting issues that can properly be litigated, the form of legal reasoning is almost always by analogy.

From the viewpoint of the lawyer this is even more clear. It is common practice for lawyers to draft pleadings from the models presented by pleadings in former cases that have been before the courts. It

50. FED. R. CIV. P. 8 (a).

is usually thought that it is of less importance to present the peculiarities of the facts in the specific situation than it is to make the situation appear to be one that is similar to others that have previously been before the court. Usually very little generalization is involved and the attempt is made to compare situation with situation point by point on the basis of specific facts. The initial stage of the legal process therefore tends to involve reasoning from particular to particular without explicit generalization, which in the strict sense is the essence of reasoning by analogy.⁵¹

In the second stage of the process where the problem is to define the area of relevance the analogy is usually discarded. It is conceded, even in the view of the common law, that all cases have certain distinguishing individual characteristics and it is the pride of the common law that these be considered. Accordingly, the area of relevance within which the parties may offer evidence is ordinarily established by taking the bare outline of the factual situation and fitting it into some established legal category. The process is one of classification which is similar to the process of diagnosis in the medical field. This fits into the pattern of deductive logic.

The significance of the classification at this stage, however, does not arise from the fact that the controversy is subsumed under a particular category, but rather from the nature of the scheme of classification that is used. If the categories comprising the scheme used are broad and general then there is less change of error or injustice in classifying a specific case and there is also a wider area of relevance permitted as a result of any classification. The narrower the categories, the more detailed and discriminating will the classification be, and the greater the chance of error.⁵² The logic of the biological and physical sciences indicates that there is no point in attempting a discrimination which is finer than the problem requires or than the available techniques will usefully permit. It is easy enough to devise a detailed scheme of classes involving subdivisions for nearly every conceivable variant of a broader category. But unless there are significant differences between the subdivisions and unless there are reliable means of discriminating cases with respect to all of the subdivisions, then the result of such a complex classification is not increased accuracy but increased possibility of error and confusion.⁵³ Vagueness in categorization with consequent wide

51. KEYNES, *A TREATISE ON PROBABILITY* 222 *et seq.* (1921); MILL, *A SYSTEM OF LOGIC*, Bk. III, c. 20 (1843).

52. King, *The Meaning of Medical Diagnosis*, 8 *ETC.* 202 (1951).

53. *Ibid.* See also Furth, *The Limits of Measurement*, 183 *SCIENTIFIC AMERICAN* 48 (1950).

and indefinite areas of relevance may therefore be a virtue at this stage of the legal process.

The process of fact-finding by courts is, in many respects, the most important of the legal functions and yet it is relatively neglected by legal writers. The explanation for this probably lies in the fact that the material is difficult to gather. Normally, there are no published reports of the proceedings of trial courts, and the published opinions of appellate tribunals ordinarily contain only brief summary references to the trial process itself. While the published opinions of the appellate courts are equally available to all, the prevailing procedures in the trial courts are, by and large, known only to practicing lawyers and trial judges, most of whom seem to lack either the time or the inclination to write much of their experience. But since most legal writing emanates from the universities rather than from the law offices of the country, the majority of legal writers have little experience with the fact-finding process upon which to draw.

Nevertheless, it is in the trial courts that the bulk of the legal work is done. Of all the cases filed in the federal courts only about one-fifth ever come to trial. Over two-thirds of the total cases filed are disposed of by consent of both parties as to judgment or dismissal, and about one-sixth are disposed of either by default or by judgment on the pleadings. Of the cases tried, only about one-fourth are eventually appealed.⁵⁴ Although there is no convenient statistical source of corresponding data for the state courts, there can be no doubt that the proportion of cases disposed of without appeal is even larger. Certainly the overwhelming bulk of the work of the courts is done below the appellate level, and no consideration of the legal process which leaves this fact out of account can be completely satisfactory. It is probably in the process of sifting, selecting and weighing evidence that our court procedure is most inadequate. At the same time, it is in this field that modern logic and scientific method have made the greatest advances, and there is therefore the greatest possibility of borrowing and using tools from other fields.

It is a peculiarity of legal thinking that although it ostensibly eschews any quantitative standards, nevertheless it attempts to establish varying standards of proof which can have meaning only as they are quantitatively related to one another. In an ordinary civil proceeding the law requires that the moving party establish the facts necessary to his case by a "fair preponderance of the evidence". There are some

54. STATISTICAL ABSTRACT OF THE UNITED STATES, 1950, 140-142. It is not possible to make precise calculations of the disposition of all cases filed as the categories reported for the various years and courts do not correspond exactly.

situations, however, such as proof of undue influence, where it is required that the plaintiff establish his case by something more than a "fair preponderance of the evidence", a balance sometimes characterized by courts as "clear and convincing evidence". In criminal cases, as is well known, it is required that the facts be established by evidence "beyond a reasonable doubt". Obviously, the law has here accepted some kind of a logic of probability. However, the law has not utilized the techniques or terminology of probability logic.

There are many obvious objections to any attempt to quantify the legal terms used to express the degree of probability required of the evidence in various cases. Certainly any quantitative expression might be somewhat misleading inasmuch as no quantitative measure of evidence is yet available. Nevertheless quantitative expression would have at least one great virtue, in that language used would at least have some common meaning from case to case and time to time. The phrases now used by courts to express the degree of probability which must be established in various categories of cases are so various and vague that it is by no means clear that courts using the same phrase mean the same thing. Further, it is not at all sure that one court actually means different things when it uses different phrases. While there appears to be a real difference between a "fair preponderance of the evidence" and "clear and convincing proof", there is no obvious indication that there is a similar differentiation between the latter phrase and "proof beyond a reasonable doubt". At least some of this confusion might be avoided if courts were to adopt a terminology of probability logic. The conventional mode of representation calls for the use of 0 to indicate that a proposition is untrue or impossible, the use of 1.0 to indicate that a proposition is true or certain, and the use of intervening values to indicate the relative probability (or frequency) of its being true. On such a scale it might be said that a plaintiff must establish his case to a degree of warranted assertability of .51 or more in order to establish it by a fair preponderance of the evidence. Clear and convincing evidence might be set at a value of .60 or .70 depending upon the viewpoint of the court, and "proof beyond a reasonable doubt" might be set at a value of .90. Of course, these numerical equivalents would be of relatively little assistance in weighing the evidence in any particular case. However, they would be of very great assistance in comparing the views of different courts as to the degree of proof required in various types of cases.

Another advantage of attempting to specify and quantify the concept of the burden of proof is that it might lead courts to recognize

distinctions which should be made and often are made in practice, but which are not yet recognized in legal theory. In order to convict a man of a crime for which he may be fined \$10.00 or sentenced to 10 days imprisonment, it is theoretically necessary to establish his offense by the same degree of proof as is required to convict for a crime which may call for life imprisonment or electrocution. In practice, as judges and lawyers well know, juries are more difficult to convince in direct proportion to the severity of the possible punishment. Nevertheless, the law continues to talk and act as though it were appropriate to require the same degree of proof for a minor as for a major offense. If courts began to quantify their concepts it might become apparent that no greater degree of proof should be required for conviction on some minor offense than might be required in some important civil matter. On the other hand, the courts might well recognize that a much higher degree of proof should appropriately be required for conviction on a major charge.

The multitude of logical problems involved in the investigation of facts and the weighing of evidence is too great to permit detailed consideration here. However, since it is precisely in the development of empirical techniques of investigation that modern science has had its greatest triumphs, the relevance and significance of these techniques to substantially identical problems in the law should be apparent. The very least that can be said is that some systematic study of the principles of inductive reasoning, of the forms of interpolation, extrapolation, correlation and the theory of probability is essential to an understanding of the task of weighing evidence and determining facts. Nearly every trial which involves issues of fact more complicated than simple questions of personal identification necessarily involves problems of sampling. Most experienced trial judges have developed some rough notions of appropriate evidentiary requirements in such cases. However, explicit and detailed formulation of the principles of sampling occurs within the ambit of statistical theory and modern logic, but has not yet been generally recognized in legal thinking.

