newly created manuscript could be made available to other network users either on a selective basis or on a broadcast basis by entry in the public file. The planning conference suggested experimentation that would contribute to the wise planning of the future library's opportunities and responsibilities in this field.

Finally, the conference gave some attention to the possibility of relieving the library's problems, without diminishing its serviceability, by well-conceived rules for acquiring and weeding documents. It is widely held that the amount of good material in any scientific field at any particular time is really rather small; and one of the problems is that this high-quality signal is being drowned in a vast flood of low-quality noise. If there is any truth to this notion, Project Intrex would seem to be in an excellent position to investigate it. The augmented catalog will accumulate comments of users; citations recorded in the catalog will permit analysis of a publication's impact on subsequent authors; mechanized text access will yield data on the actual use of each item in the collection.

Other implications of the Intrex experiments were discussed, but these five—education, browsing, selective dissemination, publishing, selective retention—received the most attention at the planning conference. Although none is essential for getting the Intrex program under way, all of them are important.

Research and Development

The experimental program that has been outlined is concentrated on a few main problems that the planning conference considered both crucial and soluble. The basic policy suggested to Project Intrex with respect to supportive research and development is to undertake only those tasks that are necessary to ensure successful completion of the main experiments. Perhaps the most significant factor in the situation that Project Intrex is entering is the availability of a powerful new computer technology. The conference was distressed, however, by the primitive state of two critical items, consoles and interaction languages, and recommended that Project Intrex give attention to them.

In surveying the broad area in which Project Intrex will operate—the computer sciences, the library sciences, and parts of other disciplines ranging from psychology to electrical and mechanical engineering—the planning conference observed that there is no dearth of theory in these fields. However, there is not at present a comprehensive and basic theory of information transfer. A major intellectual challenge for Project Intrex is the development of a unifying theory that will lead to coherent design and interpretation of experiments in information-transfer systems.

The immediate effort of Project Intrex is to add details to the recommendations given in the report of the planning conference and to begin the experiments. A grant from the Carnegie Corporation is making it possible to conduct this early part of the experimental program without waiting for the more extensive funding that the complete project will require. The initial experimental work will be performed by the Electronic Systems Laboratory of the Department of Electrical Engineering at M.I.T.

References

1. *INTREX, Report of a Planning Conference on Information Transfer Experiments*, C. F. J. Overhage and R. J. Harman, Eds. (M.I.T. Press, Cambridge, 1965).
2. W. S. Dix, *University, A Princeton Quarterly* **26**, 3, (1965).
3. M. M. Kessler, *Phys. Today* **18**, 28 (Mar. 1965).
4. J. C. R. Licklider, *Libraries of the Future* (M.I.T. Press, Cambridge, 1965).

NEWS AND COMMENT

The Berkeley Scene, 1966 (I): Politics and Potshots

Berkeley, California. The University of California at Berkeley has become a kind of year-round long hot summer. What is happening there in the Year One of the post-Free Speech Movement regime is not as dramatic as what happened during last year's student rebellion. Individual events are not as significant. Time is no longer told by in-group references to the dates of various sit-ins, demonstrations, and manifestos. But, if the revolution has left few concrete mementos (Sproul Hall has not, after all, been renamed to honor Mario Savio), it has nonetheless left its marks on campus political activity, on plans for educational reform, on a wide range of internal matters affecting relationships among students, administration, and faculty, and on the university's relations with California's citizens and politicians. It is still too early for a General Theory of Berkeley: the campus is too rich and varied, its 27,000 students and 1500 faculty members are moving in too many directions and responding to too many forces. But, despite the university's seemingly limitless vitality, it is not too much to say that the aroma now coming from the campus is distinctly one of uneasiness. "It takes a boat like this a long time to stop rocking," Berkeley chancellor Roger W. Heyns commented in a recent interview with *Science*, though he added that he believed "every oscillation is getting to be a bit less." "Maybe so," observed one sociologist to whom Heyns's remark was repeated: "The trouble is we're all pretty seasick already."

