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Law, by nature, is a conservative influence in American society. Lawyers, argues Professor Miller, have become mere technicians. To meet the challenges of science and technology, the author believes that lawyers and law schools must reevaluate and adapt themselves to a policy oriented approach to the law utilizing past precedent but also becoming cognizant of rapid social (and legal) change. In this way, lawyers can aid in the management of change so as to preserve humanistic values.

IN HIS REMARKS, Dr. Wald set out a number of provocative challenges presented to mankind and to the American people by an onrushing science and its handmaiden, technology. I should like to comment on his remarks, speaking from the viewpoint of a legal educator asking the question: What is the response of the law to the exponential growth in scientific knowledge during the modern era?

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Let us begin with a simple proposition: science means change. Law and legal education, while they must adapt to these changes, give no built-in guarantee that their reactions will be beneficial. Thus, the question is not *whether* the law will respond to these challenges. That, it seems to me, is inevitable and unavoidable. A response will be made, in some manner, if for no other reason than that law is the means by which people formally order their affairs. Law is always present in human society in one form or another. Rather, the question is *how* will law react. By that I do not mean something anthropomorphic; law, as I see it, has no existence apart from human beings in their collective activities as groups or nations or societies. In other words, how will lawyers react? What sort of legal system will evolve? What ends or purposes will be sought? What values will be preserved?

I wish I could be sanguine on those questions, but I cannot. One would have to be what the late Judge Jerome Frank called a "glandular optimist" to believe that the legal profession has the inherent capacity and the will to develop the responses necessary for the preservation of the essential values of a constitutional order, of a society which places a high regard for the individual human being,

and of values that are imbedded in the Judaeo-Christian tradition.[1] Ample evidence already exists of what Dr. Wald has called "practicing a technology upon man."

Not that the scene is entirely somber. Some signs of awakening may be perceived in the sleeping giant of law. For Western Reserve University to celebrate the 75th anniversary of its law school with the theme "Science and Law" is itself a heartening token. Others may be seen in some of the nation's law schools. Individual professors at a number of schools are pursuing law-science research. Some institutes and programs have been established. The work at the University of Pittsburgh in information storage and retrieval is but one instance. At my own George Washington University, we have recently established a law, science, and technology program, which itself is a component part of a universitywide program in policy studies in science and technology. Here at Western Reserve may be found a leading center for the study of law and medicine.

Even with these frontier developments, the norm in legal education is quite the contrary; our law schools, one may say with confidence, are at least 40 years behind time and falling more so each year. Legal educators are tending to become narrow technicians — mechanics or plumbers rather than architects or engineers. For example, a noteworthy change for a law school is to argue endlessly over whether torts or contracts should be taught in 4 hours or 5 hours. There is a law, I believe, of faculty meetings: the less important the topic, the longer it will be discussed. I submit this to you as a scientific statement of the manner in which highly paid academic lawyers spend some of their time. When we are not in faculty meetings, we professors often are in committee meetings, of which the less said the better.

We transmit "technicism," as compared with true professionalism, in our teaching by engaging in those 50-minute ceremonies designed, as the old saw goes, to sharpen the student's mind by narrowing it. This is accomplished through the perusal of appellate court opinions — what some middle-aged or elderly men said went on in, and how they resolved, a human dispute that ended in litigation. The label for this is the "case method," based on a belief by a man termed a "brilliant neurotic," Christopher Columbus Langdell of the Harvard Law School, that the scientific study of law is

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[1] *Compare* Morison, *Where Is Biology Taking Us?*, 155 SCI. 429 (1967), *with* White, *The Historical Roots of Our Ecologic Crisis*, 155 SCI. 1203 (1967).

best pursued in the medium of reported court decisions — in the library.

The bar helps to perpetuate the system, of course, by establishing an examining procedure which favors those who have engaged in classroom casuistry for six semesters. What relation there is between a bar examination and the successful practice of law has never been demonstrated. It is probably possible to take any middling intelligent person off the street, give him six months or a year of concentrated cramming, and get him past most such examinations.

