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-

portunity for detailed study of patients having diseases not related to any specific research project" at the hospital. Five laboratories are being equipped for research in diagnostic virology, bacteriology, serology, immunologic and protein abnormalities, and histopathology. Leighton E. Cluff, associate professor of medicine at Johns Hopkins, who directs the project, says that it will be fully operative by 1 July.

Grants, Fellowships, and Awards

The American Medical Association and the AMA Education and Research Foundation wil present an institute in **medical writing**, 29 June to 21 August, in Chicago, Ill. The course is designed for medical students, and will include analysis of the various categories of medical publications. Twelve fellowships of $650 are available for travel and living expenses. (L. S. King, 535 North Dearborn St., Chicago, Ill. 60610)

Travel grants are available for approximately 30 participants in the fourth international symposium on **comparative endocrinology**, scheduled 20–26 July in Paris. The funds have been provided by the National Institutes of Health, to the Division of Comparative Endocrinology of the American Society of Zoologists; the grants are for tourist jet flights from New York. Applications must be requested by 17 April, from I. I. Geschwind, Department of Animal Husbandry, University of California, Davis.

The National Association for Retarded Children has created the Gunnar Dybwad distinguished scholar award in the **behavioral or social sciences**. The award is a 5-year sustaining grant of $25,000 annually, given to a research institution in support of work by the grantee; it is subject to renewal. Individuals may not apply for the award but must be nominated by an administrative officer of their institution. Deadline for nominations: *15 June*. (A. Wolf, Research Advisory Board, National Association for Retarded Children, 386 Park Ave. South, New York 10016)

Manuscripts are being accepted for the $1000 **AAAS Socio-Psychological Prize**, which will be presented during the 1964 annual meeting in Montreal 26–31 December. The prize is offered "to encourage in social inquiry the development and application of dependable methodology analogous to . . . the natural sciences."

Entries may be unpublished, or published since 1 January 1963; there is no restriction as to length, although preference will be given those which do not exceed 50,000 words. The manuscripts should "present a completed analysis of a problem, the relevant data, and an interpretation of the data in terms of the postulates with which the study began;" they must advance the understanding of human social-cultural behavior. Papers must be submitted in quadruplicate, accompanied by six copies of an abstract of no more than 1200 words, and a separate page for the title and name of the author. Deadline: *1 September*. (Dael Wolfle, Executive Officer, AAAS, 1515 Massachusetts Avenue, NW, Washington, D.C. 20005)

Courses

Purdue University announces a course in **mathematical techniques of optimization**, in Lafayette, Indiana, 1–11 June. Enrollment will be limited to about 30 people, and applicants must have had previous training in mathematics through calculus, differential equations, and at least one course in statistics. (P. H. Randolph, Division of Mathematical Sciences, Purdue University, Lafayette, Ind.)

The biomedical engineering center at Northwestern University has begun a 2-year program for medical scientists leading to the M.S. degree in **biomedical engineering**. Applicants must have an M.D., or a B.S. or higher degree in a biological science. The program includes courses in mathematics, physics, physical chemistry, control theory, and computer applications. (Bio-Medical Engineering Center, Technological Institute, Northwestern University, Evanston, Ill.)

A summer institute in **plasma physics** is scheduled 29 June to 7 August, at Princeton University. Lectures will be on theory and experiments, geared to both academic and industrial participants. An optional curriculum will be offered in plasma and ion propulsion. Some stipends are available. (Office of Summer Studies, Princeton University, 307 Nassau Hall, Princeton, N.J.)

Two ecology seminars are scheduled this summer in the Rocky Mountains, in Colorado. A seminar on **mountain ecology**, 29 June to 4 July, will include foothills, montane, and subalpine ecology; and a comparison of the eastern and western slope ecosystem. Registration is limited to 35 persons.

The session on **alpine tundra ecology**, 6 to 11 July, will be limited to 25 participants. The topics covered will include alpine environment, alpine plants and animals, their adaptations and ecological relations. A fee of $25 for one week, $35 for two, is required. Deadline: *15 May*. (Executive Secretary, Rocky Mountain Nature Association, Box 147, Estes Park, Colo.)

Princeton University will offer a course in **electronics**, 2–24 July, for college teachers of the physical sciences, medicine, engineering, and psychology. The program will include electronic measurement and circuitry, servo systems, operational amplifiers, and digital timing and counting circuits. It is primarly a laboratory course, and stresses individual experimentation aimed for "more effective use of electronic instruments, both in research and in teaching." (P. L. Coddington, 307 Nassau Hall, Princeton University, Princeton, N.J.)

