ly. Since the law was passed creating a new Office of Science and Technology Policy (*Science*, 11 June) staff members of NSF, the White House Domestic Council, and the Office of Management and Budget have been doing preparatory planning and, since his nomination, Stever has been spending a lot of time on the matter. The OSTP will have a staff of about 30, half of them professionals, plus a few persons "detailed" from other agencies.

A tactfully timed part of the transition will be the phasing out of two ad hoc advisory groups which have been operating under the chairmanship of William O. Baker, president of Bell Laboratories, and Simon Ramo, vice-chairman of TRW, Inc. (*Science*, 30 April). Both groups are scheduled to hold final meetings on 5 and 6 August in Los Angeles. At that time issue papers—probably 50 or 60 of them—will be turned over to the science adviser in the expectation that the work will be carried forward.

During his tenure as NSF director Stever, a practitioner of the axiom that a soft answer turneth away wrath, has had generally good relations with Congress. Geniality prevailed at the confirmation hearing, but a number of questions and comments by the senators were phrased in ways that clearly indicated how they hope and expect Stever will act when he ascends to the new post.

Science advisers in the past have often shied away from testifying on the Hill, pleading Executive privilege. Senator Edward M. Kennedy (D–Mass.), somewhat before the fact, said at the hearing that he was impressed by Stever's willingness to appear before Congress. He then went on to note changes in the science adviser's legal status which give him responsibility to advise the President on scientific and technological aspects of military affairs. Kennedy observed that Stever's scientific training and experience, including his stint as chief scientist of the Air Force in the 1950's, strongly qualified him for the task.

Stever replied that the limitations on staff would make it impractical for the OSTP to conduct weapons studies, but indicated that he and his staff would concern themselves with developments in military research and would follow the defense R & D budget and comment on them to the President.

Ever since the advent of the presidential science advisory machinery, Senators and Congressmen have sought to elicit the personal opinions as distinct from the official views of successive science advisers. The advisers have habitually sidestepped such invitations and Stever, too, displayed some skillful footwork at the hearings. But a new note of insistence in the questions put to him is perhaps an indication that Congress feels that the NSF director is an apolitical, protected species and the science adviser is not, and, therefore, fair game.

—JOHN WALSH

Swine Flu Vaccination Campaign: The Scientific Controversy Mounts

The national campaign to vaccinate some 200 million Americans against "swine flu," announced with presidential fanfare last March, has run into a tangle of controversies. As this article is being written, the government, the vaccine manufacturers, and the insurance companies are still haggling over who will provide insurance for the program, and at what cost. If that practical, financial issue is not resolved, the ambitious program may have to be modified or even scuttled—a victim of forces peripheral to the core of the campaign.

But while most recent attention has been focused on the insurance squabble, a dispute over more fundamental issues is simmering in scientific and medical circles. A handful of scientists and physicians has challenged both the rationale for the program and the likelihood that the vaccine will work well—two issues that go to the very heart of the immunization effort and bear relevance for future mass vaccination campaigns as well, whatever the fate of the current effort.

The tenor of the debate could change markedly if a further outbreak of swine flu occurs in this country or abroad. At this writing, health officials are investigating the mysterious deaths of some 18 persons who developed lung ailments after attending a state American Legion convention in Philadelphia last month. There has been press speculation that swine flu might be the culprit, but investigators have not yet identified the cause. An earlier televised report that hundreds of people had succumbed to swine flu in Australia proved to be inaccurate. Reports of possible cases in the Philippines and Taiwan are also being investigated by American health authorities, but no conclusions have yet been announced. Thus, at this writing, a worldwide surveillance network has failed to detect any outbreak of the disease since the episode at Fort Dix in January that triggered the national campaign. If a lethal outbreak should occur, then the efficacy of the vaccine would be a matter of crucial importance.

A few American scientists have questioned the desirability of the program from the start. They think the likelihood of a swine flu pandemic this season is too remote to justify a mass vaccination effort that will drain public health resources and inevitably produce adverse side effects in at least a small percentage of vaccinees, however mild the vaccine.