It is odd indeed that a first effort of bringing law and technology together is in computerized research techniques, a system which will guarantee perpetuation of the errors of the past. Such efforts are based on at least two faulty assumptions: (a) that everything that every appellate court has said is worth saving, and (b) that the task of the lawyer in the modern era is mainly that of looking retrospectively. Be that as it may, the glory of the law schools is the "case method" of study, by which is meant cases as reported by appellate courts. This is supposed to teach the art of relevancy and argumentation. A person with a keen legal mind, sharply honed in an approved law school, is supposed to be capable of tackling any problem. David Riesman has called this the "lawyer's gift of omnicompetence."[2] Arthur Schlesinger, Jr. relates how Jerome Frank staffed his office during the early days of the New Deal when Frank was General Counsel of the Department of Agriculture: "He searched the law schools and the great firms of New York and Chicago to make up his staff. Knowledge of farming was, from Frank's point of view, the least of requirements; he had a lawyer's confidence that men trained in the law can master anything. 'What we need,' he [said] . . . 'are brilliant young men with keen legal minds and imagination.' "[3]

The point can be briefly stated: the challenges that Dr. Wald poses, the impact of science and technology upon society, are not being met by legal education. Furthermore, even with the faint signs of change seen in some law schools, it is not likely that legal educators will substantially alter their ways. In net, then, my conclusion is this: lawyers are moving toward the same position as the clergy — they are becoming irrelevant, technicians practicing "a

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[2] Riesman, *Law and Sociology: Recruitment, Training and Colleagueship*, 9 STAN. L. REV. 643, 645-46, 657 (1957).

[3] A. SCHLESINGER, JR., THE COMING OF THE NEW DEAL 50 (1959).

rather esoteric craft of limited social value."[4] I do not suggest that lawyers will vanish like the dinosaur; they will remain — but, like most of the clergy who conduct those "Sunday morning social hours," they have yet to achieve relevance in a scientific-technological age.

Biologist Barry Commoner of Washington University has put the matter well for the theologians, in terms which hold significance for lawyers:

> We have become accustomed, in the past, especially in our organized systems of morality — religion — to exemplify the principles of moral life in terms which relate to Egypt under the pharoahs or Rome under the emperors. Since the establishment of Western religions, their custodians have . . . labored to achieve a relevance to the changing states of society. In recent times the gap between traditional moral principles and the realities of modern life has become so large as to precipitate . . . urgent demands for renewal — for the development of statements of moral purpose which are directly relevant to the modern world. But in the modern world the substance of moral issues cannot be perceived in terms of the casting of stones or the theft of a neighbor's ox. The moral issues of the modern world are embedded in the complex substance of science and technology. The exercise of morality now requires the determination of right between the farmers whose pesticides poison the water and the fishermen whose livelihood may thereby be destroyed. It calls for a judgment between the advantages of replacing a smoky urban power generator with a smoke-free nuclear one which carries with it some hazard of catastrophic accident. The ethical principles involved are no different from those invoked in earlier times, but the moral issues cannot be discerned unless the new substance in which they are expressed is understood.[5]

"The law," Chief Justice Earl Warren has said, "floats in a sea of ethics." The problems Professor Commoner and Dr. Wald mention are moral or ethical in nature. But they are also legal. The accommodations man makes in adapting the new science and the new technology must perforce be structured in legal terms. They must be dealt with by lawyers at some point.

The question is *how* will lawyers handle them. We can no longer accept the naive premise of Jerome Frank that people trained in the law can master anything, *if* the law in which they are trained is defined in the same way as was done by Christopher Columbus Langdell. Law is a conserving force, and lawyers are by nature conservative in the true sense of that much abused term. In our

[4] E. ROSTOW, REPORT OF THE DEAN OF THE YALE LAW SCHOOL 16 (1966).

[5] B. COMMONER, SCIENCE AND SURVIVAL 130-31 (1966).

law and legal system, we live on the received wisdom of the past. But the clear lesson is that the past is not adequate to cope with modern problems. Adherence to the past is merely a necessity, said Justice Holmes, not a duty; we cannot escape it, but we should not be imprisoned by it.

Dean Don K. Price of the Harvard Graduate School of Public Administration, in his classic *The Scientific Estate*,[6] has said that the main lines of our public policy in the future will be determined more by unforeseeable scientific and technological developments than by legal and political doctrines presently known. I ask you to ponder that for a moment and to forecast the place of lawyers in such a society. One does not have to be a seer to make such a prediction, for evidence already exists that the lawyer is losing caste. It takes no gift of clairvoyance but only a sustained observation of the decisionmaking process in government, particularly as it relates to science and technology, to see that the lawyer — even law itself — is not central to the process in any meaningful sense.

