Departments and Disciplines: Stasis and Change

Significant multidisciplinary activity requires a redistribution of power within universities.

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This article concerns the role of disciplines and departments vis-à-vis the forces of stasis and change that envelop American society and universities in the 1970's. I begin with some brief observations on the phenomenon of change and then move to considerations of society, universities, disciplines, and departments, in that order.

In the history of man, change in technology and knowledge and in their impact on the complexity of human organization has been a constant phenomenon and has, until the last century, accelerated only gradually. We like to think of our recent ancestors as people who experienced no more than one or more major changes within their lifetime, in wistful contrast to the constant and rapid changes we now experience. Today, as novelist James Michener has so aptly noted in *The Drifters*, even "nostalgia isn't what it used to be" (*1*).

With the perspective of history, we can cite periods of varying rates of change and variations in the degree to which the norms of social behavior have resisted or encouraged change. We are now at a point in this cycle when nearly a century of rapidly accelerating technological innovation and scientific discovery has been supported in many aspects of social living by a simplistic assumption that all "progress" was good and often by demands for the premature implementation of as yet untested technological innovations. Striking examples of premature implementation are found in medicine, warfare, and transportation. We have been suddenly overwhelmed by geometrically accelerating rates of change that affect every facet of living, and we are trying to apply the brakes.

Control over the use of new "miracle" medications is replacing unqualified demands that they be made available even before being thoroughly tested. We have temporarily, at least, called a halt to supersonic air travel and are resisting the construction of new airports and highways. We are pulling back on our explorations in space and have drastically reduced or eliminated public support for research in general.

At the moment, although resistance to change is a dominant public mood, the effect seems analogous to that of trying to stop a car on an ice-covered road when the accelerator is stuck. The forces and momentum of change are so great that resistance may make the course more erratic, but cannot stop or control the movement.

As societies' values and their attitudes toward change have varied, they have affected the relative status and rewards accorded individuals fulfilling different roles for the society and have been reflected in a wide variety of manners and morals. Warriors, clergymen, educators, physicians, farmers, industrial workers, scientists, businessmen, and bureaucrats have all experienced periods of varying respect and power. Social customs and codes regarding such areas of behavior as dress, hairstyle, sexual permissiveness, intellectualism, fads in literature, music, and other art forms, and the use of intoxicants have also varied according to whether the generally prevailing social norms were directed toward preserving stasis or producing change.

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Universities and Society

Universities have experienced society's vacillating attitude toward change in two ways. As instruments of society, universities have been a major force in extending human knowledge and exploring its applications to human needs. Education and research are at the same time instruments and symbols of change and progress. The relative favor and disfavor that universities have been accorded in different periods and the level of societal support provided for intellectual activities in general are directly correlated with the moods of society regarding stasis or change.

Internally, universities have been microcosms of society at large, subject not only to external pressures, but, perhaps even more significantly, reflecting the prevailing and often conflicting attitudes and values of their own faculties and students. Universities face a major crisis as they strive, on the one hand, to protect those unique functions and features that have made their contributions to society so great and, on the other, to respond to changing demands and increasing pressures and responsibilities that society is placing on them while reducing their relative freedom, prestige, and support.

Only yesterday, the university saw itself as a community of scholars. The ideal professor was inner-directed, intellectually curious, insightful, independent in his pursuit of knowledge, imaginative, a model of integrity, and intensely involved in inquiry. He was both a paragon and the conscience of the society. As such, he was seen as requiring, and deserving total freedom. Kingman Brewster has urged that professors "in the development of their ideas . . . should not be looking over their shoulders either in hope of favor or in fear of disfavor from anyone other than the judgment of an informed and critical posterity" (*2*, p. 382). It is in order to protect academics from retribution by those who disagree with knowledge or are threatened by discovery that Brewster and many others see tenure as a necessity.