In recent months, foreign health specialists have added their voices to the criticism as well. Press reports indicate that a number of European health officials and scientists doubt the wisdom of the American campaign. The most developed of these foreign critiques was presented in three articles in *The Lancet*, a British medical journal, on 3 July. The articles weighed the pros and cons of the swine flu issue and seemed, on balance, to come down against the vaccination campaign. They noted that six British volunteers who were deliberately exposed to the swine flu virus developed only mild illness, that the virus did not seem predisposed to spread among people, and that the outbreak at Fort Dix might well have been an isolated event. One article called it "highly questionable whether the amount of vaccine required for all those between 20 and 50 years of age should be prepared at the present time for any country, including even the United States, until the shape of things to come can be seen more clearly."

However, public health officials in this

country discount most of the foreign criticism—particularly that made by public health officials—as a mere rationalization for the fact that few, if any, other countries could readily produce enough vaccine for a mass immunization campaign even if they wanted to launch one. W. Delano Meriwether, a key coordinator for the American campaign, says flatly, "No other country has the technical capacity to produce enough doses to meet its needs. We're the only ones able to do it." Meriwether says that even the United States could not readily bring additional manufacturing capacity on line in time to prepare vaccine for this season—an option that was explored when some of the existing manufacturers hinted that they might halt production.

None of the questions raised recently against the program is really new; they were all considered and rejected back in March, when the campaign was launched. It was known then that the form of the virus detected at Fort Dix was mild and that no other cases had been found elsewhere. It was even acknowledged that no further cases might be found before the vaccination campaign was scheduled to take place in the fall. Nevertheless, public health officials pushed ahead on the grounds that there is some possibility, however small, of a swine flu pandemic this fall or winter, and that such a pandemic would cause substantial illness and death. Such illness typically occurs on a large scale whenever a major new strain of influenza appears on the scene because few individuals have antibodies against the new strain.

Two of the government's expert advisory committees on influenza matters met to review the campaign on 22 June. With only one dissenting vote, they urged proceeding with the campaign as planned. The one dissenter urged that the vaccine be stockpiled but not administered until additional swine flu cases are detected—a position which his colleagues rejected as impractical because the flu, they felt, would spread faster than the health system could distribute the vaccine. Concern was also expressed that any "backing and filling" at this point might jeopardize the shaky program.

Although most of the controversy in scientific circles has focused on whether or not the program is needed, a less publicized but equally crucial debate has developed over how well the vaccines are apt to perform if the program is carried out.

Estimates of the value of influenza vaccine have varied widely. To hear some advocates of the program tell it, influenza vaccines, when well constituted and prepared, can protect some 70 or 80 percent of the recipients from contracting the disease. One of the highest such estimates emanates from Theodore Cooper, assistant secretary for health in the Department of Health, Education, and Welfare, who says government experts "agree that, in recent years, flu vaccine has been up to 90 percent effective when the infecting virus matches the virus used in the vaccine. They anticipate similar performance from the swine flu vaccine." Cooper also says the vaccine will be mild and safe.

But critics of the program scoff at such claims. Sidney M. Wolfe, the head of Ralph Nader's Health Research Group, considers influenza vaccines "clearly less effective than other vaccines," with efficacies ranging anywhere from 20 percent to 70 percent or more in past tests. And Richard M. Restak, a Washington, D.C. neurologist, has charged in a long article in the Washington *Post* that the campaign "may be downright dangerous" because of the possibility that the vaccine might actually harm the recipients.