Nuclear scientist Dr. Ralph Lapp has said that "[n]o one — not even the most brilliant scientist alive today — really knows where science is taking us. We are aboard a train which is gathering speed, racing down a track on which there are an unknown number of switches leading to unknown destinations. No single scientist is in the engine cab and there may be demons at the switch. Most of society is in the caboose looking backward."[7] Lawyers, I suggest, are in that caboose; they have been there in the past and are today — even though the very nature of the problems now confronting the human race calls for something different.

What is that "something"? At the very least what is called for is "forward looking" — for a view of the ends and purposes, of the goals of society, and of alternative means for achieving them. Few lawyers are doing that today; few legal educators admit that this is a prime need. But it is a vital necessity.

Lawyers tend to look upon problems in isolation, as discrete instances rather than a part of a flow of events, as something requiring an ad hoc resolution. The word a few years ago was "pragmatism" — to be a hardheaded pragmatist in Washington during the early sixties was to achieve the pinnacle. But law is a process of

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[6] D. PRICE, THE SCIENTIFIC ESTATE (1965).

[7] R. LAPP, THE NEW PRIESTHOOD: THE SCIENTIFIC ELITE AND THE USE OF POWER 29 (1965).

decision, as Myres McDougal has said,[8] a process of decision open ended in nature and ever in a state of "becoming." The problem at its base involves the effective management of change, for change is built into the social system — largely because of scientific and technological innovation.

We cannot and should not rely upon the scientists, the technologists, the economists, the behavioral scientists — the technocrats of the modern era — to manage inevitable change with full realization of the need to preserve humanistic values. Dean Price maintains that "[t]he main philosophical threat to our freedom is not that science will tempt us to invent a new materialist dialectic, or establish a '1984' style dictatorship. It is rather that if we rely on science alone we will be left with no sense of the purpose of existence, and thus no basis for determining our political goals to guide the blind forces of applied technology."[9] The challenge that is posed — control over technology and attaining a sense of purpose — seems to raise questions similar to those for which lawyers have traditionally been called upon by Americans to resolve.

The central position of the lawyer in this country, particularly in government, has long been noted, although in recent years a tendency to call upon others has become evident. Lawyers have been generalists in policymaking positions, both in and out of government. Whether they can continue as such is one challenge Dr. Wald presents to the legal profession, although he does not state it expressly. Whether it will be met is doubtful. In a world characterized by rapid change, lawyerdom is not moving with the celerity necessary even to keep up. Lawyers still fly backwards and seek to answer the problems of today with the solutions of yesteryear, even though *the very existence of a problem means that the answers of yesteryear are suspect or in need of reexamination.*

Problems lie all about us: delay in the courts and crime in the streets; polluted air and water; the threat of nuclear, chemical, and biological war (has there ever been a weapon invented by man which was not used?); a "beehive" world brought about by overpopulation which in turn is largely the product of scientific death control measures, with little attention given to birth control; two-thirds of the world goes to bed hungry, while some parts of the world are overfed. This cannot last, simply because it is absurd.

[8] McDougal, *Law as a Process of Decision: A Policy-Oriented Approach to Legal Study*, 1 NATURAL L.F. 53 (1956).

[9] D. PRICE, *supra* note 6, at 107.

The old order is changing and lawyers seem fated to be spectators rather than participants. I suggest that the American people will not long tolerate any institution or any profession which does not give them what they want or are entitled to. Not that they will abolish it; they will merely ignore it. Just as the clergy has been shunted aside to a few hours on Sunday morning, so too will the lawyers be pushed aside unless they learn what Dr. Wald has called "*adaptation*, the continuing flexibility to meet new conditions."

This is not being done at the present time. Lawyers, for example, have not adapted to the rise of public administration — the bureaucracy — as the locus of power within government. They still think in terms of the adversary system, a system of dispute settlement which is the product of the feudalistic, preindustrial, and prescientific age. Their solution to the very real problems of administration is to make administrative agencies look more like courts, when courts simply cannot cope with public needs. Small wonder, then, that they are being shunted aside. Small wonder that the lawyer *as a lawyer* has little to say about much and many of the great public policy issues of the day. Lawyers do not even have an accepted taxonomy. In this respect, they resemble the natural sciences of about 150 years ago — before Darwin and Mendel and the great systemizers. Rather than being social engineers, they are legal mechanics; they are the plumbers, those who merely patch up trouble spots.