The sense of uneasiness should not be attributed to paranoid fantasies of the battle-scarred. It is supported by the kind of conventional indices usually cited to prove that an academic institution is in trouble. Freshman applications declined by about 15 percent this year. Some departments—for example, physics and psychology—are admitting to difficulties in getting the graduate students they want. The pace of out-

Dees and Riecken Leaving NSF

Several veteran officials of the National Science Foundation have recently left or soon will be leaving for other jobs.

Bowen C. Dees, associate director for planning, who joined NSF in 1951, will leave around the beginning of July to become a vice president of the University of Arizona. Dees has long been one of the most influential and widely respected members of the NSF leadership. At about the same time, Henry W. Riecken, associate director for education, will leave to become a vice president of the Social Science Research Council (SSRC). Riecken joined NSF in 1958 and skillfully directed one of NSF's most politically perilous efforts, support of research in the social sciences. In his new position he will head an office that the SSRC plans to open in Washington.

In March, Charles B. Ruttenberg, deputy general counsel and a member of NSF for 12 years, left to become general counsel to the National Foundation for the Arts and Humanities. Early last month, James F. King, head of NSF's Office of Congressional and Public Affairs for the past two and a half years, resigned to become Assistant Secretary of the Treasury for Public Affairs. Another planned departure is that of Gordon Lill, who will return to the Lockheed Aircraft Corporation after serving since February 1964 as Mohole Project director.

The only replacement announced so far is for King, whose position was filled by Clarence C. Ohlke, director of the Office of Economic Impact and Conversion of the Atomic Energy Commission.—D.S.G.

side raids on the faculty—and the faculty responsiveness to them—seems to be increasing. A number of nationally eminent professors—including, for example, social scientists Seymour Martin Lipset and Lewis Feuer—have already decided to leave, and a number of others are privately playing "Can you top this?" with a variety of other institutions. Martin Meyerson, the present dean of the school of environmental design, who was acting chancellor during much of last year's crisis, has accepted an offer to become president of the University of Buffalo. Even the unspoken ban on competition among campuses of the U.C. system seems to be breaking down; a surprising number of professors are reliably said to be eyeing the innovating new university branch at Santa Cruz, and vice versa.

What these omens mean is another question. Applications always fluctuate —the 15-percent figure is down from a high point last year. Buying and selling are part of the academic ritual. And it would be surprising if Santa Cruz, with its intellectual promise and physical charm, were not a kind of siren for the beleaguered inhabitant of Berkeley. Berkeley heads many lists of the country's distinguished universities, but the net result of the undercover goings-on is nonetheless a kind of defensiveness. Berkeley feels itself, as one observer commented, to be "Avis country."

Another concrete source of uneasiness is the deterioration of Berkeley's political fences within the state. Tension is endemic to university-public relations, and a fairly high level of adult fuming at the politics and morals of the young is taken at Berkeley as a matter of course. But, in some instances at least, the state legislature has passed beyond fuming. The results are so destabilizing that professors not intrigued by the particular problems of mass public education have little incentive (other than affection for the hills, the Bay, and San Francisco) not to go elsewhere. "I can do the same work at M.I.T. as here," commented one physicist currently being wooed, "and in Cambridge I won't have to worry about the legislature."

Attacks Renewed

In the past few weeks Berkeley has been afflicted by a resumption of attacks by the Factfinding Subcommittee on Un-American Activities of the state legislature. To understand the attack, it is necessary to understand the specialized perspective of its authors, as reflected, for instance, in an early paragraph of its current report, which states, "Before turning to President Kerr's specific criticisms of our 1965 findings, it is essential to acquaint our readers with a brief summary of the developments and purposes of the International Communist movement." This is like saying that to understand Italian politics it is necessary to begin with a brief review of the decline and fall of the Roman Empire, but the senate committee takes it all quite seriously. Its first report on Berkeley, issued last June, quotes a discussion of United Front tactics by Georgi Dimitroff before the Seventh World Congress of the Communist International (in 1935) and devotes 5½ pages to the San Francisco general strike of 1934. Its latest report devotes 12 pages to reprinting the 1943 and 1944 course offerings of the California Labor School.

