at the accelerator, exclusive of construction workers, and the staff is expected to level off at about 800. A large permanent staff will be required to operate and maintain the accelerator itself and to deal with experimentation equipment, which has become both complex and massive (a ratio of about eight technicians and administrative and maintenance workers to one researcher is anticipated). The large magnetic spectrometers, spark chambers, which will be used with the accelerator, are literally factory-sized machines.

SLAC's annual operating budget is expected to be about a $15- to $20-million item for the AEC.

With its big staff and budget, SLAC raised some misgivings on the Stanford campus. While the disquiet is mostly subsurface, there appear to be two main sorts of apprehension: (i) that emphasis on the accelerator will further enhance the position of science at the expense of the humanities and social sciences, and (ii) that the glamor of the accelerator will give high-energy physics research a privileged position among the sciences.

The university administration has taken pains to allay fears that substantial university resources are being diverted into the SLAC project. The recent statement on the power line, for example, said, "The trustees accepted the AEC accelerator on Stanford property upon the clear understanding and agreement that the university would not realize financial gain or loss from the installation or operation of the project."

### Administration Guarantees

The Stanford presidency is traditionally a strong one, and the administration is committed to balance academic development. Under President Wallace Sterling, Stanford has recently completed a monumental fund-raising campaign which brought in over $100 million, and a lot of this money is earmarked for building up the humanities and social-sciences programs and for such things as bolstering the business school and expanding the medical school.

Administratively, Stanford has built some dikes against the tide of SLAC influence. SLAC's business operations have been separated from the university's and it will handle its own housekeeping, bookkeeping, personnel, and maintenance details. This should help prevent swamping of the university business operation with SLAC affairs.

What SLAC's effect on the physical sciences in the university, especially on the physics department, will be, remains a question for the future, but here, also, some applicable checks and balances are already a part of the Stanford system.

The existing high-energy physics lab has for some time been accorded separate status, and this is expected to serve as a precedent for SLAC. Key to the system is the rule that control of graduate students, both de jure and de facto, remains in the hands of their academic department, even should they do research on an off-campus facility. Faculty members control the admission of graduate students, approve their line of research, and directly supervise work for theses, and this arrangement is expected to prevent, for example, swarming of graduate students in physics to SLAC like bees to a new hive.

Physics department head Leonard Schiff, who appears untroubled by the possibility that SLAC will exert a strong centripetal force on grad students, says that Stanford has "a physics department, not a high-energy physics department," and cites the growing emphasis at Stanford in recent years on research in low-energy, low-temperature, solid-state, and theoretical physics.

Senior staff at the accelerator will get a kind of separate-but-equal treatment—that is, faculty status stopping technically short of tenure. There are expected to be about 40 senior researchers at SLAC—half of them permanent staff and half visiting researchers—and 40 graduate students and postdoctoral fellows.

Demands for time on the big machine are expected to be very heavy when research operations begin, and the decision, in the first instance, on which experiments to schedule will be up to Panofsky and his associates. Because it may take a scientific Solomon to satisfy the applicants, and because SLAC is a national facility, the director will be backed by a scientific policy committee, made up of eminent men in the field and charged with reviewing and approving SLAC policies and projects.

So even now, years before the first electron is accelerated, SLAC, with its cuts and fills and high-tension power controversy, has brought home to Stanford the problems, internal and external, which arise as Big Science gets bigger.—JOHN WALSH

## Elliott Hearings Published

Testimony and statements from the first round of hearings of the House Select Committee on Government Research, chaired by Representative Carl Elliott (D–Ala.), were published last week: Title: *Federal Research and Development Programs,* Part 1, $2.50; Part 2, $1 (U.S. Government Printing Office, Washington, D.C. 20402).

# Announcements

**Norbert Wiener**, emeritus professor of mathematics at the Massachusetts Institute of Technology, died 18 March while traveling in Europe with his wife.

Wiener was born in Columbia, Missouri, in 1894. He graduated from the Ayer, Massachusetts, public high school at the age of 11, received a B.A. from Tufts at 14 and a Ph.D. from Harvard at 19. He joined the M.I.T. faculty in 1919, became a full professor in 1932, and remained there until his retirement in 1960.

Wiener was a child prodigy who fulfilled early promises of brilliance. A talented linguist, philosopher, and literary scholar, he was best known to the public as the "father of automation," and to his professional colleagues as the father of the term *cybernetics.* He was quoted as using the word to define a field that "combines under one heading the study of what in a human context is sometimes loosely described as thinking and in engineering is known as control and communication." Wiener's book *Cybernetics; or, Control and Communication in the Animal and the Machine* was published in 1948, and evoked wide interest among laymen and scientists. Among his other books were *The Fourier Integral and Certain of Its Applications, Harmonic Analysis in Complex Domains,* and *The Human Use of Human Beings.* He also wrote two autobiographical books, *Ex-Prodigy* and *I Am a Mathematician,* and contributed numerous articles to mathematical and scientific journals.

The American Pharmaceutical Association has joined the American Medical Association and the United States Pharmacopeia in their program of selecting **nonproprietary names for drugs.** The AMA and USP had combined efforts for this project in 1961, and the APhA cooperated through its Committee on National Formulary. Names