Experience in Past Epidemics

The literature from past vaccine trials provides some evidence to support each point of view. Even government officials are frank to acknowledge that vaccination efforts failed to make any perceptible impact on the last two major influenza pandemics—the Asian flu of 1957 and the Hong Kong flu of 1968–69. They attribute this mainly to the fact that too little vaccine was administered too late. In 1957, for example, the manufacturers had turned out some 49 million doses of vaccine by the time the epidemic peaked, but roughly half of this was never used because of delays in distribution and lack of public response. In 1968–69, when the lead time for producing vaccine was shorter, only 15 million doses were released by the time the epidemic peaked. The head of the federal vaccine regulation agency found it "questionable whether the use of vaccine had any detectable effect on the epidemic in either instance." But that poor performance was primarily caused by the inability of the nation's health system to organize itself in time to cope with the fast-moving influenza virus, not necessarily by defects in the vaccine itself.

How effective have the vaccines been when administered in time to meet the challenge of an influenza outbreak? The record is mixed. In 1962, when some 42 million doses of vaccine were distributed, federal health officials estimated, on the basis of a limited number of studies, that it was only 20 to 25 percent effective at best, largely because the vaccine was not precisely tailored to cope with the particular strain of influenza that appeared. Other studies, involving vaccines that were better matched with the virus they were opposing, have claimed efficacies as high as 70 to 90 percent.

But most of the studies which have shown high efficacy rates were conducted in military populations and may not be directly relevant to civilian experience. The military typically uses more potent vaccines; it has a generally healthier population; it vaccinates that population on an annual basis, thereby boosting antibody levels over the years; and it typically uses a definition of illness that some investigators think distorts test results and makes the vaccines look more effective than they really are. Many military studies, for example, define an influenza victim as someone who shows a fourfold increase in serum antibodies in response to the disease. But the vaccine boosts the antibody level to begin with, and some investigators contend it is difficult for a subsequent case of influenza to cause a further fourfold increase in antibodies even if the poor victim is suffering with all the symptoms of flu. "The guy can be in bed shaking and feverish but he's not counted as an influenza case," complains Steven R. Mostow, chief of the infectious disease division at the Veterans Administration Hospital in Denver and a former federal flu investigator. "That's the kind of data the military has used."

Test Results Varied

Field trials of vaccine efficacy during the 1968 Hong Kong pandemic, under conditions considered ideal for vaccine evaluation, came up with widely varying results. In trials where the vaccine doses administered contained 300 to 400 CCA (chick cell agglutination) units (a rough measure of potency—the vaccines being prepared for most adults this year will contain 200 CCA units) the reported reduction in clinical influenza ranged from 0 to 55 percent. When these results were corrected to eliminate other suspected respiratory diseases that may have been misdiagnosed as influenza, the efficacy ranged from 25 to greater than 90 percent.

The test results have been so varied that they provide ammunition for both sides in the debate. Some critics of the immunization campaign have been claim-

ing the vaccines are only 25 percent effective, while some proponents have used the 90 percent figure. Perhaps the soundest evaluation can be found in a paper by top government virologists who reviewed experience with influenza in this country between 1957 and 1972. They reached this guarded conclusion:

> It is generally agreed that inactivated vaccines containing the appropriate antigenic concentration in suitable potency will provide a reasonable degree of immunity for a limited period of time. This statement simply means that on some occasions the vaccine has worked and on others it has not. . . . There is no doubt that properly constituted aqueous inactivated vaccines can provide some measure of protection. How much protection they afford is open to question. Protection rates are clearly influenced by many features peculiar to the vaccine, the virus, and the host—and by methods used by the investigators.

One top federal virologist who is respected by both sides in the debate told *Science* he feels comfortable with the statement that well-constituted influenza vaccines have been at least 70 percent effective in preventing *serious* illness. But the critics turn that statement on its head and say it means that 30 percent of the vaccinees have not been so protected.

Whatever the precise numbers, it is generally agreed that influenza vaccines are less effective than the vaccines used to combat such other scourges as polio, measles, mumps, and smallpox. This is partly because of the capriciousness of the influenza virus, which keeps changing its structure to elude the clutches of existing vaccines and antibodies, and perhaps partly because of inadequacies in the vaccine itself.