There is real reason to fear that contemporary society, as part of its effort to put the brakes on rapid change, will try to control academic activity and to stem the free flow of ideas, with which progress and change are so intimately associated. This threat to the freedom of universities now exists in the dominant, anti-intellectual element of the political sector of our society. How-

ever, despite the disturbing implications of policies currently emanating from Washington and from many state capitals, the most serious threat to academic freedom does not appear to lie in the direct control of universities and professors by outside forces. It lies instead in the impact of outside threats on the development of a wide range of self-imposed controls on academic freedom that are developing within universities themselves. These controls take many forms, but they almost always include regular, periodic "review and evaluation" of academic personnel by their superiors, their peers, and, not infrequently, their inferiors. In this connection, Brewster has noted that "assuring freedom from intellectual conformity coerced *within* the institution is even more of a concern than is the protection of freedom from external interference" (*2*, p. 382). Specifically, he stresses that situations which force professors into "jockeying for favor by trimming the argument because some colleague or some group will have the power of academic life or death in some later process of review would falsify and subvert the whole [intellectual] exercise" (*2*, p. 383).

I agree strongly with Brewster concerning the negative impact of too many internal controls in our universities today. Whether in establishing rules and procedures for faculty review or in imposing rituals and hurdles for students to suffer, universities seem today too preoccupied with protecting society from the few incompetent professors or from the poorly motivated, lazy, or intellectually inadequate students; rather, universities should emphasize the free flow of ideas among faculty and students who are gifted, excited, and inspired to function above the level of mundane rules and regulations that coerce conformity to mediocrity.

On the other hand, I disagree with those who believe that universities can continue to concern themselves primarily with the generation of ideas and the discovery of techniques without accepting some responsibility for the impact upon society of the forces for change which they generate. Nor do I believe that a community of scholars can remain insulated from changes in society or the impact of society's reaction to the stresses of unprecedented rates of change. I believe that universities, as we have known them, must change to meet the expectations and needs of a changing society. They need not, however, become mere factories for the production of technically trained people in whom inventiveness has been stifled. Rather, they will be supported only if they extend the concept and function of scholarly activity to include use of knowledge to serve man's needs and to meet the problems created by and stemming from change itself.

Departments and Disciplines

A major impediment to changing the nature of scholarly activity is found in the internal organization of universities and in the role played by departments as bases of power. As they have emerged and become entrenched in American universities, most departments have been oriented toward and identified in terms of specific disciplines.

In the academic sense, a discipline is generally defined as a branch of knowledge involving both research and teaching. As long as they are identified with the search for knowledge, disciplines cannot be static. They are forever changing, in terms of both the spheres of knowledge that they encompass and the conceptualization of the meaning of knowledge that they represent. Although the pursuit of knowledge and changes in perceptions within particular disciplines have moved at varying rates, usually dictated by the prevailing attitudes of the larger society, some change is inherent in the very nature of the search for knowledge. However, because the term "discipline" is used to refer to that which is taught, there are numerous examples of stasis, obsolescence, and anachronism. These reflect the ideology and behavior of some "disciplinarians" as teachers and the content, concepts, and methods that they select.

In great measure, the static nature of that which is taught is a result of the emphasis on knowing rather than searching. As long as much of what we call education relies on teaching fixed concepts of "facts" that students must memorize, and as long as students' proficiency is measured by their ability to discriminate between that which is termed "right" and that which is termed "wrong," disciplines will be perceived as static rather than dynamic. Where it has infiltrated our educational systems, such two-value orientation supports resistance to change. Yet the entire history of human knowledge and culture is replete with examples of the tentative nature of so-called facts. This is obvious in every sphere of scholarly pursuit and is, of course, basic to the "testing of assumptions" aspect of scientific philosophy and method. Whether one is speaking of research or teaching, change is related to asking questions and assuming the tentative nature of facts, while stasis is identified with the worship of absolutes and an emphasis on knowing rather than thinking or inquiring.