The American people are not receiving what they should get from the legal profession. Study any one of the great, pressing problems of the day and one soon concludes that the lawyer's contribution is minimal at best. Population control, environmental pollution, violence in the international community, the control of heredity, human experimentation — all of these have scientific roots and find the lawyers mute or at least speaking with muted tones. Yet the question of population growth is as explosive as any in the world, pollution can destroy the fitness of the planet for human life, war can obliterate all life, and mankind can become the manipulated object of scientific experiments. The same may be said for social problems. The question of the position of the Negro in American society, surely the most abrasive of all social problems, finds the lawyer with little to offer. In the international arena, tensions are building up between the rich nations and the poor, tensions that will in time, a very short time at that, explode. Once again, lawyers have little to say.

Even so, it is neither parochial pride nor guild loyalty which leads me to suggest that law, properly conceived, properly studied, and properly employed, can be of immense help in preserving those values which are imbedded in the concept of human dignity. If this is to be done, however, someone must make a start. The bar, save for scattered individuals, does not seem to be able to transcend its built-in limitations. The organized bar, particularly that pillar of orthodoxy, the American Bar Association, does not seem adequate to the need. Government lawyers are just that — government lawyers, having government for a client — and are essentially no different from private practitioners.

If law is to be restructured so as to meet the challenges of science and technology, then I believe the only place it can be done is in the law schools. The start will have to come in the education of lawyers. Here, the law schools should either get into the university or get out of it, for as they are now, they exist merely as appendages on the outside of the institution. The walls, high and impregnable, which have been built between law and economics, law and politics, law and sociology, law and science must come down. Law, furthermore, must be seen as part of a liberal education. No one should graduate from college today without some knowledge *about* law. I am not suggesting that undergraduates be taught rules *of* law, but that they be given insight into the role that law and lawyers play in the social structure. The law schools should become centers for policy analysis — critically and constructively examining the pressing issues of the day, helping to articulate social goals, and providing alternative means for achieving them.

Some way must therefore be developed to make the lawyer more than a mere technician. Brandeis once said that a lawyer who knew no economics was a menace to his client. And so he is. Today that can be expanded: a lawyer who knows nothing about science and technology serves no high social purpose. The advent of public law as the dominant part of the legal system, a development largely influenced by science and technology, has created an entirely new social milieu in which the lawyer must operate.

The growth of government in size and importance, accompanied by the rise of other social groups which wield power in a decentralized manner, such as the corporation, the trade union, and so on, means that public law is becoming dominant in the legal order. But the received wisdom under which lawyers and legal educators operate is still largely private law oriented. A generation ago one

could not say that public law was dominant. But it is only 30 years since the Supreme Court found new light in old constitutional clauses and, in effect, rewrote much of the Constitution. The added responsibilities undertaken since then by government need no present restatement.

What is emphasized is that a challenge posed by the new system — a challenge which is traceable to science, technology, and the rapid changes wrought by them — is that law must be seen both *normatively* and *instrumentally.* In other words, law must be seen as both an ordering system, a set of interdictory commands, which was its historical character, and as the means by which public policies come into being and are administered — and thus as the official manner by which basic values are translated into governmental and other policies. This calls for a new type of thinking, for if law is no longer viewed as a static system of logically consistent principles and if attention must be paid to social ends and purposes, then lawyers can no longer only fly backwards to see where they have been; they must learn to fly forwards, to think purposively in terms of aims, goals, and of alternative methods of achieving them. They no longer can think of only the discrete case or dispute, but they must think of an entire policy. As yet, the need has not been translated into legal education, however much it may be required in practice. Beyond doubt, it is a requirement for those lawyers who advise governmental officials and it is likely true for those whose practice takes them into contact with the public administration.

But legal educators, if one takes as evidence the books published for law school use, have with few exceptions not yet caught up with the need. They are still excessively court oriented and they still issue books and articles that can only be based on a premise that the public law explosion never took place. Most writing in legal periodicals, for that matter, falls into the same category, whether it deals with a private or public law subject. Legal writers tend to make their publications exercises in doctrinal exegesis of appellate court texts, without reference to the context in which the problem arose or the social and other factors that might be relevant. Both teaching and research tend to make the lawyer more parochial, more introspective, more isolated.