It is probably significant that the body of principles constituting the rules of evidence on the ostensible level are practically all rules of exclusion. With rare and relatively unimportant exceptions the rules do not call for the production of any particular kind or even quantum of evidence, but operate solely by excluding classes of evidence which the law does not trust its servitors to evaluate. Principles drawn from the logic of probability and induction would require the production of evidence appropriate to the proposition being asserted. This would

have the practical advantage of assisting lawyers and judges to see what evidence should be offered or received to constitute a satisfactory logical support for a given proposition.

A logical analysis of the rules of evidence also indicates that nearly all of them conceal assumptions as to the merits of the situations to which they are applicable. For example, in suits arising out of contract, no evidence as to the desirability or fairness of the bargain involved is normally permitted. Also, if the contract is embodied in writing, evidence as to the understanding of the parties as expressed verbally prior to the writing is excluded. It may very well be that both of these rules are desirable or necessary ones. However, it should be clearly recognized that each is based upon an assumption that it is more important to maintain and enforce contracts as written or agreed upon than it is to ascertain the real intention of the parties or the fairness of the transaction. Significant value judgments are thus concealed by these ostensible rules of evidence.

In such a field as negligence, where the rules of evidence ordinarily exclude evidence tending to show similar acts by the one accused of negligence, the rules conceal an assumption as to certain facts of human experience which is probably inconsistent with the best scientific findings on the subject. The evidentiary rule of exclusion is presumably based upon the assumption that evidence of other similar negligent acts is either of no probative value or of such little probative value as not to be worth the time of the court. However, this is in sharp conflict with the findings of modern psychology that certain individuals are "accident prone" and have a disproportionate number of accidents as a result of a predisposition to the kind of conduct which results in accidents, and that some individuals may even subconsciously desire to produce what they and others will call "accidents".⁵⁵ One of the tasks of legal logic is to expose such questionable assumptions, now concealed by the rules of evidence, and to require that their validity be determined by a check against the best available actual evidence.

It should be noted also that most of the ostensible rules of interpretation relating to constitutions, statutes or documents are, in effect, rules of evidence. The function of the rules of interpretation is to exclude inquiry into the actual psychological intention of the draftsman and into the circumstances in which the writing was drafted.⁵⁶ This is not to say that the rules may not be practically necessary or socially

55. SARGENT, BASIC TEACHINGS OF THE GREAT PSYCHOLOGISTS 298, 309 (1945); FREUD, A GENERAL INTRODUCTION TO PSYCHOANALYSIS, lectures 2, 3 and 4 (1920).

56. MORRIS R. COHEN, *The Process of Judicial Legislation*, in LAW AND THE SOCIAL ORDER 122 *et seq.* (1933).

justifiable. However, if so, the rules should be equally justifiable if formulated so that their ostensible statement is reasonably related to their logical function.

It is one of the curious paradoxes of legal reasoning that the courts which will refuse to accept any hearsay testimony (with a few exceptions) relating to the case before them, will usually refuse to accept anything but hearsay testimony relating to other cases that may be used as precedent. When a case is cited as a precedent, the facts will almost invariably be assumed to be as stated in the opinion, although it must be perfectly clear that the statement of facts in the opinion is at best hearsay, and sometimes second or third hand hearsay. Perhaps this attitude is justified on the grounds of practical policy but it at least suggests that the judicial abhorrence of hearsay with respect to the facts of a case on trial does not flow from the logical requirements of proof, but from accidental judicial traditions.

The stage of the legal process which receives the greatest amount of attention both from the courts and from writers on various aspects of legal procedure and philosophy is that concerned with the selection of the standard of decision. It is a perennially intriguing subject to writers to note the sources from which the judges seek to learn the principles applicable to particular situations. There is also an impression among many lawyers and judges that this stage of the process is peculiarly the judicial function, and that it is in this stage of the process that the major work of the courts is performed. It is probably because this stage of the legal process has received disproportionate attention that work on legal reasoning has been so relatively barren.

So far as selecting the standard to be used for determination of a specific controversy is concerned the intellectual processes involved are not likely to be confined to any particular form. It is, of course, traditional with common law courts to use precedent, or the analogy of previously decided cases, as a standard of decision. However, to say that the form of reasoning at this stage of the process is logically that of analogy is to miss the whole problem. No analogy is involved until after the court has determined to resort to precedent and has selected a specific analogue. The problem for consideration at this stage of the legal process is to ascertain why and how a particular standard of decision, such as precedent or analogy, is selected. An analysis which proceeds no further than to point out that the form of ostensible rationalization usually employed by courts is that of analogy is neither profound nor informative. The failure to carry the analysis further probably arises from a failure to recognize the frame of reference within

which the analysis is made. To carry the analysis beyond the ostensible level to the logical level makes it apparent that casting the ostensible rationalization of a decision in the form of analogy does not necessarily endow that rationalization with any particular logical validity. To view the ostensible form from the psychological viewpoint makes clear that the form of rationalization adopted is almost completely irrelevant to a determination of the controlling influences in the selection of that form of rationalization.

A significant question to be answered from the logical viewpoint at this fourth stage of the legal process is whether or not there is any ground for believing one form of legal standard to be more valid or useful than another. Another significant question is whether having chosen a particular form of legal standard, such as analogy, there is any logical ground for selecting one among several competing instances of this form as the most appropriate one for determination of the case in hand.

In a survey of the whole field of reported decisions, it should not be difficult to select enough examples to demonstrate, at least for the purposes of a particular argument, that the preferred ground of judicial decision is the analogue of precedent, the principles inherent in the body of the common law, the prevailing ideas and ethics of the community, or the private codes and standards of the judge. There can be little doubt that one or more of these, as well as of other standards, have been and are being applied by courts in more than a few cases.

However, so far as the selection of the standard of decision is crucial in any given case, it probably is because that case involves a matter peripheral to established concepts. Certainly the vast majority of cases coming before the courts fall readily enough into categories in which once the facts are established or assumed the standards of decision become either self-evident or readily found. The cases arising in areas of social conflict are likely, on the other hand, to invoke an appeal to conflicting standards of decision. The cases which are crucial, both for the operation and for the study of the legal process at this stage, are those in which there is no congruence between the vectors of precedent, the attitudes of the judge and the actual or asserted attitudes of the community. Any fair sampling of the latter group of cases indicates that the force of precedent, whether exerted in the form of principle or analogy, is comparatively impotent and unimportant when opposed to either public or private concepts of policy. This can be demonstrated without resorting to extrinsic theory by an examination

of the conduct of the courts when confronted with similar or identical issues at different times and in different circumstances.

One of the earliest and most dramatic of the Supreme Court's self-reversals occurred in the "legal tender cases", just after the Civil War. On February 7, 1870 the Supreme Court held, in a 5 to 3 decision, that an act of Congress making United States greenback notes legal tender for all debts was unconstitutional as beyond the powers granted to Congress.⁵⁷ Slightly more than a year later the court completely reversed itself and held, in a 5 to 4 decision, that the congressional enactment was constitutional.⁵⁸ In this case at least, the opinions of the Court leave no doubt as to the reason for the change in its opinion. Chief Justice Chase, dissenting in the second case, said:

A majority of the court, 5 to 4, in the opinion which has just been read, reverses the judgment rendered by the former majority of 5 to 3 . . . This reversal, unprecedented in the history of the court, has been produced by no change in the opinions of those who concurred in the former judgment . . . The court was then full, but the vacancy caused by the resignation of Mr. Justice Grier having been subsequently filled and an additional justice having been appointed under the act increasing the number of judges to nine . . . the then majority find themselves in a minority of the court, as now constituted, upon the question.⁵⁹

Justice Field, also dissenting, remarked simply:

I shall not comment upon the causes which have led to a reversal of that judgment. They are patent to everyone.⁶⁰

As Justice Field suggested, the reasons for the reversal of the Court's judgment in this situation are patent. Regardless of the ostensible rationalization employed by either side in their arguments, the change in the Court's decision was caused by a change in the personnel of the Court. Since the period of time between the two decisions, viewed in the light of our knowledge of history, is not sufficient to indicate a change in circumstances relating to this problem, it becomes apparent that the standards actually employed in reaching the two decisions involved were primarily the personal notions of policy of the judges.