The experience from past years is not necessarily a reliable indicator of how the particular vaccines being produced this year might fare against an outbreak of swine flu. To get an estimate of that, federal officials sponsored the most carefully coordinated field trials of an influenza vaccine ever conducted. The findings, which were promising in some respects and dismaying in others, provided investigators with a wealth of new data on vaccine effects. More than 5000 individuals, ranging in age from 3 to 100, were inoculated with swine flu vaccine at various dosage levels or were given a placebo.

The results indicated that, in adults at least, even the lowest dosage level of 200 CCA units—the level planned for the general population this fall—seemed to stimulate reasonably good antibody response with relatively few adverse side effects. Harry Meyer, director of the Bureau of Biologics, the federal vaccine regulation agency, calls it "remarkably easy" to immunize people above the age of 24. "My God, all you've got to do is sniff the bottle," he exults. Similarly, Albert B. Sabin, of polio vaccine fame, says the antibody response in persons above age 30 was "unexpectedly good."

Just what level of antibody is sufficient to provide protection has never been defined by federal health officials. One paper in the literature suggests that antibody titers of 160 or more virtually guarantee that you will not become sick enough to go to bed while lesser amounts of antibody can also provide meaningful protection. At the numerous scientific meetings called to map out strategy for the swine flu campaign, federal officials have consistently ducked when asked how much antibody is enough, but discussion has generally centered on a titer of 40 as the level to shoot for in large numbers of individuals. By that standard, two of the vaccines tested performed quite well (more than 90 percent of the recipients reached a titer of at least 40) while the other two lagged behind (only 72 to 76 percent of their recipients reached that titer). However, results from one of the latter vaccines were skewed downward because the dose submitted by the manufacturer as 200 CCA units was actually only 132 CCA units as measured in a federal laboratory.

The Recommended Dose

After reviewing all the figures, the Public Health Service's Advisory Committee on Immunization Practices (ACIP) asserted that a single dose of 200 CCA units "should result in antibody responses against swine influenza generally considered protective in at least 85-90% of vaccinees of approximately age 25 or more." That means, according to one federal official, that perhaps 85 percent might end up with a titer of 40 or better, and that 90 percent might reach a titer of 20.

The field trials produced some puzzling results that have led critics to question the soundness of the data. For one thing, some of the effects did not seem related to the supposed potency of the vaccine used: there were cases where a low dose of vaccine seemed to produce more antibody than a higher dose. "I don't know what they do with this stuff," muttered one prominent flu investigator during a review of the findings.

Another troubling finding was that the standard laboratory test used for measuring vaccine potency—the so-called CCA test—may be less adequate than previously believed. (It's long been a matter of controversy.) The test measures a biological activity of the viral antigen in the vaccine, and it has generally been assumed that the results—measured in CCA units—are an accurate indicator of the antigenic mass of the vaccine, and of its potency. But certain puzzling results from the clinical trials led at least two prominent investigators—Maurice R. Hilleman, vice president of Merck Sharp & Dohme Research Laboratories, and Sabin, to suggest that the test does not actually measure viral mass or potency. Sabin called the test "unsatisfactory."

The uncertainties about the test could pose problems for the immunization campaign. Public health officials have determined that most adults should receive a vaccine dose of 200 CCA units based on the effects that dosage produced in the clinical trials. But if the CCA units do not actually measure potency, how can one be certain that the next 200 CCA dose produced by a manufacturer will produce the same effects as the last 200 CCA dose? One top investigator told *Science* he believes that, for any given manufacturer, the relationship between CCA values and potency should remain constant, and thus each 200 CCA dose should have the same potency. But no one has done serial studies on different lots of vaccine from the same manufacturer to be sure.

The results of the trials in persons under age 25 were far less satisfactory, probably because such individuals have not been "primed" by previous exposure to related influenza viruses or vaccines. In young adults between 18 and 24 years old, for example, the two "whole virus" vaccines produced the greatest antibody response, but even these, when administered at 200 CCA unit doses, pushed only about half of the recipients to a titer of 40 or better. Nevertheless, the ACIP has recommended that young adults receive 200 CCA units of the whole virus vaccine, with the understanding that a booster shot might later be recommended depending on the results of further clinical trials.