Two postgraduate courses in **brain research** will be held in July at the Netherlands Central Institute for Brain Research, Amsterdam. The course on the neuron is scheduled 6–10 July; that on sensory mechanisms, 13–17 July. Both are designed for biologists, engineers, physicists, chemists, and physicians. (J. P. Schadé, Central Inst. for Brain Research, Mauritskade 59B, Amsterdam, Netherlands)

The University of North Carolina will present a course on **statistics in the health sciences**, 29 June to 7 August. It will emphasize methods and techniques and is designed for persons working in health-related fields. The course is supported by an NIH grant, and stipends will be available. (Summer session, Department of Biostatistics, School of Public Health, University of North Carolina, Chapel Hill, 27515)

Two courses on **infrared spectroscopy** are scheduled at Massachusetts Institute of Technology, in August. A program in techniques, 10–14 August, will include 30 hours of lectures and labora-

tory work on the fundamental optics of infrared spectrometers, infrared spectrophotometry, qualitative and quantitative analysis, and techniques for preparing samples for spectroscopic study.

The course on applications, 17–21 August, will deal with the interpretation of spectra, group frequencies, and integrated intensities, and application of spectroscopic methods to the solution of chemical research problems. The cost will be $200 for each course; registration is limited. (J. M. Austin, Room 7–103, Cambridge, 02139)

Boston College will conduct its annual course in modern **industrial spectrography** 20–31 July. It is designed for chemists and physicists from industry who wish to learn techniques of emission spectroscopy for use in analytical work. (Rev. J. J. Devlin, S.J., Department of Physics, Boston College, Chestnut Hill 67, Mass.)

The University of Minnesota will present two **infrared spectroscopy** courses: techniques, 7–11 July; and chemical interpretation, 13–17 July. The courses are related but separate, and participants may register for one or both courses. Enrollment is limited; applicants should have at least basic training in chemistry and physics.

The sessions on techniques will include lectures and laboratory work in basic optics and instrument theory, instrument design, sample preparation, and laboratory techniques. The interpretation course will cover the group frequencies for chemical diagnosis and structure determination. (Director, Center for Continuation Study, University of Minnesota, Minneapolis, Minn.)

A summer school of **alcohol studies** is scheduled 29 June to 18 July at Rutgers University. Three programs will be offered: current research and clinical practice, for physicians interested in treating alcoholics; social issues involved in alcoholism; and specialized studies for medical and correctional personnel, clergy, educators, sociologists, and social workers. (Summer School of Alcohol Studies, Box 554, Rutgers University, New Brunswick, N.J. 08903)

A course in new concepts and terminology of **communications theory** will be offered 1–12 June at Purdue University. It is designed for engineers who are active in communications, but who have had little formal graduate training in the field. The topics to be covered will include random processes and the interaction of random signals and linear systems, digital communication techniques, PCM, multiplexing, optimum linear systems, matched filters, diversity and optimum combining techniques, decision and detection theory, information theory, and coding. (J. C. Lindenlaub, School of Electrical Engineering, Purdue University, Lafayette, Ind.)

The University of Michigan is offering interdisciplinary programs in **toxicology**, leading to masters or doctoral degrees. Courses leading to the masters degree are available for persons with a B.S. degree and for Ph.D.'s in allied fields who desire additional training in toxicology. A concurrent M.D. and Ph.D. program will cover both basic and clinical aspects of the field. Some fellowships are available, which will provide tuition, fees, and annual stipends. (T. M. Brody, Medical Science Bldg., University of Michigan, Ann Arbor)

A NATO advanced study institute in **activation analysis** will be held at the University of Glasgow and the Scottish Research Reactor Centre, East Kilbride, Scotland, 13–26 August. It is designed for research workers in clinical or biological sciences; attendance is limited. (J. M. A. Lenihan, Western Regional Hospital Board, 9 W. Graham St., Glasgow, C.4, Scotland)

A laboratory course in **histochemistry** will be offered 8–20 June at the University of Kansas Medical Center, Kansas City, Kan. The topics to be covered include histochemical techniques for proteins and enterochromaffin cells, principles and applications of starch gel electrophoresis, methods of tissue preparation for enzyme histochemistry, and methods for oxidative and hydrolytic enzymes. (School of Medicine, University of Kansas, Kansas City, Kan.)

An institute in **radioisotope technology** for college physical science teachers will be offered at Texas A&M University 1 June to 10 July. It will include class and laboratory training in the theory of radioactivity, interaction of radiation with matter, and methods of radiation detection experiments. Participants will receive a stipend and dependency and travel allowances through AEC and NSF sponsorship, and may earn six semester hours of graduate credit if they are registered in the university's graduate college. (J. D. Randall, Department of Nuclear Engineering, Texas A&M University, College Station, Texas)

Meeting Notes

The Botanical Society of America is accepting nominations for its 1964 Darbaker prize, for "meritorious work in the study of **algae**." Nominees must be residents of North America, although they need not be members of the Society. The prize will be awarded primarily on the basis of papers published during 1962 and 1963; reprints of such papers and a statement of the candidate's merit are required. Deadline: *1 June*. (J. R. Stein, Department of Biology and Botany, University of British Columbia, Vancouver 8, Canada)