Of perhaps more basic importance is the need, long noted by some seminal thinkers, to think in terms of "process" and not of a "static system." The set philosophy of an unchanging universe, man-centered and earth-centered, is Ptolemaic or at most Newton-

ian. Beyond Copernicus and Newton is the philosophy of process, of change. The requirement that science presents to law is for seeing law as process, rather than a fixed body of rules, a requirement which involves opening the mind to a greater variety of information. Speaking in 1913, Woodrow Wilson put apt expression to the idea when he said, apropos the Constitution: "Living political constitutions must be Darwinian in structure and practice. Society is a living organism and must obey the laws of life, not of [Newtonian] mechanics; it must develop."[10] The same may be said for the specific questions of public policy imbedded in the Constitution.

One conclusion may be simply stated: the lawyer is becoming deprofessionalized; he is becoming a limited technician, a legal mechanic. He may be necessary, just as auto mechanics are necessary, but hardly on the order of the engineer who builds the auto. The bar is deprofessionalized, both within and without government — within government because the lawyer seems to be the mere handmaiden of the policymaker; without government because he is at the call of the highest bidder for his services.

A second and perhaps more important conclusion is that the lawyer, whether professional or mere technician, seems on the verge of plummeting in social importance.[11] Unless and until he learns to adapt himself to changing reality and to the demands and deepest aspirations of the American people, he will no longer occupy that center of power and decisionmaking that so many foreign observers have noted as an outstanding characteristic of the United States. There is little evidence that such adaptation is taking place. While this certainly does not mean that lawyers will disappear or become obsolete, it does mean that they may well become less relevant to the world at large, and thus obsolescent. They will still exist, perhaps in large numbers, but merely as practitioners in the mysteries of a craft of small social importance. Many years ago the prescient Oliver Wendell Holmes could call the lawyer of the future, not the black letter man, but the expert in economics and statistics. To this may be added politics and science and technology.

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[10] W. WILSON, THE NEW FREEDOM (1913).

[11] Both law and lawyers play a less important role in England than in the United States. *See* B. ABEL-SMITH & R. STEVENS, LAWYERS AND THE COURTS (1967). The reasons for the difference between England and the United States are multiple and complex. My suggestion is that a failure to adapt to the demands brought on by science and technology will be a principal reason for lessening importance of the legal profession in this country. Similarly, Abel-Smith and Stevens note that "power and influence in the modern state had ebbed away from both lawyers and judges" because of a pervasive reluctance to become relevant to the needs of the modern era. *Id.* at 462.

The Holmesian future is here, but the black letter men still dominate. In an age when public law is all pervasive, law schools still are private law oriented; in the era of the administrative state, law professors still think courts are central; in a Darwinian and Einsteinian age, they still adhere to Ptolemy and Newton; in a time when Freud and successors have revolutionized the conception of the human mind, they still cling to the ideas of the 18th century. Law may be conservative — it is of necessity a conserving influence — but there is no requirement that it be blind. Lawyers must not only respond or react to scientific change; they must seek affirmatively to guide that change into avenues which will maximize humanistic values. How else will a society dominated by science and technology retain those values? The manifest benefits that science and technology have brought to man cannot be minimized. The world has been transformed in little more than a century. But the benefits should not be allowed to override the fact that accompanying such advance is a constantly shrinking margin for error or miscalculation. We cannot continue to be so obsessed with scientific advance, as a matter of national policy, that little attention is paid to the problems of protecting against the hazards of scientific and technological development.

Law and lawyers have to date been used to further scientific and technological growth as an end in itself. Science and technology are *not* irresistible forces of nature "to which we must meekly submit."[12] Rather, they must be tamed; we must learn to apply the human equation. The technocrat is not the new messiah — and it is high time we in law recognize it. A sustained effort to devote as much energy to preserving humanistic values as in developing the exponential growth of science is long past due. The universities should respond to this challenge, and the law schools, as integral parts of the university community, should take the lead.

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[12] Address by Hyman G. Rickover, Philadelphia Bar Ass'n Law Day Address, May 1, 1964, 110 CONG. REC. 10, 143-45 (daily ed. May 11, 1964) and quoted in Green, *Nuclear Technology and the Fabric of Government*, 33 GEO. WASH. L. REV. 121, 160 (1964).