57. *Hepburn v. Griswold*, 8 Wall. 603 (U.S. 1870).

58. *Knox v. Lee*, 12 Wall. 457 (U.S. 1871).

59. *Id.* at 572.

60. *Id.* at 634.

Probably in no field has the position of the courts over the years changed more radically than in the area affecting the rights of labor. In 1908 the Supreme Court took the position that a law outlawing the "yellow dog contract" for interstate carriers was unconstitutional as a deprivation of liberty and property without due process.⁶¹ The Court could find no connection between the conduct of interstate commerce and the union membership of railway employees. In 1915 the Court, upon similar reasoning, invalidated a state act outlawing the yellow dog contract.⁶² However, a decade and a half later the Court decided that the Railway Labor Act was constitutional even though it prohibited interference, influence or coercion by the employer with respect to the union organization of his employees, and, in the case before the Court, involved an order of contempt prescribing punishment for failure to reinstate employees who had been discharged for union activity.⁶³ The Court remarked, apparently in all seriousness, that the earlier case on the subject was inapplicable since the Railway Labor Act did not interfere in any way with the normal exercise of the employer's right to discharge employees. In 1937 the Court affirmed its position with respect to the Railway Labor Act, and took such a completely altered view of the relation between commerce and union membership that it found constitutional the National Labor Relations Act which applied a similar prohibition against discrimination or discharge for union activity to all industry "affecting commerce."⁶⁴

The attempt to regulate the wages and hours of labor shows a similar shift in the viewpoints of the judges. In 1898 the Court upheld a statute of Utah limiting the employment of workmen in underground mines to 8 hours a day as a valid exercise of the police power. In upholding the validity of this statute, the Court remarked that it "has not failed to recognize that the law is to a certain extent a progressive science," and is "forced to adapt itself to new conditions of society, and, particularly to the new relations between employers and employees, as they arise."⁶⁵ During the succeeding decade the progressive science of the law somehow managed to draw a distinction between a limitation of work to eight hours a day in mines and a limitation of work to ten hours a day in bakeries. A statute attempting to impose the latter rule

61. *Adair v. United States*, 208 U.S. 161 (1908).

62. *Coppage v. Kansas*, 236 U.S. 1 (1915).

63. *Texas & N.O.R.R. v. Brotherhood Ry. & S.S. Clerks*, 281 U.S. 548 (1930).

64. *Virginian Ry. v. System Federation No. 40*, 300 U.S. 515 (1937); *NLRB v. Jones & Laughlin Steel Corp.*, 301 U.S. 1 (1937); *NLRB v. Fruehauf Trailer Co.*, 301 U.S. 49 (1937); *NLRB v. Friedman-Harry Marks Clothing Co.*, 301 U.S. 58 (1937); *Washington, Virginia & Maryland Coach Co. v. NLRB*, 301 U.S. 142 (1937).

65. *Holden v. Hardy*, 169 U.S. 366 (1898).

was held unconstitutional in 1905 as an interference with the freedom of contract guaranteed by the 14th Amendment. The Court avowed, "This is not a question of substituting the judgment of the court for that of the legislature," but it is quite simply a question of whether or not the legislature has exceeded its power in enacting the statutory limitation upon hours of employment in bakeries.⁶⁶ The Court had no doubt that the constitution precluded such an exercise of legislative power. Three years later, in 1908, in the famous case of *Muller v. Oregon*, the Court held that a statute limiting the hours of employment of women in laundries to ten hours a day was constitutional.⁶⁷ The Court said that it did not in any way question the 1905 decision relating to the limitation of hours of work in bakeries but believed that such protection as afforded by the statute in this case was justifiable because of the weaker physical structure of women.

In 1917 the Court upheld a state law limiting employment in any mill, factory or manufacturing establishment to ten hours a day without mentioning its 1905 decision and regardless of any supposed difference in physical stamina between the sexes.⁶⁸ The next year the Court held that regardless of what might be done to safeguard the welfare of adult employees in manufacturing establishments, Congress was not justified in attempting to prohibit the interstate shipment of goods manufactured by child labor.⁶⁹ Four years later the Court affirmed the same position by holding that Congress could not achieve its objective of inhibiting the exploitation of child labor under the taxing power any more than under the power to regulate commerce.⁷⁰

At about the same time, the Court was making clear its opinion that although it might be proper to protect women by limiting their hours of labor, it was not proper to attempt to protect them by establishing minimum wages.⁷¹ This ruling was given in a case arising in the District of Columbia so that there was no question as to the extent of the Congressional commerce or taxing powers. The Court squarely held that it was an unconstitutional deprivation of liberty and property to establish minimum wages for women by law. The Court quoted extensively from its 1905 decision casting out the limitation of hours

66. *Lochner v. New York*, 198 U.S. 45 (1905).

67. *Muller v. Oregon*, 208 U.S. 412 (1908), followed in *Riley v. Massachusetts*, 232 U.S. 671 (1914); *Miller v. Wilson*, 236 U.S. 373 (1915); *Bosley v. McLaughlin*, 236 U.S. 385 (1915); *Radice v. New York*, 264 U.S. 292 (1924).

68. *Bunting v. Oregon*, 243 U.S. 426 (1917).

69. *Hammer v. Dagenhart*, 247 U.S. 251 (1918).

70. *Child Labor Tax Case (Bailey v. Drexel Furniture Co.)*, 259 U.S. 20 (1922).

71. *Adkins v. Children's Hospital*, 261 U.S. 525 (1923), followed in *Murphy v. Sardell*, 269 U.S. 530 (1925); *Donham v. West-Nelson Mfg. Co.*, 273 U.S. 657 (1927).

of work in bakeries. Justice Holmes, in a characteristic dissent, said that he thought that case should be allowed "a deserved repose." Thirteen years later, in 1936, the Court invalidated a statute of New York giving an administrative board the power to fix minimum wage rates for women on the grounds that such a law was unconstitutional under the 14th Amendment, just as the Congressional fixing of minimum wage rates for women was unconstitutional under the 5th Amendment.⁷² Four judges dissented. One year later, however, the balance of opinion in the Supreme Court had shifted and by another 5 to 4 decision the 1923 case was overruled and a state statute authorizing the fixing of minimum wages for women and minors was held constitutional.⁷³ In 1941 the same viewpoint was applied to the federal wage-hour law prohibiting the interstate movement of goods produced by employees whose wages and hours of employment did not meet prescribed standards.⁷⁴ With this decision the Court swept away all constitutional inhibitions against legislative action to protect men, women or children by establishing maximum hours or minimum terms of employment.

A similar shift in viewpoint is to be observed in the attitude of the Court toward the application of the antitrust laws to labor. In 1921 the Court held that despite the recently passed Clayton Act, labor unions were not exempt from the operations of the antitrust laws and the secondary boycott in aid of a strike might be enjoined.⁷⁵ In the same year the Court held that a state statute which attempted to deny the right to injunctive relief to an employer involved in a labor dispute was unconstitutional as a deprivation of property without due process contrary to the 14th Amendment.⁷⁶ However, twenty years later in 1941 the Supreme Court held in effect that labor unions are, when acting alone, completely exempt from operations of the antitrust laws and that a secondary boycott is not a violation of the Clayton Act.⁷⁷ Interestingly enough, the Court said that its decision was influenced by the policy expressed in the Norris La-Guardia Act which is a federal statute that does deny the right to injunctive relief to an employer involved in a labor dispute.⁷⁸

The evolution of the Court's attitude toward the commerce power of Congress is well known. Nevertheless, it is still interesting to con-

72. *Morehead v. New York*, 298 U.S. 587 (1936).

73. *West Coast Hotel Co. v. Parrish*, 300 U.S. 379 (1937).

74. *United States v. Darby*, 312 U.S. 100 (1941).

75. *Duplex Printing Press Co. v. Deering*, 254 U.S. 443 (1921).

76. *Truax v. Corrigan*, 257 U.S. 312 (1921).

77. *United States v. Hutcheson*, 312 U.S. 219 (1941); also see LOEWINGER, *THE LAW OF FREE ENTERPRISE* 80 *et seq.* (1949).