Results in younger children—aged 3 to 10—were far worse; none of the vaccines provided sufficient protection without causing unacceptable side effects. Federal health officials remain optimistic that tests now under way will produce a suitable product and procedure for immunizing children, but critics are not so sure. The issue could be important in determining how effective any immunization campaign might be, for school-age children are generally considered the prime spreaders of influenza. If the children could not be vaccinated, that would mean the campaign could probably not

prevent an epidemic from breaking out should swine flu reappear. But federal health officials would presumably still seek to vaccinate the rest of the population to protect individuals from harm.

The military services—as is their custom—plan to use a more potent and more broadly constituted vaccine than will be used in the civilian program. Whereas most civilians would receive a vaccine dose of 200 CCA units targeted solely against swine flu, the military services will administer a 1300-CCA dose, of which 400 CCA units (twice the civilian level) will be targeted at swine flu and the remainder will protect against two other flu strains. The primary purpose of the military immunization program is to conserve the nation's fighting force rather than to protect individuals, so the military puts greater emphasis on making certain that the vaccine is strong enough to provide protection; it is less concerned about possible side effects, unless those side effects threaten to disable the fighting force. As one top military medical man put it, "Generally speaking, it's not at all intolerable for recruits to have a bad evening. . . . They are febrile. They do feel lousy. . . . A significant number

Shedding Light on Facts About ERDA's Role in Nuclear Debate

Five states—Arizona, Colorado, Montana, Oregon, and Washington—plan to hold referenda which call into question the safety of nuclear power, and in a sixth, California, voters have already turned down a nuclear "initiative" by a 2 to 1 margin. In the face of unprecedented public interest in nuclear matters, senior officials of the Energy Research and Development Administration (ERDA) have described the agency's public information policy as being one of strict nonintervention: while continuing to promote nuclear as well as other forms of energy, it would not seek to influence the outcome of the referenda by campaigning on the side of the nuclear industry.

But last month nine public interest groups, including the organizations responsible for the six initiative campaigns, accused ERDA of violating this pledge of nonintervention by "actively working" against the California initiative. The charges are based largely on letters and memoranda which the Public Interest Research Group (PIRG) obtained under the Freedom of Information Act. The documents indicate an underlying hostility to the initiative in the minds of ERDA officials, as well as certain actions which show that in the several months prior to the California initiative ERDA was anything but a disinterested bystander.

• The San Francisco operations office of ERDA, the documents show, distributed some 500 "invitations" to civic clubs, chambers of commerce, Farm Bureau groups, teachers associations, and school administrations, encouraging them to ask ERDA for speakers. In February, for instance, letters went out to 22 district leaders of California Lions and Elks clubs, the letter to the Elks beginning, "Many people these days are worried about a recurrence of the kinds of inflation, factory shutdowns, and curtailment of life style we experienced during the OPEC oil embargo. . . ." After a reference to "self-proclaimed experts and special interest groups" who make exaggerated claims for energy conservation, the letter said the public must come to share ERDA's "understanding" of the available energy options so that informed and responsible decisions can be made to turn the nation away from oil and gas to "more abundant resources." The word nuclear is nowhere mentioned.

• The deputy manager of the San Francisco office, Donald E. Reardon, gave a state Senate committee testimony to the effect that the initiative, if passed, would cost Californians $40 billion over the next 20 years. The anti-initiative forces, an ERDA memo mentions, had indicated that they would use this evaluation as the basis for their economic position. As the campaign developed, the anti-initiative camp did in fact make substantial use of ERDA's figures.

• A memorandum prepared by William T. Miles, in the office of the Assistant Administrator for Nuclear Energy, after a round of meetings with utilities, General Electric and others, reports that "Almost everyone working to defeat the initiative thinks the most important thing that ERDA can do is make a *definitive* statement on waste management. All other technical issues pale in significance to this one." (The strongly affirmative technical report on the status of waste management alternatives that was forthcoming in May had been in the works since last year.)

