isting programs for assistance"), but then, neither is it designed for the near-bankrupt. The intention is to work with less-than-first-rank institutions that are demonstrably on the way up, and to add to their present momentum through grants that will supplement their own development efforts. The down-and-out and those with nothing to show but ambition are not invited to apply.

For the institutions that fall into the aspiring middle class, NSF is currently planning ten to 15 five-year grants, generally not in excess of $5 million per institution. The eligibility requirements are stiff, but they are combined with wide-ranging flexibility on the use of the money.

Those who seek the grants must not only spell out what they have been doing to help themselves but must provide assurances that, once NSF drops out of the financial picture, they will have the resources to carry on. And, while NSF does not set forth specific goals to be achieved with its money, it wants to know "specifically, what will have been upgraded?" with the aid of the grant.

Outside of that, though, NSF is wide-open to proposals for using the money for anything from janitorial services to equipment and salaries. Significantly, undergraduate institutions are invited to apply, along with graduate schools, and proposals can be for strengthening single departments, a group of related departments, or the entire science program of an institution or for establishing new departments.

In any case, NSF realizes that its difficulties with Project Mohole and the now happily resolved financial irregularities of one of its grantees, the American Institute of Biological Sciences, has given it something of a reputation to live down on Capitol Hill. Both incidents were trivial compared to the bloopers that regularly turn up in the space- and defense-related research fields, but Congress clearly expects a higher order of competence and purity when it comes to higher education and fundamental research, and, in working out the science development program, NSF would rather go slow than go wrong.

Still to be worked out is the advisory apparatus for deciding who gets the grants. Since the program involves a venture into the political jungle of the hungry have-nots, a respected and disinterested advisory body is NSF's best protection against possible attacks by the losers. A number of possibilities are now under consideration, including the establishment of a new panel, or of a panel composed of members drawn from existing NSF advisory groups.

Although the House last year forbade NSF to undertake new programs, thus blocking plans that probably would have had the science development program now under way, it is apparent that NSF is proceeding with the informal blessings of its congressional appropriations subcommittees. The committees are yet to make public their verdicts on the budget, but NSF says that it has $3 million to devote to the program this year and expects to have $25 million for the coming fiscal year.

Various interpretations have been offered of last year's harsh treatment, but whatever accounts for it, it appears that Leland Haworth, who became NSF director last summer, has worked out a good relationship with the legislators who control NSF's financial fortunes.—D. S. GREENBERG

Daddario Committee: Hearings To Be Held on Overhead Support and Geographical Distribution

Now that the House Science and Astronautics Committee has completed its annual task of reviewing the space program, it plans to resume its inquiry into the general problems of science and government.

Under the chairmanship of Emilio Q. Daddario (D–Conn.) the committee's subcommittee on Science, Research, and Development has staked out two troublesome problems for hearings starting 5 May: (i) geographical distribution of federal research and development grants and contracts, and (ii) indirect costs and overhead for basic research grants and contracts. The hearings, which are expected to last about 5 days, will concentrate on testimony from representatives of federal agencies. Later hearings will bring in other witnesses.

The subcommittee has also announced the appointment of a Research Management Advisory Panel "which will act as a special task group for the committee in pointing the way to improve research management." The members are:

James B. Fisk, president, Bell Telephone Laboratories, Inc.

James M. Gavin, president, Arthur D. Little, Inc.

Samuel Lenher, vice president, E. I. duPont de Nemours & Company.

Wilfred J. McNeil, president, Grace Line, Inc.

Don Price, dean, Graduate School of Public Administration, Harvard.

C. Guy Suits, vice president and director of research, General Electric Corporation.

Jerome B. Wiesner, former White House science adviser, dean of science, M.I.T.

Michael Michaelis, formerly of the White House Office of Science and Technology and now Washington representative of Arthur D. Little, Inc., will serve as executive director.

Meanwhile, the Daddario committee's running mate in the field of congressional investigations of science, the Elliott committee (or the House Select Committee on Government Research), is proceeding with its ambitious studies of ten areas of federal involvement in research-related matters (*Science*, 14 Feb. 1964). No date has been set for additional hearings, but it is likely that some will be held before the committee's mandate comes up for renewal in December. For both Daddario's and Elliott's committees these are critical months. Eventually there is going to be some congressional sorting out of jurisdiction over government research programs, and the committee that can show the best stuff will be in a good position to claim the prize when the Elliott committee's renewal is before the House. Needless to say, there is no love lost between the two groups.

—D.S.G.

California: Junior Colleges Are the Key to State's Own Version of an Open Door Policy

One of the less obvious reasons why California's system of public higher education has been a pacesetter is that California is further along than most other states toward solving one of the touchiest problems of expansion—selective admissions.

In many state systems—in the Midwestern and Border states, for example—the question of whom to admit and whom to exclude from which public institutions of higher education is a difficult and politically volatile issue.