78. 47 STAT. 70 (1932), 29 U.S.C. § 101 *et seq.* (1946).

trast cases decided in different periods involving closely analogous situations. In 1895, the Supreme Court held that a combination which had acquired control of 98% of all of the sugar refined in the United States was not subject to the Sherman Act since manufacturing was not commerce even though the products might be intended for interstate shipment.⁷⁹ Half a century later, in 1948, the Court held that the Sherman Act applied to a combination among the sugar refiners of a single state who were engaged in fixing the price which they would pay for sugar beets grown in that state since the products of the refiners were ultimately sold in interstate commerce.⁸⁰ Although not expressly overruling the earlier case, the Court stated that it had "produced a series of consequences for the exercise of national power over industry conducted on a national scale which the evolving nature of our industrialism foredoomed to reversal."⁸¹

The judges had occasion to consider the application of constitutional principles to a matter closely touching their personal interest when the federal government passed a general income tax law. When first confronted with the imposition of a tax upon the income of judges, the Court held that the constitutional prohibition against diminution of a judge's salary while in office precluded the imposition of the tax.⁸² A few years later the Court extended the same principle to protect against taxation a judge who had assumed office after the income tax statute was passed, although it was not altogether clear exactly how his salary had been diminished.⁸³ With the passage of years, however, the judges apparently became less sure of their right to such privileged treatment, and by 1939, after the income tax had become a well established part of federal fiscal policy, the Court reversed its earlier position and held that the imposition of a non-discriminatory income tax on the salary of federal judges was not prohibited by the constitution.⁸⁴

A similar shift in viewpoint occurred with respect to the reciprocal immunity from taxation of the employees of state and federal government agencies. For nearly a century, from 1842 to 1937, the Court maintained the position that the salary of an employee of an instrumentality of the federal government was immune from state taxation, and that, conversely, the federal government might not lay an income tax upon the compensation of employees or officers of a state govern-

79. *United States v. E. C. Knight Co.*, 156 U.S. 1 (1895).

80. *Mandeville Island Farms v. American Crystal Sugar Co.*, 334 U.S. 219 (1948).

81. *Id.* at 230.

82. *Evans v. Gore*, 253 U.S. 245 (1920).

83. *Miles v. Graham*, 268 U.S. 501 (1925).

84. *O'Malley v. Woodrough*, 307 U.S. 277 (1939).

ment.⁸⁵ In 1939 the Court overruled and disapproved this whole line of cases, saying that the theory that a tax on income is legally or economically a tax on its source is not tenable, and that therefore the salary of an employee of a federal instrumentality is not immune from state income taxation.⁸⁶

In 1928 the Supreme Court held that the business of a private employment agency was not affected with the public interest so as to enable a state to fix the charges which might be made by the employment agency for the services rendered.⁸⁷ In 1941 the Court overruled this earlier decision holding that a state statute fixing the maximum compensation which a private employment agency might charge is not unconstitutional, since the business is one which is subject to control for the public good.⁸⁸ In an unanimous opinion, the Court said, "The drift away from *Ribnik v. McBride* has been so great that it can no longer be deemed a controlling authority. It was decided in 1928."⁸⁹—as though a mere thirteen years were enough to antique a Supreme Court precedent! The Court recognized that it was changing its viewpoint as to matters of public policy, but professed the position that rather than adopting a different view of public policy it was discarding policy as a test of constitutionality altogether. The Court said:

We are not concerned, however, with the wisdom, need, or appropriateness of the legislation. . . . [Since] those notions of public policy imbedded in earlier decisions of this court . . . do not find expression in the Constitution, we cannot give them continuing vitality as standards by which the constitutionality of the economic and social programs of the states is to be determined.⁹⁰

While it may be doubted that the Court has wholly abandoned any notions of public policy in its consideration of public issues, or indeed that it can do so, it is apparent from this decision that the notions of public policy recently held by the members of the Court are certainly much broader and more flexible than those embraced by the personnel of earlier courts.

The Supreme Court's changing views of public policy with relation to the regulation of prices are admirably illustrated by its rulings as to

85. *Dobbins v. Erie County*, 16 Pet. 435 (U.S. 1842); *Buffington v. Day*, 11 Wall. 113 (U.S. 1871); *New York ex rel. Rogers v. Graves*, 299 U.S. 401 (1937); *Brush v. Commissioner*, 300 U.S. 352 (1937).

86. *Graves v. New York*, 306 U.S. 466 (1939).

87. *Ribnik v. McBride*, 277 U.S. 350 (1928).

88. *Olsen v. Nebraska*, 313 U.S. 236 (1941).

89. *Id.* at 244.

90. *Id.* at 246-7.

fluid milk. In 1927 the Court held a state statute forbidding geographical discrimination in the price of cream purchased to be unconstitutional as impairing the private right of freedom of contract and as not reasonably related to the prevention of monopoly.⁹¹ In passing it might be noted that this last reason is a strange one, indeed, in view of the provisions of the federal Clayton Act. In any event, by 1934 the Court had so far changed its position that it was ready to hold, in the famous *Nebbia* case, that a state statute may constitutionally provide for fixing the price of milk both in the transaction in which it is purchased from the producer and that in which it is sold to the consumer.⁹² The Court disposed of the constitutional freedoms by remarking that they do not include the right to conduct a business so as to injure the public or any substantial group. A few years later the Court extended the same reasoning to bring similar power within the authority of Congress under the commerce clause.⁹³

The Court's notions of policy and propriety are not confined in their application to cases involving issues of burning public interest. In 1928 a rather technical issue came before the Court as the result of an action to remove a cloud on title to certain Chicago real estate. The plaintiff held a 198 year lease on the land and desired to tear down a building then standing on it and erect a new one. The owner of the fee denied the plaintiff's right to do this with the result that the plaintiff was unable to secure financing for its plans. The Court in an opinion by Justice Brandeis held that the plaintiff's bill would not lie.⁹⁴ "What the plaintiff seeks," said Brandeis, "is simply a declaratory judgment. To grant that relief is beyond the power conferred upon the federal judiciary. . . . The proceeding is not a case or controversy within the meaning of article III of the constitution."⁹⁵ Justice Stone, with admirable prescience, concurred in the result on the grounds that the judicial code did not give the courts the power to decide a case of this character, but said that the opinion putting declaratory judgments beyond the constitutional functions of the courts was itself a declaratory judgment and was not justified. The prevailing counsel in this case was Charles Evans Hughes. Apparently Mr. Hughes either was not convinced by his own advocacy or the passage of nine years altered his viewpoint. In 1937, Mr. Hughes having become in the meantime Chief Justice, a federal declaratory judgments act came before the Court and

91. *Fairmont Creamery Co. v. Minnesota*, 274 U.S. 1 (1927).

92. *Nebbia v. New York*, 291 U.S. 502 (1934).

93. *United States v. Rock Royal Cooperative*, 307 U.S. 533 (1939).

94. *Willing v. Chicago Auditorium Ass'n*, 277 U.S. 274 (1928).

95. *Id.* at 289-90.

was held to be within the powers conferred upon the federal judiciary by the Constitution in an opinion written by Chief Justice Hughes.⁹⁶ Although six of the judges who had been on the court in 1928 remained, there was no dissent.

One more recent shift in judicial outlook will sufficiently illustrate the point. In 1936 the Supreme Court invalidated the first Congressional attempt to establish an agricultural adjustment act, declaring emphatically that the federal government may not impose a tax, the purpose of which is to regulate and control agricultural production, under the general welfare clause or *under any other constitutional provision*.⁹⁷ Two years later, however, it was almost equally clear to the Court that Congress might constitutionally under the commerce power impose quotas upon the amount of agricultural products that a farmer might sell.⁹⁸ By 1942 the power of Congress over agricultural production was so easily recognized that the Court had no difficulty in holding that Congress might constitutionally control the production of wheat not intended for commerce but intended wholly for consumption on the farm, provided only that the purpose of the regulation was to control the market price of wheat under the commerce power.⁹⁹

These cases have not, of course, been chosen at random. They have been selected to illustrate the shifting viewpoint of the judiciary when confronted with problems which involve, or are claimed to involve, matters of important public policy. These cases are not, however, atypical of that class. Furthermore, the cases mentioned are only a sampling of the whole class. Many more could be gathered from the opinions of the Supreme Court, of the federal courts of appeal and of the various state appellate tribunals.