In the pursuit of knowledge, disciplines have been subject to constant change, in keeping with the logical groupings of theories and concepts that particular lines of inquiry have suggested. There is nothing intrinsically permanent about disciplines; they are merely convenient subdivisions of tentative knowledge, concepts, and methods that at particular times have appeared meaningful and functional. As man's knowledge changes, it is logical and necessary that the boundaries of disciplines should change accordingly. Indeed, this change is constant, and it is reflected today in the significant amount of multidisciplinary activity between and among scholars. Most such interchanges, however, take place outside of and in spite of the formal organization of universities. The formal organization exerts great force toward maintaining the status quo and is a major barrier to any change in the traditional and entrenched departmentalization of academic activity.

The organization of American universities into departments has developed almost entirely along the lines of the disciplines that departments represent. Historically, such administrative divisions were seen as implementing the development of the discipline and facilitating the major functions of research and teaching as represented by each discipline. Although such organization has been functional, the departmental structure that was created to facilitate development and change has become, ironically, a major force in restricting, impeding, and, in some instances, actively resisting change.

This has occurred, I believe, because departments have become the principal bases of power within universities. As political units, departments compete with each other for such sources of power as funds, space, curriculum prominence, and number of faculty positions; they are also concerned with distributing duties and responsibilities and with allocating space, equipment, personal assistance, salary increments, promotions, tenure, and other rewards among their faculty members.

Power and Resistance to Change

Like most political bodies, departments have felt obliged to assume clear-cut identities around which to stake their claims and to demand the allegiance of their members. Because almost all departments are identified with specific disciplines, their political functions have often served as forces to preserve anachronistic disciplinary identities, to enforce obsolete compartmentalization of teaching, and to discourage formal research and teaching activities that cross disciplinary lines. This adherence to fairly fixed departmental-disciplinary boundaries has been vigorously supported by many faculty who wish to work within comfortably delineated areas of specialization and subspecialization, unperturbed by the need to recognize broader implications in their own spheres of interest and blissfully oblivious to the implications that developments outside of their discipline may have to their own special interests. Societal pressures on universities to broaden their impact on social problems now make such a limited concept of academic freedom obsolete.

I believe we are on the verge of a major change in the organization and power structure of our universities, a change that will drastically alter the nature of departments and the role they play with respect to stasis and change. The breakdown of traditional lines between departments is actually being caused by both internal and external forces. So much specialization has developed within disciplines and so much subdivision of interests is constantly taking place that there are few really homogeneous departments. For example, literature departments now have their specialists in various periods, genres, and individual writers. History departments comprise scholars who specialize in different periods and regions. Anthropology departments include archeologists, physical anthropologists, linguists, area cultural specialists, and members who focus on specific contemporary problems. Often today, the various specialists and subspecialists within departments have relatively little knowledge of or interest in the work of their departmental colleagues. Instead, the special interests and expertise of many contemporary scholars impel them to cross both departmental and traditional disciplinary lines for the logical extension of their inquiry and interests. Thus, the specialist in west coast Irish literature of the 19th century may find common interests with an anthropologist who has studied the Irish culture of this period, or with an historian, a political scientist, an economist, a geographer, and a linguist who also have common area and period interests. The physical anthropologist may feel more at home with some anatomists than with cultural anthropologists. The neurophysiologist, neuroanatomist, and psychopharmacologist may find more common interests with each other than with some of their colleagues in their respective departments of physiology, anatomy, and pharmacology.

