EXPERTS IN RELEVANCE

Some observations on the training and practice of lawyers as compared to men of science— by a Caltech engineer turned lawyer

by Charles R. Cutler

The engineer who lets his colleagues know that he is considering the study and practice of law should prepare himself for all manner of jibes, jokes, and warnings — some seriously intended, some not. His brother engineers will shake their heads at the dismal prospect of memorizing Latin phrases, legal phraseology, and the struggle through dusty legal texts; all of which, it is claimed, will result in the production of a back-slapping rationalizer who will argue either side of a question, for a price.

The prospective law student himself has a somewhat brighter picture in mind or else he would not make the change, but he does brace himself for a plunge into the strange cold waters of an entirely different world, a world in which he expects his new education and training to bear no resemblance in method or content to his first love, the physical sciences. Once in law school, however, he is apt to be pleasantly surprised. Though the content of study is different, he will find a ready use for the analytical methods he developed at the "Institute."

Having gone through this experience, and having been initially dismayed by the lack of understanding between the professions of law and the physical sciences, I think some simple observations are in order concerning the education and practice of lawyers as compared to men of science, especially such applied scientists as engineers.

Stereotypically speaking, one can distinguish an engineering student from a law student at a distance of up to a city block. One carries a slide rule, the other a brief case. But, although the subjects studied by each could hardly seem more disparate, inside their respective classrooms an observer would find some things in common. It may surprise many to learn that the law student spends proportionately as much time in the study of "problems," as against the study of "laws," as does the student of engineering and science.

In most law schools nearly all of the texts are case books, which are a collection of court decisions in a given area of law rendered by courts throughout the country. Each decision is an opinion by a judge (or panel of judges) setting forth the pertinent facts of the case and applying the law to the facts, coming up at the end with a ruling.

Since the law may be different in various states and may be changed by the legislature at any time, the primary value of the case system is not in ascertaining what the "law" *is*. Indeed, it is not uncommon for adjacent pages in a case book to present two court decisions involving almost identical fact situations, but arising in different jurisdictions and with the courts arriving at opposite results.

Obviously, in such a course of study it is not *the law* which is being taught, but rather how to approach and solve a legal problem when one has a given set of facts. This emphasis on "approach" recognizes that a lawyer will seldom be fortunate enough in practice to encounter precisely the same legal-factual situations which he studies in law school. Therefore, the student must learn how to sift the facts of a given set of circumstances to come up with the *operative* facts under the law, as well as being able to "research" the law.

Engineering students also soon become aware that this sifting or setting-up process is one of the most important and difficult things to learn. How

many times does an engineering student say, "I don't have any trouble with the equations once I get them set up"?

At exam time the law student might be asked to determine the legal rights and liabilities of a situation where a one-eyed illiterate runs a car into a rotten telephone pole on Sunday, disrupting a business telephone conversation and resulting in the loss of a $10,000 business contract. On the other hand, the engineering student could be asked to determine at what angle an inebriate (of given mass distribution) with rubber heels must lean in a decelerating streetcar going downhill in order to keep from falling into the lap of a schoolteacher. In each case a statement of applicable laws would not be so difficult; the problem is to discard the irrelevant facts, and to ascertain and arrange the important ones in such order that they may be utilized in a final solution.

Law students spend an immense amount of time learning how to analyze a given situation in order to determine what are the legal rights and liabilities arising from it. It is really the same logical process that must be utilized by an applied scientist who is seeking to apply physical and mathematical laws to a given problem.

It is also true that, just as there are "pure" science courses, there are courses in law school which approach the study of pure law. In some law courses which deal with federal law, such as taxation, the emphasis is on a study of statutes and regulations, since they are uniform for the whole country and a knowledge of the statutory structure will be useful to the student after he leaves law school. Even in these courses, though, attention must be given to factual examples and the case method is frequently used.

In addition there is a rough equivalent of engineering lab courses in law school; that is, moot court or mock court, in which the student tries a case before a jury of his peers (fellow classmates) or a law professor "judge". In such a course, he practices the techniques and procedures of litigation and learns how to conduct his own research. Science lab courses, as I recall, likewise have their chief value in teaching techniques and procedures and preparing the student for research.

It appears, then, that the time of both the law student and the student of the physical sciences may be classified as follows: (1) becoming acquainted with the laws or principles which are operative in the field; (2) analyzing and solving factual problems by ascertaining the relevant facts and correctly applying the proper laws or principles to them; (3) being trained in certain superficial though important procedures and techniques necessary to research and the expeditious solution of problems.

The ex-engineer law student finds that his time is not being spent in memorizing Latin phrases and legal phraseology; in fact, perhaps even less memory work is required than in engineering school. An analytical mind, one which can see through a maze of complex facts and arrive at the correct application of law, is the end sought by law school education. Justice Frankfurter once defined lawyers simply as "experts in relevance." It is not surprising that some law schools seek engineering graduates who have already had this very type of training in the physical sciences and who usually can easily turn their analytical powers on the legal problems which beset individuals and society.