These series of cases should, however, destroy any vestige of claim which precedent-analogy may have to a controlling or determining influence in judicial decision. All of the series of cases mentioned above involve judicial consideration of closely analogous situations at different times. These are not loose analogies such as those existing between a gun and an exploding lamp, between poison and a defective automobile or between prostitutes and plural wives. These are close and strict analogies such as exist between one labor union and another, between the wages and hours in one commercial enterprise and another, between one sugar manufacturer and another, between the salary of a judge in

96. *Aetna Life Ins. Co. v. Haworth*, 300 U.S. 227 (1937).

97. *United States v. Butler*, 297 U.S. 1 (1936).

98. *Mulford v. Smith*, 307 U.S. 38 (1939).

99. *Wickard v. Filburn*, 317 U.S. 111 (1942).

one year and in another year, and between a declatory judgment in one decade and the succeeding decade. It should now be apparent that if the argument which conceives legal reasoning as being based upon precedent-analogy means merely that this is the form in which judicial rationalizations are commonly put then it is neither novel nor significant. On the other hand, if the argument is meant to imply that there is any force in either the form or substance of precedent-analogy which is capable of directing the result in a doubtful case, then it is false.

Even this might not be enough to cause the courts and lawyers to discard a traditional and convenient form of rationalization were it the only objection. There is, however, a much more serious objection to the use of precedent-analogy as the prevailing ostensible standard of judicial decision. This is that it requires (or permits) judges to ignore what they are actually doing and to pretend that they are not considering matters which are in fact the controlling considerations. In effect, the court talks out of both sides of its mouth depending upon the particular result which it seeks to achieve.

When the Supreme Court desires to exclude consideration of evidence drawn from non-legal sources it is likely to say :

The constitution does not require legislatures to reflect sociological insight or shifting social standards, any more than it requires them to keep abreast of the latest scientific standards.

On the other hand, when the Court desires to consider social circumstances not drawn from the body of legal precedent, it is inclined to say :

Regulations, the wisdom, necessity and validity of which, as applied to existing conditions, are so apparent that they are now uniformly sustained, a century ago, or even half a century ago, probably would have been rejected as arbitrary and oppressive. Such regulations are sustained, under the complex conditions of our day, for reasons analogous to those which justify traffic regulations, which before the advent of automobiles and rapid transit street railways, would have been condemned as fatally arbitrary and unreasonable. And in this there is no inconsistency, for while the meaning of constitutional guarantees never varies, the scope of their application must expand or contract to meet the new and different conditions which are constantly coming within the field of their operation. In a changing world, it is impossible that it should be otherwise.

Let it be clear that these statements represent differing ad hoc rationalizations, and not the expressions of spokesmen articulating fund-

amentally opposed legal philosophies. The first dictum, that legislatures are not required to reflect shifting social standards, is from an opinion of Justice Frankfurter delivered in 1948.¹⁰⁰ The second argument, that the meaning of the constitution changes as social conditions change, is from an opinion by Justice Sutherland delivered in 1926.¹⁰¹

The fundamental objection to the legal philosophy which regards precedent-analogy as the form of legal reasoning to be used at this stage of the process is that it constitutes the law a closed system. The materials from which the courts can draw from time to time for the determination of present and future controversies are by this view confined to materials which have been used by the courts in the past. The difficulty with such a system is that it cannot even maintain the level of information which it may possess at any given time. Just as in a closed system useful energy may be lost but not gained, so in a closed system information may be dissipated but not gained.¹⁰² Thus in a closed logical system, such as that

100. *Goesaert v. Cleary*, 335 U.S. 464, 466 (1948).

101. *Euclid v. Ambler Realty Co.*, 272 U.S. 365, 387 (1926).

102. WIENER, THE HUMAN USE OF HUMAN BEINGS 88 (1950); BRILLOUIN, *Thermodynamics and Information Theory*, 38 AMERICAN SCIENTIST 595 (1950). The proposition stated in the text that in a closed system useful energy may decrease but not increase is a paraphrase of the second law of thermodynamics. This states that in an isolated system (*i.e.* one contained in an enclosure through which no heat can be transferred, no work done and no matter or radiation exchanged) entropy (a measure of unavailable energy or randomness) may increase but cannot decrease. This principle has been found to be of such universal validity that Eddington says it holds "the supreme position among the laws of nature". EDDINGTON, THE NATURE OF THE PHYSICAL WORLD 74 (1928). However, Brillouin has expressed the view that while the validity of the law is beyond doubt the domain of its applicability should be phenomena of a terrestrial order of magnitude. He says: "The whole universe is too big for thermodynamics and certainly exceeds considerably the reasonable order of magnitude for which its principles may apply." Brillouin, *Life, Thermodynamics, and Cybernetics*, 37 AMERICAN SCIENTIST 554 (1949). In any view, this law is essentially an application of the principles of probability to physical phenomena, and is roughly equivalent to saying that the direction of change in the state of organization of any isolated system will be from the improbable toward the more probable. REICHENBACH, THE RISE OF SCIENTIFIC PHILOSOPHY 159 *et seq.* (1951); Brillouin, *Ibid.* Thus the entropy concept is capable of application to biological and psychic, as well as physical, phenomena. Ostow, *The Entropy Concept and Physical Function*, 39 AMERICAN SCIENTIST 140 (1951). Since, in communication theory, information is the degree of organization of data, it is equivalent to negative entropy, and is lost as entropy, or randomness, increases. Weaver, *The Mathematics of Communication*, 181 SCIENTIFIC AMERICAN 11 (1949). Consequently the principle that in a closed system information may decrease but not increase is a deduction from the nature of the entropy and information concepts and is not merely an analogy between physics and communication theory. On the other hand, law is not in a strict sense a "closed system" of the kind postulated by this principle. Nevertheless, since the principle of "information decay" is a statistical one, to the degree that law tends to be a closed system, the principle applies. Therefore, to the degree that the decision-by-precedent principle tends to constitute law a closed system, we are justified in applying the principle of "information decay", even though law may never actually approach the limiting case of a completely closed communications system.

postulated by the precedent-analogy theory, the relationship between action and information can only deteriorate and not improve.

While it is certainly true that judges necessarily living in society and being subject to all of its influences do consciously or unconsciously absorb and officially utilize information from non-legal sources, still it should be apparent that this is a most haphazard institutional arrangement. It is impossible to tell what information any given judge may have absorbed at any particular time or may feel inclined to refer to in any particular case. Furthermore, there is not only no safeguard against error, there is not even any method of sifting, examining or testing the information that may be thus absorbed by the judges.

It, therefore, seems apparent that if legal reasoning is to have any pretensions to logical validity with respect to the standards of decision adopted and utilized, it must adopt such forms and techniques as will permit it explicitly to receive and examine evidence relating not merely to the facts of a particular controversy but also relating to the social context out of which that controversy arises. This does not mean that every case shall become a debate regarding the relative merit of conflicting social policies. It does mean, however, that when any case involves, or is claimed to involve, a conflict in social policies, then that question shall be regarded as one to be decided by the courts upon evidence offered, examined and received just as any other question in a lawsuit. This also means that precedent-analogy may be used as the form of legal reasoning for selecting the standard of decision not as a matter of convention, but only in cases where there is in fact an analogy which is materially valid.

The form of inductive, or empirical reasoning has every bit as much claim to guide the work of the courts at this stage of the legal process as has the psuedo-deductive form of precedent-analogy. To say that either one should be the exclusive instrument of legal reasoning is to take a cripplingly narrow view of the legal process. So long as the law continues to deal with the wide variety of cases that are now its province, and until some new logical forms are devised, the law will be able to function adequately only if it is able to draw its standards of decision both from recorded precedent and from the great changing world of social conditions lying outside the courtrooms.