The actions revealed in the documents obtained by PIRG follow a similar incident which was the subject of a special hearing by a House subcommittee—the printing by ERDA of 100,000 copies of a pamphlet entitled "Shedding Light on Facts About Nuclear Energy," 78,000 of which were distributed in California several months before the initiative.

Asked to comment on the charges that the agency deliberately and systematically intervened in the California initiative on the side of the nuclear industry, ERDA spokesmen say that ERDA has done no wrong. John W. King, director of public affairs, told *Science* that, although he had not yet reviewed the allegations in fine detail, "I'm not ready to say that any of it is fair criticism."

Last January, in a memo to ERDA's deputy administrator about "nuclear public education activities," King concluded by saying that, "Although efforts are being increased, there is no plan to storm into a state with a major campaign. Educational efforts must be handled carefully because undoubtedly our activities will be closely scrutinized by those who oppose our programs and favor state initiatives." King now maintains that any special information activities directed to California, such as the major effort at soliciting invitations for ERDA speakers, simply reflected the increased demand for information about energy issues in that state. And, as for the specific allegation that the economic impact evaluation was blatant propaganda, ERDA spokesmen say that it was based on data developed by California's energy and public utilities commissions and that its conclusions are similar to those reached in a Bank of America study.

Nevertheless, ERDA's behavior may not be so easily explained. Noting the apparent contradictions between the ERDA documents and the pledge that ERDA will not intervene in state initiatives, John Abbotts of the Public Interest Research Group says, "ERDA has been lying through its teeth." One does not have to put the matter so plainly and uncompromisingly to believe that, in its public information activities, the agency has indeed stepped beyond the limits which it has set for itself.—L.J.C.

of them are losing their meals as they come out of the mess. But they're back at work the next morning." (And they don't often file malpractice suits.) Because so much of the military population falls into the 18-to-24 age group that responded only to the "whole virus" vaccines, the military will use only those in its program. One of the chosen vaccines caused temperatures of 100°F or more in 20 percent of the recipients and systemic reactions (headache, nausea, fever, and the like) in 31 percent.

The reactions among adult civilians, who will receive much smaller doses than the military, will almost certainly be far less severe. Although some critics had predicted that 15 to 25 percent of those vaccinated might suffer adverse side effects (30 to 50 million people if 200 million are vaccinated), the clinical trials indicate that side effects in adults receiving the 200-CCA dose would be minimal. Only about 2 percent of the adults developed a low-grade fever or other mild systemic reactions—a rate that was essentially the same as in the control groups. None of the fevers reached 102°.

Critics Still Worried

Critics remain concerned, however, about possible adverse reactions in children. They fear that public health officials, in their eagerness to include all population groups in the program, may be inclined to accept a relatively high reaction rate in children. A few critics also fear the vaccine may pose long-term hazards that did not show up in the clinical trials, or that a catastrophic error in manufacturing the vaccine could cause unexpected harm. But public health officials consider such concerns groundless.

Many of the disputes over the immunization campaign cannot be resolved until this fall or winter, if at all. The rate and severity of adverse reactions in a large population will only be known after the mass vaccination takes place. And the efficacy of the vaccine can only be determined if the recipients actually encounter swine flu. The clinical trials indicate that vaccinees will attain certain antibody levels; they do not indicate how well those antibody levels would protect against an attack of the disease. Nor is there any guarantee that the swine flu virus would retain its present form; it might shift its structure and partially elude the clutches of the antibodies designed for the virus encountered at Fort Dix. No final judgment can be made of the efficacy of the vaccine unless a swine flu pandemic hits. If a different lethal strain should strike, the vaccine might be useless.—PHILIP M. BOFFEY