A familiar pattern followed by many states was to differentiate institutions by function. A university was estab-

lished to provide regular undergraduate and preprofessional education and graduate and professional schools. A technical university emphasizing engineering, agriculture, or perhaps mining might follow. State colleges developed out of what began as teacher training schools. Relations between the institutions tended to feature competition for funds, rather than close cooperation.

As the number of students grew, and as the prestige of certain institutions outstripped that of others in their own systems, the normal flow of students into some institutions became an overflow and new facilities and new admissions policies became necessary.

It is in those states with a strong tradition of state-supported higher education that the feeling against restrictive admission policies in publicly supported institutions is often most deeply held. The practical result, somewhat overstated, of this persuasion that public education should be truly public is that in many public systems all high school graduates have had equal opportunity to flunk out of the state university. And academic casualty rates have remained wastefully high.

The catalogs of the major universities in the Midwest reflect a distinct trend toward selective admissions. Typical admissions requirements for universities now are that a prospective resident student must rank in the upper half of his high school graduating class and must present a specific group of credits in college-preparatory subjects. State colleges have somewhat more relaxed admission standards.

California for many years has made academic ability the criterion of admission and in effect runs a track system in higher education. Free-tuition education is guaranteed to residents who can profit from it, but different institutions are open to those with differing degrees of academic accomplishment.

In practice, this means that the top eighth of high school graduates are eligible for admission to the University of California, and the top third, to the state colleges. The junior colleges have an open-door policy, admitting not only all high school graduates but all persons over 18 years of age who are judged capable of profiting from the instruction.

The key to the system is the guarantee of mobility from one level to another. A junior college student who demonstrates real ability, for example, can transfer to a state college or to the university. A large number do, and studies show that they do well.

The system has been in operation long enough and has worked well enough, it seems, that criticism that it is "elitist" or that certain institutions are favored over others has never boiled over.

In the Midwest, for example, where the major institutions have been building city-sized enrollments, efforts to develop statewide systems, to promote better coordination between universities and state colleges, and to control the flow of students by selective admissions got under way somewhat tardily.

Unfortunately there is little time to work out new patterns. An enrollment wave now bearing down on colleges and universities will hit the public institutions with special force. The absence of the equivalent of California's junior college network in most of the big states is a fundamental problem. The enrollment crush will create bona fide crises in some states and will also put the California system to a stern test.

The Master Plan

The California Master Plan, passed in 1960 in the form of a constitutional amendment, was in part a response to the projections and predictions of the high tide of students in higher education in the next decade.

The administrative organization of public higher education was altered by the Plan, and the revamped system is still in a shakedown phase. The state colleges now operate under a board of trustees and a chancellor—patterned on U.C. governing arrangements—rather than under the State Board of Education, as formerly.

This centralization of authority means a change in the role and status of state-college presidents. Several previously had formed alliances with legislators from their own areas and had lobbied the legislature so effectively in behalf of their own colleges that they had won reputations as educational impressarios.

The junior colleges continue to depend for support and students on districts which correspond to one or more school districts. General standards and policies are prescribed by the State Board of Education. Each new junior college, however, will have its own governing body, recruited from among private citizens, who will be expected to be concerned with the destiny of the junior college as distinct from the public schools of the district.

At the center, not the top, of a Master Plan chart is the Coordinating Council for Higher Education. The council was chartered not as a super board of higher education but, rather, as an advisory board to the governor, the legislature, and the governing bodies of the public institutions of higher education. Representatives of the university, the state colleges, and the junior colleges sit on the council, and so do representatives of the more than 100 private colleges and universities in California and of the general public. (The private colleges actively participated in formulating the Master Plan and have generally supported recent proposals for public financing of higher education. The private institutions now accommodate about 20 percent of the total enrollment in higher education in California; as total enrollment expands, their percentage is expected to fall to around 10 percent by 1975.)

The Coordinating Council is instructed to review the budget, "interpret the functional differentiation among publicly supported institutions," advise the governing boards of the public institutions, make recommendations to the governor, and "develop plans for the orderly growth of the system." Because its activities are wide ranging and its authority is ambiguous, the council has been looked upon with some suspicion by university and state college partisans as a potential usurper of power, whatever the Master Plan says.

The Plan, it is evident, does not assure California clear sailing in higher education. There are financial shoals ahead, and relations among institutions at the three levels are likely sometimes to be rocky. In the state colleges, for example, graduate education will continue to be a sensitive point. State colleges offer instruction through the master's degree. But California's state colleges can be expected to display what University of Connecticut president Homer D. Babbidge, Jr., has called "the inevitable sense of aspiration of institutions of higher education" to push ever upward into higher levels of instruction.

Under the Master Plan, the university is the "primary state-supported academic agency for research," but research by state colleges is authorized "to the extent that it is consistent with the primary function of the state colleges and the facilities provided for that function." The boundaries, therefore, are indefinite, and the yearning of state college faculty to do research is unlike-

ly to diminish as enrollments grow and institutions develop. Providing laboratory and library facilities adequate to support first-class research at both university campuses and state colleges would be very expensive. A plan permitting a state college to award a doctoral degree jointly with the University of California may serve as a kind of safety valve, but, at the moment, university faculty take a dim view of the workability of such arrangements.