The third annual conference on **research in medical education** will be held in conjunction with the 75th annual meeting of the Association of American Medical Colleges, 15–22 October in Denver, Colorado. Papers are invited for presentation at the meeting; topics will include student and faculty attitudes, prediction or measurement of academic performance, selection of students, teaching, learning, and educational experimentation and studies. Abstracts of 350 words are required in duplicate. Deadline: *1 June*. (P. J. Sanazaro, Division of Education, Association of American Medical Colleges, 2530 Ridge Ave., Evanston, Ill. 60201)

Honolulu will be the site of the 10th annual meeting of the western section, **Operations Research** Society of America, scheduled 14–18 September. The meeting will be aimed toward the uses of operations research in technical fields and professions. Papers on the uses or potential uses of the OR approach are invited. Deadline for receipt of abstracts: *15 June*. (J. E. Walsh, Systems Development Corp., Santa Monica, Calif.)

The 11th symposium on **applied spectroscopy** and analytical chemistry will be held 9–11 September in Ottawa, Ontario, Canada, sponsored by the Canadian Association for Applied Spectroscopy and the analytical division of the Chemical Institute of Canada. Papers

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are invited in all fields of analysis by spectroscopy, and in analytical chemistry with emphasis on gas chromatography and instrumental methods in quality control. Deadline for receipt of titles and abstracts: *1 June*. (D. A. Shearer, Analytical Chemistry Research Service, Research Branch, Canada Agriculture, Ottawa, Ont.)

The Institute of Physics and the Physical Society, London, will sponsor a conference on **low and medium energy nuclear physics**, 9–11 September at the University of Sussex. Short papers are invited for the meeting; abstracts of approximately 300 words are required in triplicate. Deadline: *1 June*. (W. D. Hamilton, School of Physical Sciences, University of Sussex, Brighton, Sussex, England.)

A conference on **magnetic resonance in biological systems** will be held 20–22 July in Boston, Mass. The subjects for discussion will include radiation damage of nucleic acids, enzyme action, conformation studies of proteins and nucleic acids, light-induced excited states, oxidation-reduction reactions, and paramagnetic metal ions in biological macromolecules. (R. G. Shulman, Bell Telephone Laboratories, Murray Hill, N.J.)

The Professional Technical Group on **Sonics and Ultrasonics**, Institute of Electrical and Electronics Engineers, plans its 1964 symposium 14–16 October in Santa Monica, California. Papers are invited for presentation at the meeting; triplicate copies of a 200-word abstract are required. Deadline: *1 June*. (A. H. Meitzler, Technical Program Chairman, Bell Telephone Laboratories, Inc., Murray Hill, N.J.)

Films

Thermoelectrics (25 minutes, sound; black and white. Rental, $50 for 5 days; purchase, $195). Principles and practical applications of thermoelectrics; for consumer, government, industrial and commercial uses. (Industrial Education Films, Inc., 195 Nassau St., Princeton, N.J.)

The Laser (34 minutes, color; $300). Origin, history and latest advances in lasers, including work done in the field at major university and commercial lab-

oratories throughout the nation. (Princeton Report, Inc., Princeton, N.J.)

Scientists in the News

George D. Zuidema, associate professor of surgery at the University of Michigan Medical School, has been named professor and director of the surgery department at the Johns Hopkins University Medical School, effective 1 July. He will also be surgeon-in-chief of the Johns Hopkins Hospital.

Fritz John, professor of mathematics at New York University, has been named director of the division for mathematics and mechanics of N.Y.U.'s Courant Institute of Mathematical Sciences.

The new president of the American Association of Petroleum Geologists is **Grover E. Murray**, vice president and dean of academic affairs at Louisiana State University.

James Edwin Wood, associate professor of medicine at the Medical College of Georgia, has been appointed research professor of medicine and cardiology at the University of Virginia, as of 1 July.

Fisher Scientific Company has named **Sidney Soloway** director of research and development. He was formerly with the Ridgefield Research Laboratories, Schlumberger Well Surveying Company.

David Myers, professor of otolaryngology at the University of Pennsylvania, has been appointed chairman of the department in the university's graduate school of medicine.

Warren L. Bostick, professor of pathology and director of laboratories at the University of California School of Medicine, San Francisco, has been named dean of the California College of Medicine, Los Angeles.

David B. Smith, formerly vice president for engineering and research at the Philco Corporation, has been named visiting professor of engineering at the University of Pennsylvania.

Karl R. Wendt, formerly vice president for engineering, Colorado Instruments Company, Broomfield, has become chief of the high frequency cali-

bration services section, radio standards engineering laboratory, at the National Bureau of Standards laboratories, Boulder, Colo.