The subcommittee's allegations of Communist domination of the Free Speech Movement were subjected to detailed rebuttal by President Kerr in October. (Kerr pointed out, among other things, that even our most prominent ideological scorekeeper, J. Edgar Hoover, had concluded that the FSM was not "Communist originated or controlled.") Two weeks ago the committee came back with a rebuttal of the rebuttal, which repeated the earlier charges and further attacked Clark Kerr—long a favored whipping boy of California conservatives—for an alleged failure to enforce a university-wide prohibition against the employment of Communists. The main theme of the report is that the administration's "concessions" to the FSM—chiefly, the lifting of the prohibition of political advocacy and fund-raising on the campus —has left Berkeley a hotbed of left-wing politics. The report also added a new charge—widespread sexual deviation among the students.

The importance of the new report is difficult to calculate at this stage. Whatever the cogency of its particular charges, the subcommittee has a reputation for demagoguery, and not very many influential Californians appear to take it all so seriously. While the report was endorsed by the Oakland *Tribune*, the Los Angeles *Times* called it "a thinly veiled attempt to harass the university administration and embarrass Governor Brown," and the San Francisco *Chronicle*, another of the state's major newspapers, described it

as "venomous slander." Nonetheless, with California's political turbulence —particularly in an election year—it is not the sort of thing that friends of the university can afford to ignore. Issuance of the report points up a serious weakness in the university's legislative intelligence—no one in a position of authority knew it was in the making. In addition, the report has an inevitable impact on the university's internal politics. Faculty and students are reported to be rallying around the administration, and in that sense the report may help create a long-lacking sense of unity. But in the opinion of many observers, including some who occupy key positions in the university's power elite, "unity" may have the unfortunate side effect of entrenching resistance to administrative changes—including further decentralization of power to individual campuses—that many of the giant university's best friends believe are necessary.

What it boils down to, in less polite language, is that in addition to being a tool of state conservatives in their war against Clark Kerr the report gives Kerr a kind of sandbag for his efforts to fend off the students, administrators, and faculty throughout the system who are critical of his manner of running the show. And the report also strengthens Kerr's hand in dealing with the university's Regents by preventing the formation among them of a liberal-conservative coalition for his replacement. Each group has its own reasons for dissatisfaction with the embattled president. But, when the conservatives attack, the liberals support—chiefly out of fear that Kerr's successor would be a conservative. Thus one ironic consequence of the latest attack is likely to be a new lease on life for a rather uneasy status quo.

Political Reprisals

In addition to stirring up a sex-and-politics scandal, the state legislature has been taking a number of other actions disquieting to the Berkeley community. These acts cannot be definitely called punitive, but it seems no accident that the legislature has chosen this year to cut back the number of tuition waivers available to out-of-state graduate students, many of whom have been politically active. Nor does it seem coincidental that the legislature has chosen this year to reduce the amount of money available to pay teaching assistants. TA's were conspicuously active in the FSM, and a few hundred of them are now members of a union growing out of the FSM which attempts to negotiate for better working conditions with their departments. There is some question whether the motive is retaliation. Members of the faculty have speculated that the politicians perhaps believe charges that professors do no teaching these days and that they are anxious about possible neglect of native Californians in the constant push for high-quality disciples. But whatever the reasons, the faculty is painfully aware that the legislature is tightening up on the chief emoluments the university has to offer in the competitive graduate student market, and that in the long run this can only produce a decline in campus academic standards. Working in the same direction is the faculty's realization that Berkeley has reached its maximum size, and that the legislative attention formerly lavished on it is in the process of being transferred to the university's other campuses. The changing balance among the campuses was more or less spelled out in the state's 1960 Master Plan for higher education and does not necessarily reflect a conscious legislative intent to "destroy" Berkeley's unique social, intellectual, and political culture. But to many of the participants that is the way the situation feels.