It is possible that one of the reasons for the comparative indifference of the bar generally to "theoretical" discussion of the legal process is that the problems being considered do not appear to be familiar ones. The law school training of lawyers is, or has been, concerned almost exclusively with deriving the controlling considerations from predetermined

standards of decision. "Legal research" as taught in law schools does not mean searching for new and informative data to shed fresh light upon a problem, but rather means trying to collect as many examples as possible of a particular form of judicial expression. The "case method" means extracting attractive rationalizations from reported opinions of past cases for use in justifying the conclusion to be reached in a present case. Since this method is now practically universal in American law schools, it sets the pattern for the American lawyers' approach to professional subject matter. The practicing bar, therefore, both on and off the bench, tend to view the problems of law in terms of the ease or difficulty of finding precedents that may be useful in a particular lawsuit. Law Review discussions of the sources from which the standards of decision should be drawn come, therefore, to appear "theoretical" and "academic."

In spite of the fact that law school training for a number of years has been directed primarily toward the derivation of controlling principles from established judicial precedents, we have never developed a very high order of either individual or institutional skill in the process. The main reason for this is that we have dealt with the material in terms of linguistic symbols without ever taking the trouble to learn the proper use and limitations of such symbols.

Lawyers are taught to deal with precedents in terms of such concepts as "contract", "property", "person", "negligence" and similar legal symbols. Little emphasis is given to the fact that each of these terms is used in such a wide variety of situations that none of them retains any reliable significant common core of meaning. This has long been recognized by the more astute legal thinkers. For example, Dean Pound says with respect to the concept of contracts :

Nowhere, indeed, has the deductive method broken down so completely as in the attempt to deduce principles upon which contracts are to be enforced. . . . No one of the four theories of enforcing promises which are current today is adequate to cover the whole legal recognition and enforcement of them as the law actually exists. . . . The category of enforceable simple promises defies systematic treatment as obstinately as the actionable pacts in Roman law. . . . Revived philosophical jurisprudence has its first and perhaps its greatest opportunity in the Anglo-American law of contracts. The constantly increasing list of theoretical anomalies shows that analysis and restatement can avail us no longer.¹⁰³

103. POUND, AN INTRODUCTION TO THE PHILOSOPHY OF LAW 264, 269, 275, 282, (1922).

Pound closes his consideration of the subject with a plea for a "Twentieth Century philosophical theory, whatever it is," to furnish a logical critique of the domain of legally enforceable promises.¹⁰⁴

Similar comments apply equally to the other basic legal concepts. By and large such concepts do more to conceal than to reveal the grounds for legal action. A promise is not a contract unless it is legally enforceable, and the fact that it is legally enforceable is what brings it within the category of contracts rather than vice versa. Similarly, when we call some relation "property" or call a corporation a "person" or describe an act as "negligent" we are saying that there is in each case an interest which the law will protect.¹⁰⁵ It is important to realize that the law does not protect our interest in some thing *because* we call it property, but that we call it property because the law protects our interest in it. Once the descriptive term or legal category for an act has been selected, then the legal consequences of that act have been determined. Therefore, it is logically fallacious to pretend that by manipulation of these legal symbols we can engage in reasoning which will determine the legal consequences of an act. Thus such an astute mind as Holmes, in analyzing the operation of the common law, is forced to the conclusion that the ultimate determinants of judicial action are not general principles but practical considerations.¹⁰⁶

In these circumstances, traditional logic is impotent. It has neither tools nor techniques for going behind the terms contained in its propositions. Consequently it is useless for the task of extracting the controlling considerations from the standards of decision. Modern logic, however, offers the varied techniques of induction, plus the powerful instrument of semantics for this job. Of course, this does not mean that there are any simple formal guarantees of either truth or validity either at this or any other stage of the legal process. It does mean, however, that there are tested techniques available which have proved to be of high utility in the effort to deal rationally with similar problems in other fields. There is every reason to believe that they would be equally fruitful in the legal field.

It is impossible to give in a brief compass any adequate account of modern semantics. The rigorous examination of the meaning of symbols is not only an independent discipline but is also, to a large extent, the foundation of the other branches of modern logic, as well as most of modern science. However, it is possible to suggest at least

104. *Id.* at 284.

105. Felix S. Cohen, *Transcendental Nonsense and the Functional Approach*, 25 COL. L. REV. 809 (1935).

106. HOLMES, *THE COMMON LAW* 1-2, 35-6, 337-8 (1881).

a few of the working postulates of semantics that seem particularly applicable to the legal process. Reduced to simple terms, these may be stated as follows:

A. The meaning of any term is the action which it evokes or to which it refers. This is sometimes referred to as the "operational definition," although it implies much more than the matter of defining terms.¹⁰⁷

B. A term does not have the same meaning in different contexts. This is sometimes indicated by the semantic device of using subscript numbers to indicate the differences in the use of a term. Thus contract₁ is not the same as contract₂ and neither is the same as contract₃ and so forth.¹⁰⁸ In the legal field, where a concept such as contract covers not only a single ostensible category, but also a host of sub-categories, such as parol-, written-, negotiable-, executory-, quasi-, etc. the applicability of this device should be self-evident.

C. A term does not have the same meaning at different times. This postulate is sometimes employed by means of the semantic device of "dating".¹⁰⁹ Thus contract 1850 is not the same as contract 1900 and neither one is the same as contract 1952. The utility of this principle and device in the legal field should also be apparent. No matter what similarity may exist between the words of the judge who wrote an opinion a century or more ago and the words that are employed today to describe certain legal situations, it is impossible in the nature of things that the terms as logical categories can have the same meanings. The similarity of language may indeed suggest a similarity of meaning. However, before any attempt is made to build an analogy upon such an assumed similarity of meaning, logic requires that we investigate and specify the differences in meaning as well as the similarities. To paraphrase Holmes, before legal terms may properly be used for legal operations they must be sterilized in semantic acid.

The final step in the legal process, as it has been analyzed here, is that of applying the controlling considerations or principles derived from the standards of decisions to the facts of the case in hand as inferred from the evidence. Superficially this would appear to be an easy and automatic process and there are many who believe it to be so. Probably there are cases in which it is not difficult but they are certainly far fewer than is generally supposed. With rare exceptions, every judgment in a contested lawsuit must be one fashioned specifically to

107. BRIDGMAN, *THE LOGIC OF MODERN PHYSICS* (1927).

108. HAYAKAWA, *LANGUAGE IN THOUGHT AND ACTION* esp. c. 17 (1949).

109. *Ibid.*

fit the facts of that case. It is rare indeed that a simple "judgment for the plaintiff" will suffice, although of course the converse, where appropriate, is more frequently sufficient.

Assuming a situation in which the evidence establishes facts that are in all material respects like the analogue of an established precedent in which it is clearly determined that judgment should be for the plaintiff, nevertheless, this will not set either the amount of damages to be awarded, or the form of decree to be entered. Since damages are normally set by the jury, judges have not been so concerned about this problem. However, there are a growing number of situations in which judges alone are being called upon to estimate damages, and the remedial powers of the courts are being invoked for increasingly complex problems. Furthermore, the failure to clarify and differentiate basic concepts at this stage of the legal process has the same consequences as at any other stage.

The two basic functions of the court in civil proceedings are the punitive or preventative and the remedial. Liability having originally grown out of a concept of fault,¹¹⁰ there remains a notion that the imposition of the burden of reparation will have a deterrent effect similar to the imposition of punishment in a criminal proceeding. On the other hand, the function of damages, as well as of equity decrees in private suits, is to make the plaintiff whole and remedy the wrong that has been done to him. Unfortunately, the two incompatible theories do not apply to separate categories of cases, but actually compete for the favor of the court in every case. Thus, the courts are likely to shift back and forth in a single proceeding from one theory of judicial remedy to the other, sometimes in defiance of all rational principles.

Let us take the common personal injury negligence action as a simple example. With the exception of one or two states which have adopted the "comparative negligence rule," the right of a plaintiff who has been injured by the negligence of another to recover compensation depends upon his establishing that the defendant was at fault. Without such evidence the plaintiff has no recovery at all. Once having established this, however, the plaintiff's damages are measured by his loss or his need for reparation. The difficulty is that the plaintiff's need is not related in any way to the defendant's fault. A plaintiff may be very seriously injured and stand in great need of compensation even though a defendant was only slightly at fault, or not at fault at all. On the other hand, a defendant who was grossly at fault may have caused only very small injury. Thus the law does not proceed consistently on

110. HOLMES, *THE COMMON LAW* 37-8 (1881).

either the deterrent or remedial theory of damages so far as negligence cases are concerned. If the law were consistent and based upon the deterrent theory, then damages would be apportioned according to the degree of the defendant's negligence. A defendant who had been grossly negligent would be required to pay much larger reparations than a defendant who had been only slightly negligent, just as punishment in criminal cases is related in severity and amount to the conduct constituting the offense. On the other hand, were damages consistently based upon a remedial theory, then the right of a seriously injured plaintiff to reparation and compensation for his injuries would not depend upon the wholly accidental chance of his being able to convince a court or jury of the defendant's fault.