Carroll L. Shartle, formerly chief of the psychology and social sciences division in the Defense Department's Office of Defense Research and Engineering, has become director of research and assistant dean for research in Ohio State University's College of Commerce and Engineering.

A. W. F. Banfield, chief zoologist in the Natural History Branch, National Museum of Canada, Ottawa, has been appointed director of the branch. He succeeds **Loris S. Russell**, who has become head of the life sciences division, Royal Ontario Museum, Toronto.

William G. Thurman, chairman of the department of pediatrics at the Sloan-Kettering Institute, has been named chairman of the department of pediatrics and first B. A. Shepherd professor of pediatrics at the University of Virginia, effective 1 July.

The University of Miami, Florida, has appointed **William J. Harrington** professor and head of the department of chemistry as of 1 June. He is at the present time an associate professor of medicine and director of the hematology division at Washington University medical school, St. Louis, Mo.

Velayudhan Nair, formerly at the University of Chicago, has been appointed associate professor of pharmacology and therapeutics at the Chicago Medical School, and director of the neuropharmacology and biochemistry laboratories at Michael Reese Hospital Psychiatric Research Institute.

Gerald M. Almy, associate head of the physics department at the University of Illinois, has been named head of the department, succeeding **Frederick Seitz**. Seitz, on leave to serve as president of the National Academy of Sciences, is scheduled to return to the university in 1966 as vice president for research and dean of the graduate college.

The new president of the National Society of Professional Engineers is **Brandon H. Backlund**, president of B. H. Backlund and Associates, Omaha, Nebr., and of Backlund Caribbean Engineering Corp.

Philip D. Thompson, of the National Center for Atmospheric Research, Boulder, Colo., has been elected president of the American Meteorological Association.

NASA has named **Paul L. Styles** to the newly established position of labor relations director. He will retain his position as chief of the Marshall Space Flight Center's industrial relations office.

Herbert E. Longenecker, president of Tulane University, has been named chairman of the Commission on Federal Relations of the American Council of Education.

John W. Bodine, president of Penjerdel, a regional research and information oragnization, has been elected president of the Academy of Natural Sciences of Philadelphia.

Marion Spencer DeWeese, associate professor of surgery at the University of Michigan, has been appointed professor and chairman of the surgery department in the University of Missouri's medical school, effective 1 June. He succeeds **John J. Modlin**, who has resigned the chairmanship to resume private practice, but will remain on the medical school's clinical staff.

M. H. Bernstein, chairman of the politics department at Princeton, has been appointed dean of the university's Woodrow Wilson School of Public and International Affairs, effective 1 July.

Martin B. Dworkis, professor of public administration at New York University, has been elected president of the new Borough of Manhattan Community College.

The U.S. Department of Agriculture recently announced that it has stationed **Clinton L. Brooke** in Western Europe to "represent U.S. interests relating to food laws and regulations that affect international trade in agricultural products." Brooke, formerly with Merck & Company, is at the U.S. Mission to the European Communities, Brussels, Belgium.

Vernon B. Brooks, formerly associate professor at the Rockefeller Institute in New York, has become professor and chairman of the physiology department at New York Medical College.

S. S. Penner, on leave from the California Institute of Technology to serve as director of the research and engineering support division at the Institute for Defense Analyses, Washington, has become professor and chairman of the aerospace engineering department of the University of California, La Jolla.

Alfred P. Sloan awards for cancer research have been presented to four scientists at the Memorial Sloan-Kettering Cancer Center. The recipients will work for a year at a cancer research institute of their choice, in the U.S. or abroad; they will receive their full salary, plus $10,000, and funds for travel and expenses. This year's winners are:

Aaron Bendich, for "contributions to biochemical research."

Leopold G. Koss, for work in "clinical cancer research and prevention."

Walter Lawrence, Jr., for research leading "to the improved treatment of cancer patients."

Frederick S. Philips, for his "contributions to the field of experimental cancer chemotherapy."

Dea Bailey Calvin, professor of biochemistry and director of research grants and contracts at the University of Texas Medical Branch, Galveston, has been named to the recently created post of assistant dean for research at the University of Miami medical school.

Sheldon K. Friedlander, formerly professor of chemical engineering at Johns Hopkins University, has been appointed a professor in chemical engineering and environmental health engineering at California Institute of Technology.

Robert Schwyzer, visiting professor of biochemistry at the University of Washington, Seattle, has been awarded the Otto Naegeli prize for 1964, for his research on the chemical synthesis of peptide hormones.

Joseph R. Feldmeier, formerly director of the Philco Corporation's scientific laboratory, Blue Bell, Pa., has been named director of the Franklin Institute Laboratories for research and development, Philadelphia.

Dean S. Tarbell, Houghton professor of chemistry at the University of Rochester, has been named chairman of the department, effective in September.