Whatever its other hits and misses, the state senate's latest evaluation of the Berkeley scene is quite right in pointing out that there has been a great outpouring of political activity this year. The amount of political activity and its character are only partly explained by the lifting of the ban on on-campus action. The victory of the FSM did more than establish a precedent for free-swinging politics. It also served as a magnet for like-minded students around the country. One researcher told of receiving a letter from a friend at a large eastern university, who reported that "all our most alienated students are transferring to Berkeley." The truth seems to be that it is not only the most "alienated" but also the most political. And what is true of Berkeley's students is also true of its growing army of nonstudents, who occupy pretty much the same spaces and seem to spend their time in pretty much the same ways—in libraries, classes, coffeeshops, meetings, rallies, and "pads."

Clark Kerr (right) and Roger Heyns at a 6 May press conference on the Un-American Activities subcommittee report.

The Nonstudents

The character of the nonstudents and their relations with the University are explosive subjects. Most liberal faculty members and administrators tended initially to take a fairly benign view, enjoying the "Left Bank" atmosphere the outsiders support and seeing among their number a substantial portion of their former students on the youthful equivalents of an academic sabbatical. Now, however, while the liberals do not share the certainty of campus and state conservatives that the nonstudents are nothing but a collection of professional agitators, petty criminals, and perverts, they are more inclined to take the problem seriously. This is partly because of numbers: no nonstudent census is available, but observers are unanimous in thinking that the population is swelling. It is also because of politics: at least some of the nonstudents, without academic responsibilities, are able to spend full time on precisely the kind of political activities that tend to get the university into trouble. "The Vietnam Day Committee has a bigger staff than I do," Chancellor Heyns remarked to *Science* recently. Allegations of a rising crime rate in the Telegraph Avenue area south of campus that is the home base of the Berkeley "culture" are also playing a role in focusing worry on the nonstudents.

Real or fictional (but apparently undocumented), the crime scare is among the reasons administration officials cite for their interest in a con-

troversial urban renewal plan now being studied by the City of Berkeley. The plan calls for selective renewal involving, among other places, precisely the portions of Telegraph Avenue where the concentration of radicals and bohemians is thickest. The bookstores, shops, coffee houses, and dilapidated housing would be replaced by large university dormitories, open plazas, and—as one history professor critical of the plan put it—"the kind of trees that grow in little barrels." As in the case of many actions of the legislature, the impulse cannot be definitely called retaliatory. But many students and faculty feel that Telegraph Avenue is one of the most charming—if admittedly eccentric—centers of intellectual activity in the United States and that to "renew" it would be an act of know-nothingism second only to a book-burning.

These critics see the administration as favoring renewal partly in the hope that it will scatter the nonstudent population to the winds. In the meantime, however, university officials are trying to find other ways of dealing with the problem and, in particular, of limiting the influence of the nonstudents on student politics. Heyns's efforts have brought him into collision with student activists who oppose any restriction on who can do what on campus or within their organizations. And where Heyns would like to reinforce the distinction between students and nonstudents—in part to help give Berkeley politics more of an undergraduate and less of a "professional" character—the student activists see the nonstudents as just a part, and one of the better parts, of the Berkeley "scene."

"Institutionalizing the Revolution"

If the circus is different at Berkeley this year, the reason is in part that the ringmasters have changed. Former Berkeley chanceller Edward Strong dropped out of the picture last January, shortly after the FSM sit-in in Sproul Hall; for the remainder of the year the job was held by Martin Meyerson. Last fall the Regents brought in Heyns, a former vice-president of the University of Michigan, to take on the task of "restoring a sense of community." This involves, in part, breaking down the rather hardened "class" aspect of last year's conflict—faculty versus administration versus students—by, among other things, making last year's faculty critics this year's administrators. One of Heyns's first acts was to recruit three faculty members most active in support of the FSM into his administration. These men, most notably philosophy professor John Searle, have been engaged in a process they refer to as "institutionalizing the revolution"—developing specific rules governing political conduct which protect order without nibbling into last year's hard-won freedom.