The anomalies of the law's confused approach to this problem cause every court in the land to be crowded with unnecessary cases. There probably is not a court of general jurisdiction in the country that does not have pending before it at any given time a large number of cases in which injured plaintiffs are seeking to recover damages from one or more defendants upon various complicated theories of agency or secondary responsibility or liability. As an illustration of such a situation, a plaintiff, seriously injured by the negligence of a drunken driver, sues the bartender or innkeeper who sold the liquor to the driver. The law, in denying a right of action to the plaintiff in such a case, pompously takes the academic view that the plaintiff has a cause of action against the negligent driver in any event. The practical difficulty, of course, always is that the driver is not financially responsible and that a cause of action against him is a worthless thing, otherwise the plaintiff would not have bothered to sue the bartender in the first place. Thus, in such a case the court proceeds entirely on the punitive or deterrent theory in denying a judicial remedy to the plaintiff. However, let a defendant commit some act which comes within the law's conception of negligence, and however slight his fault may be, he then becomes responsible for all of the injuries which proximately result to a plaintiff regardless of the fact that the liability thus imposed may be completely out of proportion to any fault of which he was guilty.

The anomaly of the conflicting principles as to judicial remedies is perhaps even more apparent in equity suits. Courts in such actions are very fond of saying that the decree which should be entered should be "remedial and not punitive." Ostensibly this seems to state a sound principle. However, when close examination is given to what the judges actually mean by this language in the context in which it is used, a

strong inference arises that the judges use this language to indicate that they are going to enter a decree that is not too drastic or severe. As a result of this attitude, the courts are frequently found to enter decrees which are in effect a "slap on the wrist" to the defendant, and which are not truly remedial at all. It is notorious that the decrees of the federal courts in the extremely important field of antitrust cases fall within this description.¹¹¹ Thus as a general rule the practical consequence of the ostensible attitude that decrees should be remedial and not punitive is that they are not at all remedial and are in fact slightly punitive.

IV

Traditionally, Anglo-American courts have tended to seek results which the judges thought to be desirable in the social circumstances existing and in the light of prevailing notions of policy. However, both tradition and contemporary attitudes have compelled the judges to justify their decisions in terms of some kind of "logical" support. The courts have, accordingly, adopted the only logic that was available to them—the true-false deductive logic. This form of reasoning has at once facilitated and reinforced the reliance upon precedent as a standard of decision. In the first place, the body of judicial precedents constituted the only convenient source of generalized principles suited to the function of judicial rationalization; and, in the second place, the range of available precedents did not unduly hamper the free choice of a court in any specific situation. In any event, whatever the historical reason, the tradition has become well established that the form of legal logic is deductive, that legal issues are decided on the basis of pre-existing precedent-analogies, that there may be an area of uncertainty as to the application of one or another precedent-analogy but that apart from this penumbra of uncertainty, judicial action is determined by this kind of legal reasoning.

In essence, this reasoning has thus been a priori. The law has been formally a closed system. The materials from which legal reasoning has proceeded have been the materials already included within the system and the processes of reasoning have done no more than re-work existing materials. Whatever new facts or ideas entered the system, were smuggled in disguised as old terms. While the judges continue to use the same concepts from time to time they were unable to prevent the concepts from shifting their meanings slightly as the non-judicial world changed and

111. Adams, *Dissolution, Divorcement, Divestiture: The Pyrrhic Victories of Antitrust*, 27 *IND. L.J.* 1 (1951).

thus the law was saved from becoming insufferably archaic. Lawyers and judges, however, recognizing the established forms of legal reasoning have assumed that logic meant a priori logic and, therefore, that the use of logic excluded the use of investigation, observation and empirical data. Consequently, the logical method in law has meant an arid introspective process by which courts have reached the conclusions of the most far reaching importance for society upon the basis of the least possible knowledge of either the conditions engendering the problem or the probable consequences of a particular decision.

In protest against these attitudes a school of thought developed about the beginning of the twentieth century which decried excessive reliance upon such an arid logic and demanded that judges pay more conscious attention to the social significance of their decisions. By way of supporting argument for the position that judges should consider contemporary culture needs and standards, it was pointed out that similar facts had always influenced the law if not individual judges.

As the twentieth century advanced, closer scrutiny was given to the whole legal process, particularly in light of the developing science of psychology. It was discovered that judges like other men were moved by psychological influences that did not necessarily coincide with their avowed motives. It was seen that legal decisions were not the inevitable result of the ostensible rationalizations involved, and that consequently there was a substantial area of uncertainty in the operation of the legal process. A number of writers having little in common except a few of these basic insights were frequently grouped together under the vague term "legal realists." This group as such has never developed either a coherent philosophy or a definite program.

Unfortunately, it now appears as though the avant garde of the realist group is retreating into a new mysticism. They reject the ideas of the old mysticism that there are transcendental standards that may be intuitively apprehended which are superior to all precedent and decision, and they use the principles of modern logic and semantics to expose the inadequacies and fallacies of traditional judicial rationalization. Thus they demonstrate that some vagueness and uncertainty are inherent in the legal process. From this the neo-mystics draw the inference that vagueness and uncertainty should be regarded as desirable, and, in fact, may constitute the principal virtues and tools of the law. The neo-mystic view does not consider vagueness and uncertainty as matters of degree, and does not admit the desirability of the objective that they should be minimized. The inevitable conclusion is that since there are no transcendental standards, and since all available formal guides to

judicial action are hopelessly uncertain, we must rely upon judicial intuition. We are consoled for this conclusion, however, by being told that thereby a degree of flexibility is imparted to the law which permits it to progress in spite of an ostensible refusal to take account of changing conditions.

Thus the new mysticism casts out the transcendental but embraces the intuitive. This is a mundane mysticism, but nevertheless a mysticism since it rejects conscious reason as a guide to conduct and tells us we must rely upon intuition. It reduces legal reasoning to a formless muddle, and says we should accept this and we will muddle through. This is the jurisprudence of Barrister Blimp.

There is an opposing viewpoint which this article seeks, however inadequately to suggest, which is that we are capable of bringing conscious reason to bear upon the solution of legal and social as well as other types of problems. The fact that legal concepts are vague and that the legal process operates with a degree of uncertainty should neither appall nor depress us. Even the fact that some vagueness and uncertainty are inescapable should not be too discouraging. Friction is also an inevitable characteristic of the operation of a physical machine. But we do not shrug our shoulders and say that there is nothing that we can do about it. We invent more efficient lubricants to minimize the effects of friction and produce machines that run quite efficiently in spite of it. To draw a closer analogy, medical diagnosis and therapy is also an uncertain matter.¹¹² The classification of maladies and the prescription of remedies are by no means infallible. Yet no one contends that we should close our medical laboratories or that doctors should abandon the effort to diagnose and prescribe as accurately as possible in the light of modern medical science and should return to the mystical methods of the pre-scientific age.

It is worthy of note that vagueness and uncertainty are not characteristics exclusively of law, or even of social or biological sciences generally. Modern science has discovered a degree of indeterminacy underlying all physical phenomena, and there is an inherent and inescapable degree of uncertainty in all, even the simplest, physical measurements.¹¹³

112. King, *The Meaning of Medical Diagnosis*, 8 ETC. 202 (1951).

113. EDDINGTON, *THE NATURE OF THE PHYSICAL WORLD* 220 (1928); PLANCK, *THE PHILOSOPHY OF PHYSICS* 49 (1936); JEANS, *PHYSICS AND PHILOSOPHY* 168 (1943); Furth, *The Limits of Measurement*, 183 *SCIENTIFIC AMERICAN* 48 (1950). Jeans states the classical version of the indeterminacy principle thus: "Our experimental explorations of nature do not admit of absolute precision, owing to the fact that nothing less than a complete photon can be received from the outer world. Regarding the electron as a moving particle, we saw that no experiment could fix both its speed of motion and its position in space with complete accuracy. . . . No possible experimental arrangement

But this does not render imprecision a virtue or accuracy and relative certainty useless objectives.