Multidisciplinary Activity

An increasing amount of cross-departmental activity is taking place in our universities. More of this involves informal than formal alliances. Yet even at the formal level there have been numerous efforts for at least 50 years to structure multidisciplinary research and teaching. These have ranged in scope from core courses taught by faculty from two or more departments and interdepartmental majors, to large research centers or institutes organized around a cluster of related disciplines or around specific human problems. The record of such efforts reflects a high rate of attrition and frequent failure to achieve aspirations. Yet an examination of the history of multidisciplinary programs suggests that their problems have stemmed not so much from the inherent difficulty of crossing disciplinary lines as from the political errors of ignoring the force of entrenched departmental power. Such programs often found that they could not attract the hoped-for allegiance and involvement of prominent scholars. This was in great part because, no matter how interested these men might have been, their professional advancement and personal rewards depended primarily on their works being viewed as contributing to the goals and images of their departments. In light of this continuing political pressure, it is remarkable that a few multidisciplinary programs have in fact attracted some outstanding scholars and have successfully fostered cross-disciplinary inquiry and activity.

It is significant that Yale University, whose productive Institute of Human Relations never quite achieved its promise and was phased out by a president who stripped the university of virtually all activities that did not fit the formal departmental structure, has recently established the Institution for Social and Policy Studies based on the conviction that "the cooperation of faculty and students from various disciplines and professions in problem-oriented multidisciplinary settings can advance understanding and develop better policies" and "that students educated in such settings will be better prepared for positions of responsibility whether in government, education, business, or community organizations" (*3*). Yale's institution, like its old institute, relies on participation by faculty whose primary base will be in academic departments. The success of all multidisciplinary and applied academic efforts, however, whether institutes, centers, programs, or simply courses, must in the long run depend either on their having sufficient strength to compete with the entrenched base of departmental power, or on the diminution of departmental power.

The volume of cross-disciplinary activity in our universities today is so great that change seems inevitable. This change may take the form of a realignment and redefinition of the traditional disciplinary boundaries. Unless departments permit such change, the only alternative, in order to overcome their effectiveness in resisting and blocking change, will be to redistribute the base of power within universities. As noted earlier, a trend in this direction is already apparent in the establishment of supradepartmental review processes for evaluation, promotion, and tenure.

Summary

Because I believe that the departmental power base of universities has been a major factor in resisting inevitable and continuing changes in the disciplinary boundaries of research and teaching, I predict that significant changes in the nature of departments are inevitable. Departments will either permit, or even seek, a realignment of their spheres of control over disciplinary activity or they will lose the power of control over basic academic decisions and rewards.

To the extent that society at large expresses resistance to change, the status quo of departments may have a temporary lease on life. On the other hand, society's current disenchantment with academia may make radical in-

ternal change seem vital to the maintenance of public support, and even the survival of universities, and thus hasten changes in either departmental structure or departmental power. Within universities, resistance to such change is generally supported on the assumption that academic freedom will be threatened. Obviously, all change involves some risk, but a very significant limitation to academic freedom already exists in the pressures that many departments exert on members to restrict their intellectual activity to fit the departmental mold. Departments can regain their important role in fostering both academic freedom and academic responsibility for excellence if they will redefine their discipline-oriented identities and realign their priorities to include cross-disciplinary inquiry and teaching and greater responsiveness to the responsibilities and expectations of the university and society.

References

1. J. A. Michener, *The Drifters* (Random House, New York, 1971), p. 227.
2. K. Brewster, Jr., *AAUP Bull.* **58**, 381 (1972).
3. Yale University, Institution for Social and Policy Studies, *General Statement* (fall 1971), p. 2.

NEWS AND COMMENT

Energy R & D: Under Pressure, a National Policy Takes Form

With a 1 December deadline from the White House bearing down, the rough outline of a national energy strategy is quickly taking shape in the offices of Dixy Lee Ray, the chairman of the Atomic Energy Commission and—for now, anyway—President Nixon's chief adviser on energy technology. One firm conclusion that has already come out of 2 months of high-speed planning is that, presidential promises notwithstanding, $10 billion or even $30 billion is not by itself going to buy the nation self-sufficiency in energy. The best that can be said is that about half the promised $10 billion might begin to show an "initial impact" on domestic energy supplies by 1980.