Heyns's ameliorative approach has inevitably made him enemies on both the left and the right. The student radicals accuse their former faculty allies of "selling out," and appear to believe that any regulation of the time, place, and manner of political activity infringes on freedom. The faculty conservatives—angered particularly by an agreement under which the university provides amplification equipment for daily student rallies at two campus locations—believe that the new policies, in the words of one researcher, have "delivered the university into the hands of the agitators, built their barricades, and handed them their ammunition."

Searching for Peace

Nonetheless, in a bitterly torn and divided community Heyns has been almost miraculously successful with the middle. "The major difference between this year and last," commented one faculty member who supported the FSM, "is that last year a majority of the faculty was on the side of the students and this year a majority of the faculty supports the administration." This observation contains a lot of truth but needs to be amplified. In retrospect, it appears to many participants that the extent of faculty commitment to the FSM was exaggerated. The locally historic faculty meeting of 8 December 1964, in which the faculty endorsed student demands that the university cease regulating political activity, now appears to have been a vote less for principles than for peace. Last year peace seemed to lie in opposing an administration seen as unbelievably inept in dealing with the crisis and unsatisfactory to the faculty in a number of other ways; this year it seems to lie in supporting a studiously congenial administration whose authority is enhanced by some modest decentralization now taking effect, and by the relative withdrawal of Kerr from campus affairs. But the main objective, for the majority of the faculty, seems still to be peace.

Whether they will find it is an open question. Politics at Berkeley this year has been dominated by Vietnam. Within the Vietnam protest movement, or at least within its most conspicuous organization, the Vietnam Day Committee (VDC), there has been a transfer of leadership to students and nonstudents at least one step farther removed than the FSM leaders from the peaceful resistance spirit of the civil rights movement and far less committed than the FSM to nonviolent tactics and democratic leadership. The VDC recently sponsored an unauthorized street demonstration in sympathy with students demonstrating in Saigon, which provoked an intentional confrontation with the Berkeley police. It also provoked much criticism from opponents of the war—including a portion of the FSM leadership still active in campus affairs—who believe that skirmishes over rules and fights with the police only divert attention from serious protest. (FSM leader Mario Savio is studying physics in England this year, and many of the movement's other spokesmen have drifted off to other causes, to other schools, jobs, or studies.) "I never thought I'd see the day when the FSM looked moderate," said one administration official whose office in Sproul Hall was occupied during last year's sit-in, "but in retrospect they look disciplined, democratic, and exceedingly respectable."

The precedent of FSM's successful direct action against the university last year, together with the nationwide rise in political activism, seems to have influenced the style of this year's protests, despite the fact that the target is no longer Berkeley but Washington. Last year the disruption of university events and the call for cessation of classes seemed extraordinary. This year they are simply part of the tactical arsenal. When U.N. Ambassador Arthur Goldberg was scheduled to address a recent Charter Day gathering at Berkeley's Greek Theater, war protestors threatened total disruption. To keep the protest relatively mild, Chancellor Heyns and the Faculty Peace Committee (Vietnam, not Berkeley) arranged for Goldberg to meet the students after his speech, to give them a chance to express dissent. The subsequent meeting has already won a place in Berkeley mythology. Goldberg attempted to answer four questions which had been relayed to him in advance; his answers were criticized by historian Franz Schurmann; and

there were questions from the floor. Afterward the audience was asked to stand if it disapproved of Goldberg's position; about 7000 people silently rose. Only a handful indicated support.