There seems no sound reason for believing that vagueness and uncertainty are the best ways of attaining flexibility in the law. The inevitability of vagueness and uncertainty furnishes no logical support to the conclusion that certainty and precision may not be desirable ideals in the law, as in other fields, even though we do not believe them to be completely attainable. In a word, there seems no ground for taking the position that in the law alone, of all fields of human conduct and study, knowledge must be camouflaged and progress disguised.

The difficulty with regarding vagueness and uncertainty as virtues and with deliberately employing them as tools is that there is no method of limiting the scope of their operation. This viewpoint wholly destroys any incentive to engage in the hard work and disciplined thinking that is necessary to secure some measure of precision and certainty. Human nature being what it is, a general acceptance of vagueness and uncertainty as desirable qualities in legal reasoning would soon result in the complete disappearance of any degree of either precision or certainty. It would be equivalent to abolishing the distinction between ignorance and knowledge. A system with such postulates could not long maintain any pretense to being rational.

An even more important objection to the new mysticism, at least from the viewpoint of American lawyers, is that the retreat from reason involved in the reliance on intuition leaves us with no means of resolving conflicts other than an appeal to authority. Inherent in social use of the method of conscious reason (or modern logic, as the term has been used here) is the assumption that investigation, discussion and persuasion are capable of producing sufficient precision and knowledge of issues to create at least some area of social agreement. This is the theory and method of democracy.¹¹⁴ This is likewise the theory and method of jurimetrics.¹¹⁵ The employment of modern logic on the

can make these two uncertainties both vanish simultaneously, so that the product of the two can never be zero. A detailed study by Heisenberg has shown that the product can never be less than Planck's constant h . This is known as Heisenberg's principle of uncertainty (or indeterminacy)." *Op. cit. supra* at 168-9. Planck states that the principle applies to all predictions of physical events. "The available facts accordingly compel us to admit that the state of affairs may be correctly summed up by saying that in no single instance is it possible accurately to predict a physical event." *Op. cit. supra* at 49. Furth states that the principle applies to macroscopic, as well as sub-molecular, measurement. "All physical quantities, with the sole exception of the universal constants, are defined only statistically. Consequently they must exhibit fluctuations that will prevent precise measurements being taken beyond a certain limit." *Op. cit. supra* at 49.

114. HOOK, REASON, SOCIAL MYTHS AND DEMOCRACY 9-11 (1940).

115. Loewinger, *Jurimetrics*, 33 MINN. L. REV. 455 (1949).

practical level does not require the acceptance of all of its underlying theoretical implications. On the other hand, jurimetrics, as well as the several contemporary variants of "experimental jurisprudence," do necessarily require a legal logic of the character outlined here.

The contrary view is that the process of public investigation, discussion and persuasion of issues is not only unnecessary but impossible, since all significant meanings are to be apprehended by the individual intuitively. As this latter philosophy provides no rational means of dealing with differences in the intuitive apprehensions of various individuals, conflicts thus arising must be resolved by the determination of some more authoritative intuition. Such an authority could, conceivably, be established by common consent without the use of force, but the history of the world gives no reason to suppose that temporal authority of this character ever will or can be established or maintained except by the use of force. In any event, the very essence of authoritarianism is the philosophy of intuitive mysticism. Conclusions are to be accepted not because they can be demonstrated or because their plausibility can be persuasively presented but because they represent the intuitive apprehensions of some higher authority. This has been the official philosophy of despots and dictators throughout human history. One would think that the world had already been sufficiently scourged in this century with the practical consequences of this philosophy to discourage any further dabbling in it.

The modern flirtation between law and mysticism appears to be the result of a reaction against the arid formalism of traditional logic which has floundered around without finding any alternative synthesis. However, the time would seem to be here for lawyers to discard the fallacies and misconceptions of an outmoded philosophical scheme and to begin to synthesize by the most practical means, by use and trial in the legal process, some of the more seminal and catholic principles of modern logic.

The first misconception that must be discarded is the assumption that there is a dichotomy of logic on the one hand and experience on the other. The choice does not lie between logic and experience; or, for that matter, between logic and tradition or social values or practical consequences. The alternative to logic is simply the resort to intuition or some other irrational method. It is the lesson of modern science that logic is helpless to determine material questions without reference to experience; and that experience lacks intellectual significance without the interpretative aid of a rigorous logic.

As a corollary, it must be recognized that there is no logical formula in any system which can guarantee the results of reasoning to be with

certainty either valid or accurate. As has been noted, such pretense as deductive logic claimed to this result was mere illusion. Modern logic makes no such pretenses. It offers no forms as warrants of its results. It suggests that the best way of dealing with complex problems is to analyze, investigate and evaluate all of the considerations and possibilities both formal and material and to validate material conclusions by practical verification. This does not have the alluring simplicity of the theories which offer the syllogism or the analogy as convenient handy forms by means of which all legal problems may be solved. Neither does it offer the promise of certain and unmistakable conclusions. But simplicity is not a guarantee of utility and neither syllogism nor analogy have contributed much of certainty to the legal process in recent times.

Perhaps the greatest impediment to the use of modern logic in fields such as law is that it does not come in ready made forms which need be decked out only with a few appropriate terms in order to begin full scale functioning in a fresh field. The forms of modern logic are, by and large, developed in connection with specific subject matter, and most of the work of adaptation to the legal process remains to be done. As a modest (and very incomplete) beginning, it is suggested that the following principles of modern logic are already struggling for recognition in contemporary legal thinking and will necessarily form the basic rules of a modern legal logic.

(1) The meaning of all significant terms should be analyzed to the concrete (conduct) level.

(2) All implicit assumptions should be explicated as far as possible.

(3) Factual postulates should be empirically verified.

(4) The multiplicity of alternative inferences from any given data should be recognized and considered. (Things are much more frequently some shade of gray than they are black or white).

(5) The strength of all inferences should be evaluated, and inferences should be regarded not as established "facts" but as probability values.

(6) Substantive conclusions can be validated only by their material consequences and not by their formal symmetry.

This logic is the logic of democracy. It assumes that it is not enough to mask disagreements by the use of vague or misleading terms, but that its task is to provide techniques for reaching agreement by rational means. It postulates that all rational procedure requires the semantic analysis of terms and concepts in order that meaning and frames of reference may be as clear and specific as possible. It assumes

that such rational procedures, if they do not eliminate, can at least minimize the amount of controversy and misunderstanding among men. Finally, it assumes that an important function and ideal of the law is to produce as much common understanding as possible within the community with relation to its subject matter.

Of course, the logic of democracy does not require that every citizen be a savant or a theoretical logician. But if these assumptions be accepted by those who would be leaders, then the public discussion of issues in courtrooms, legislatures and public forums will be more informed and informative. These, then, are the conditions for government by consent, rather than subjugation, of the governed. This we cannot afford to forget as a troubled world desperately searches for a path toward world law.

It is evident that in order to perform its functions within such a conceptual framework the law must utilize materials and methods as broad as its subject matter. Since its subject matter is the whole range of conflicting claims and desires of the individuals living in organized society and since its principal method is ratiocination, it follows that legal logic must be of a nature competent to deal with any aspect of experience. It is not enough that the logic of the law should be engaged in shuffling and reshuffling the empty forms of legal rationalization, with or without occasional covert infusions of unexamined experience. These ideas are slowly gaining recognition, and there is today within the law itself an increasing number of exploratory movements toward a more adequate logic. It is important that these movements should not be misguided into accepting an intuitive mysticism in a modern dress. The future of the law, and perhaps of society itself, will depend upon the ability of the legal professionals to develop and utilize patterns and forms of thinking in the law adequate to deal with the complex problems of modern life. An adequate legal logic will intimately relate the life of the law to the experience of all life.