Does the resemblance in methods of education of lawyers and engineers mean that similarities in the practice of the two professions exist after graduation? Despite many apparent and some genuine differences which are primarily the result of the manner in which they conduct their *business,* their work is surprisingly alike.

Consider an aspect of law practice which seems to have no counterpart in the physical sciences, such as that portion of an attorney's time spent in advocating a case before a court, jury, or other tribunal. Such advocacy, I am sure, consumes less than one percent of the time of the legal profession as a whole (though the figure is much higher for attorneys specializing in trial work), and I would guess the overall percent is continually decreasing. It is true that an attorney while arguing his case in court, especially in a jury trial, is essentially performing the art of persuasion. Nevertheless, while arguments to a jury frequently involve emotional overtones, a lawyer's oral argument before a judge or administrative tribunal would be much the same in logical nature as the oral attempt of a man of science to persuade a corporate or government body to adopt a certain course of action. In any event, regardless of the tribunal before whom the lawyer's argument is being made, most of the law has been practiced by midnight oil the night and weeks before. Behind every hour of public advocacy there lies in closet many hours of hard analytical work in preparation.

Aside from the art of advocacy, what is the great bulk of work for which a lawyer is trained and for which ability a client is willing to pay from five to a million dollars? It is the ability to analyze; to synthesize; to draw up and explain contracts,

deeds, wills, court briefs, and legislation (proposed, extant, and extinct); to solve factual and legal problems arising out of taxes, crimes, patents, radio stations, slander, negligence, insurance, ships at sea, domestic relations, trademarks; to administer under the law, trusts, estates, guardianships. This is the work of the lawyer; it is an applied science.

A lawyer's consideration of any case usually may be broken down into three basic concerns. First, he must determine exactly what his effort is expected to accomplish; second, he must ascertain every pertinent fact which might bear on this accomplishment; third, he must take into account all the applicable laws and legal principles. In some instances, ascertainment of the *facts* may be the most difficult problem, in others ascertaining the *law* (you may have to *predict* how a court would decide) would be the hardest. Both are essential.

As an illustration, a lawyer's preparation of a will provides an elementary example of legal science. A will is simple in principle and yet can present exceedingly complex problems in execution. If we follow a lawyer as he prepares a will, we will see that in a sense it is a "testamentary engine" which must be designed with the care and watchfulness of an engineer designing any complex device. The same mental processes are necessary in the preparation of any legal documents and, for that matter, in the administration of estates, or the preparation for litigation.

Take, as an example, the man who tells his attorney that upon his death he desires part of his estate to go directly to his wife, and the other portion to the children, but money is to be kept out of the children's hands during their immature years; and of course he wants to minimize death taxes. This is a very common type of will and could be written about as simply as just described. But a will so drawn, and without further inquiry, would be folly.

The next step to be taken by any competent designer, after learning what his product is supposed to do, is to ascertain every pertinent fact which might affect the operation of his product. In the case of the will, the full financial and family picture of the client should be presented to the attorney. Information on the emotional stability, business ability, and financial means of the wife is needed to determine what role the will should provide for her as a beneficiary and in administration of the estate. And, if the client holds a large amount of insurance payable to his wife, or owns considerable property or bank accounts jointly with his wife, or owns Texas oil property, his intent and the purpose of the will may be completely thwarted if their existence is not known to the attorney. All of these facts and many more must be learned by the legal draftsman, for the same reason that an engineer must know the physical conditions under which his machine will be expected to operate.

Next, the specific means or materials must be selected which are to be utilized in the end product. Knowing that a jet engine operates at high temperatures will lead an engineer to use only those metals which can withstand those temperatures. Likewise, upon being informed that the client's wife is a reliable businesswoman, the will draftsman may make her not only guardian of the person, but trustee of the property of the children. But if her abilities are not such, or if the assets are not subject of easy management, counsel will probably make other provisions to assure safe handling of the children's share of the estate, such as placing them in a trust managed by other capable trustees, either by will or a lifetime trust.

Of course, knowledge of just the *facts* is not enough; equally important is a knowledge of the laws involved. A will drawn without careful consideration of probate laws, and estate, income, and gift tax statutes is as inexcusable as the design of a high-powered automobile without consideration of Newton's laws of motion, or electronic components without consideration of relativity effects.

After the study of fact and law, and selection of the methods to be used, the personal experience and knowledge of the professional comes into play as he applies his personal skill to the problem. The artfully drawn will (or corporate profit-sharing plan) is just as much a thing of beauty to a lawyer as the neat solution of a problem by a mathematician or the clever design of an instrument by an engineer. Despite the cold analysis and calculation that goes into the work, the creative role of the individual craftsman is still felt.

The varying relationships between the legal profession and those they serve is an intriguing subject, deserving of extended discussion. But these broad brush strokes will be justified if it be known that a lawyer's training and practice, like that of an engineer, I believe, is directed primarily at making him an expert in relevance in his field.