Another example of the kind of tactical escalation that directly affects the university was the VDC's proposal to use classroom time at the opening of the semester for discussion and protest of the U.S. resumption of bombing. According to most reports, the effort fizzled. But several hundred people apparently did participate, and the idea had the public support of more than a dozen faculty members, who argued that it was a good way of showing that the university cared enough about the war to be willing to interrupt its routine activities to register concern. The administration's failure to discipline the few faculty members who did devote class time to Vietnam is resented by a number of campus conservatives, and it played a prominent role in the recent senate attack on Clark Kerr.

A Forum for Commitment?

Relatively few members of the Berkeley faculty share the idea of the radical minority that the university should be a forum for commitment as well as for scholarship, that education and political responsibility are not divisible. Nonetheless, that idea is very much in the air. It was implicit in the teach-ins that drew heavy faculty support across the country last year, and it is a theme underlying developing faculty support for the current wave of student protests against university cooperation with the Selective Service. At Berkeley the idea hovers like a small cloud.

In this sense, when Berkeley's conservatives (a relatively small number of men whose most consistent spokesmen are scientists associated with the university's specialized laboratories) cry out that the radicals want to politicize the university, they are by no means wrong. If the conservatives exaggerate when they say a Latin American–style university is just around the corner, it is still true that the radicals are trying to use the university in ways rather new to the American tradition. It is perfectly true, as administration spokesmen point out, that out of a campus community of around 30,000, not much more than a third have ever taken part in protest activities, and the number of persons devoting more than a fraction of their time to the cause is probably less than a thousand. It is also true that political zeal and energy are not limited to the extreme left—in which category most observers would place the VDC—or even to the left. As *Sports Illustrated* pointed out in a recent article the administration is fond of circulating, thousands more people still go to football games than to rallies. The students 2 weeks ago voted down a proposed new constitution that actually implied fully autonomous student government in something like the Latin-American style, and the majority have shown little inclination to support the radicals in their repeated challenges of the administration's new rules. But there are different degrees of radicalism, and there is no doubt that at Berkeley it is the left that is dominant.

The emphasis on politics is itself partly the result of the Free Speech Movement. "Last year was the first significant political experience of my life," said one researcher currently involved, along with sizable numbers of students and faculty members, in the congressional campaign of (peace candidate) Robert Scheer. The volume of faculty activity sometimes distresses even professors who are friendly to the cause. "I hate the war too," said one department chairman discussing a colleague who is spending much of his time with the Scheer committee. "But I hate it more when I have to do his administrative work as well as my own." To members of the faculty who support the war, the gravitation of their colleagues to politics seems, at best, a breach of contract with the university; at worst it is apt to seem like subversion.

Somehow in the midst of all this it is perhaps a tribute to its diversity —Berkeley has devoted a substantial amount of its time this year to proposals for reforms in undergraduate education. Those efforts will be discussed in a second article in this space.—ELINOR LANGER

Demand for Institutional Support Attains the Form of Legislation

The postwar "partnership" between the federal government and the universities, like many associations in which one partner has the talent and the other the money, has been troubled by the way the money has been handled. The special rub is the mechanism of federal support—the system of grants by which most of the federal research funds are allocated to individual investigators for specific research projects.

A bill (H.R. 13786) recently introduced by Representative George P. Miller (D–Calif.), chairman of the House Science and Astronautics Committee, would provide a sizable sum for research ($150 million a year to start with), over which the institutions themselves would have control. These funds, the sponsors insist, should be, not an alternative, but a supplement to grant and contract funds.

Chances for enactment of the Miller bill in this session of Congress, however, are miniscule. Substantial new expenditures are involved, and most such proposals have been left out of the budget this year because of Vietnam. Furthermore, the leveling off of funds for research grants and contracts in the last few years guarantees that there would be stiff resistance to any attempt to cut up the existing research pie differently. Miller himself, while interested in the problem of institutional support, appears to have introduced the legislation in part, at least, as a courtesy to a college president from his home state. Hearings could be scheduled for late