Perhaps the most vexing problem facing the university is the need to divert qualified students from some campuses. Berkeley this year reached the 27,500 enrollment figure set by the Regents as a maximum, and U.C.L.A. will reach the ceiling figure shortly.

Until now, the university has been able to admit all qualified residents to the campus to which they applied. Now, Regents, administration, and faculty are looking for a method of diverting the overflow. Berkeley faculty tend to feel that the best of the applicants should be selected and the rest encouraged to enroll at other campuses of the university. Such a course, however, would threaten violence to the theory that all U.C. campuses are equal, and would be likely to cause resentment on the campuses who got the Berkeley "rejects." Several methods of selection have been discussed, including the rather desperate one of drawing lots, but the Regents deferred a decision by decreeing that, for the coming year at least, a "voluntary" system would be tried, under which applicants would be encouraged to consider other campuses.

The master planners saw the problem of diverting students coming, but left the means of accomplishing the transfer to the governing boards of the institutions, and expressed the hope that tightened admissions standards, the deterrent of overcrowding at some institutions, increased prestige of junior colleges, and "persuasive counseling" might relieve the pressure. But it appears that the university and some state colleges in California are confronted with a selective admissions problem of their own. The Master Plan warned that if the problem is not tackled effectively and soon, "decisions may have to be made in an atmosphere of clamor and controversy not conducive to careful and deliberate consideration."

The major complaint from the junior colleges is that state support has fallen far short of the necessary level if junior colleges are to fill the role set out for them in the Master Plan.

The Master Plan calls for the junior colleges to take an increasing proportion of the lower-division (freshman and sophomore) students. Projections based on present trends show that enrollment of full-time students in 1975 would be 136,000 in the university, 200,000 in the state colleges, and 246,000 in the junior colleges. The Master Plan urges that steps be taken to divert more than 40,000 students into the junior colleges, some 24,000 from state colleges and 17,000 from the university.

To expand the facilities of the junior colleges and make them more attractive to students interested in full undergraduate and graduate education, a larger infusion of state aid is obviously needed. The junior colleges claim, however, that since the Master Plan was adopted, the percentage of state funds in total expenditures for junior colleges has slipped from about a third down to nearly a quarter, and that the state has been tardy in helping with capital expenditures, which until now have come entirely from local sources.

The junior colleges have developed under the wings of the local school districts, for the most part, and a feeling lingers that the 2-year institutions have not won full standing in the higher-education club. Faculty pay and faculty status are pressing problems. And another live issue is the question of how to distribute emphasis in the junior colleges between regular liberal arts and what amounts to vocational subjects.

The corollary of the California commitment to post-high school public education for nearly everybody is that instruction can't be cast entirely in the traditional liberal-arts or sciences mold. University faculty tend to curl a lip at, for instance, the cosmetology courses being offered in the junior colleges. But the 2-year institutions are grappling with the difficult job of providing sound lower-division training for those who will continue on to state colleges or the university and, at the same time, preparing a probable majority of their students for employment in an economy where available jobs go increasingly to those with special skills and semiprofessional training.

Money, of course, is a key factor in meeting not only junior college requirements but the needs of the whole system. The junior colleges are asking $39 million in state funds in the coming year to add to about $100 million in local funds, exclusive of capital outlay. The budget request for state funds for the state colleges is $113 million and for the university, $174 million. The Master Plan envisions state appropriations in 1975 of $120 million for the junior colleges, $192 million for the state colleges, and $277 million for the university.

The Plan also foresees that expansion of public higher education will outrun anticipated revenues available to finance the system under present arrangements, and that Californians will have to dig deeper to pay for their Master Plan.

The major problems facing higher education in California are the obvious ones of sheer size and headlong growth. Not only does California face the results of the postwar baby boom and of the massive influx of immigrants into the state—some of them doubtless drawn by the reputation of the public education system—but also, in California a far higher percentage of citizens go to college than almost anywhere else.

The major assumption underlying the Master Plan is that the state's economy will continue to develop at a high rate. And in public higher education, as in many other realms, California will have to go on like a man on a special sort of bicycle who has to pedal progressively faster or fall off.

—JOHN WALSH

Announcements

The **Organization of Molecular Biologists** was formed recently in Geneva, to encourage the development of the subject in Europe. The group's major aims are to raise funds for the support of molecular biology in European colleges, advanced training of scientists, and sponsorship of joint research proposals among European scientists. M. F. Perutz, chairman of the Medical Research Council Laboratory of Molecular Biology, Cambridge, England, is chairman of the 15-member organization.

A center for studies of **infectious and immunologic diseases and disorders** in man was begun recently at Johns Hopkins Medical Institutions, Baltimore, Md. A $286,000 NIH grant for the first 15 months of operating the center will be administered by the National Institute of Allergy and Infectious Diseases; NIH support is to continue for 5 years. The program is designed primarily "to develop a facility and an op-