Nor, it seems, does anyone but President Nixon seriously regard this R & D effort as an analog to the Manhattan and Apollo projects, except perhaps, in terms of cost. In this case, creation of new technology is only half the battle; commercial application of the new technology depends on myriad policy decisions—bearing on things from oil shale leasing to power plant siting—that fall outside the realm of R & D. The success of Project Independence thus depends as much on politicians as on technicians; among the latter, the project's Mad-Avenue name is not catching on.

The 5-year, $10 billion energy R & D plan the President requested from Ray last June (*Science*, 28 September) was unveiled in a tentative, preliminary form on 14 November during a public meeting of the newly constituted Energy R & D Advisory Council of the White House Energy Policy Office.* The event was low-key but nonetheless unusual: Traditionally, the federal bureaucracy cloaks future budget plans in impenetrable secrecy, mainly out of fear that a public airing of rough-hewn plans would make subsequent changes of mind and heart a source of keen and frequent embarrassment. The difference in this case stems partly from Dixy Lee Ray's willingness to open the planning process to public view, and mostly from a new law, pushed through Congress last year by Senator Lee Metcalf (D–Mont.) and others, requiring such advisory groups generally to open their meetings to the public; the White House complied in letter and spirit, and about 40 outsiders dropped in to listen and sometimes to take part in discussions. All of which prompted one council member, MIT's Manson Benedict, to compare the event to a New England town meeting.

The plan was outlined by Gorman C. Smith, one of Ray's chief assistants on the project. Smith said an "overview" panel of ranking officials from seven federal agencies had reached concurrence on how the $10 billion should be divided up among contending technologies over the next 5 years, and that Ray, while reserving the right to alter the distribution as she saw fit, nevertheless regarded it as "close to the mark."

For the most part, the draft plan casts conventional wisdom as national policy. Technologies that are thought to hold out the promise of enhancing national security—by reducing reliance on foreign resources—are accorded topmost priority. An "improved environment" is ranked as the second priority, with the implication that pursuit of domestic security won't sully the environment any faster than it is being sullied right now. The third priority is R & D that could help cut the cost of producing energy.

On this basis, the technological tasks ahead fall into the following order of immediacy:

► Conserve energy through more efficient technologies.

► Increase production of oil and gas to the maximum feasible extent.

► Begin substituting coal for oil and gas in "massive amounts," during the "transition period" to heavy reliance on nuclear power.

► Guarantee the success of nuclear power through further R & D on safety, waste management, and alternative concepts such as gas-cooled and molten salt reactors.

► Plug away at long-range sources such as fusion and solar power.

Accordingly, research programs aimed at increasing both domestic supplies of fossil fuels and the efficiency of their use would receive $2.3 billion and $1.1 billion, respectively (see table). By comparison to current fossil fuel programs, this would mean a massive infusion of new money, but nuclear fission would nevertheless retain its dominant position, with total federal funding over 5 years of $4.39 billion. The liquid-metal breeder, not surprisingly, would remain the stellar attraction, or, as Smith described it to the council, "the first leg up on self-sufficiency."

Fusion R & D is slated for $1.55 billion, about 10 percent more than the

* Members of the council are: H. Guyford Stever, National Science Foundation (chairman); William O. Baker, Bell Telephone Laboratories; Manson Benedict, MIT; Lewis M. Branscomb, IBM; Paul F. Chenea, research laboratories, General Motors; Murray Gell-Mann, Caltech; Edward J. Gronowski, Esso Research and Engineering; Henry R. Linden, Institute of Gas Technology; Gordon J. F. MacDonald, Dartmouth; Elliot Montroll, University of Rochester; Ruth Patrick, Philadelphia Academy of Natural Sciences; Simon Ramo, TRW; Eric Reichl, Consolidation Coal; Louis H. Roddis, Consolidated Edison, New York; Chauncey Starr, Electric Power Research Institute; Alvin Weinberg, Oak Ridge National Laboratory.