APPOINTMENTS

Thomas M. Law, president, Pennsylvania Valley Community College, to president, Virginia State College. . . . **James M. Dye**, chairman of education, Augusta College, to president, Waycross Junior College. . . . **William J. O'Halloran**, chairman, psychology department, College of the Holy Cross, to president, Le Moyne College. . . . **Warren B. Armstrong**, dean, College of Liberal Arts and Sciences, St. Cloud State University, to president, Eastern New Mexico University. . . . **Stanley R. Anderson**, dean, College of Agriculture, Texas A & I University, to president, Abraham Baldwin Agricultural College. . . . **Neal R. Berte**, dean, New College, University of Alabama, to president, Birmingham-Southern College. . . . **Armen Sarafian,** president, Pasadena City College, to president, La Verne College. . . . **Howard A. Cutler**, senior vice president, Institute of International Education, to chancellor, University of Alaska, Fairbanks. . . . **J. Edwin Becht**, acting vice president for academic affairs, University of Texas of the Permian Basin, to vice president at the university. . . . **Peter N. Magee**, professor of experimental biochemistry, Middlesex Hospital Medical School, University of London, to director, Fels Research Institute, Temple University. . . . **Roger J. Bulger**, executive officer, Institute of Medicine, National Academy of Sciences, also to chancellor, University of Massachusetts, Worcester and dean, Medical School at the university. . . . **Russel H. Meints**, professor of zoology, University of Nebraska-Lincoln, to director, School of Life Sciences at the university. . . . **Charles H. W. Foster**, professor of environmental policy, University of Massachusetts, to dean, School of Forestry and Environmental Studies, Yale University. . . . **Robert L. Tuttle**, acting dean, Medical School, University of Texas, Houston, to dean of the medical school. . . . **Jesse L. Steinfeld**, former surgeon general, U.S. Public Health Service, to dean, Medical School, Medical College of Virginia. . . . **Andrew A. Robinson**, associate dean, College of Education, University of North Florida, to dean of the college. . . . **Gordon Atkinson**, professor of chemistry, University of Oklahoma, to dean, Graduate College at the university. . . . **Calvert H. Smith**, assistant dean, College of Education, University of Cincinnati, to dean, School of Education, Howard University. . . . **Gladys A. Courtney**, chairman of general nursing, University of Illinois, to dean, School of Nursing, University of Missouri, Columbia. . . . **Richard E. Dierks**, chairman of veterinary science, Montana State University, to dean of veterinary medicine, University of Illinois, Urbana-Champaign. . . . **Albert H. Soloway**, acting dean, College of Pharmacy and Allied Health Professions, Northeastern University, to dean of the college. . . . **Robert E. Fellows**, associate professor of physiology and pharmacology, Duke University, to head, physiology and biophysics department, University of Iowa College of Medicine. . . . **J. Robin deAndrade**, associate professor of surgery, Emory University, to head, rehabilitation medicine department at the university. . . . **Dennis R. Heldman**, professor of food engineering, Michigan State University, to chairman, agricultural engineering department at the university. . . . **Leon Gordis**, acting chairman, epidemiology department, Johns Hopkins University School of Hygiene and Public Health, to chairman of the department. . . . **Arthur L. Herbst**, associate professor of obstetrics and gynecology, Harvard Medical School, to chairman, obstetrics and gynecology department, University of Chicago. . . . At the Pennsylvania State University: **Robert W. Bernlohr**, head, microbiology department, to head, biochemistry and biophysics department and **Leonard N. Zimmerman**, former acting head, microbiology department, to head, microbiology and cell biology department. . . . **Donald Wetlaufer**, professor of biochemistry, University of Minnesota Medical School, to chairman, chemistry department, University of Delaware. . . . **Stanley Baum**, professor of radiology, Harvard Medical School, to chairman, radiology department, University of Pennsylvania School of Medicine. . . . **Edward J. Shahady**, chairman, family medicine department, College of Medicine, Northeastern Ohio Universities, to head, family medicine department, University of North Carolina School of Medicine, Chapel Hill. . . . **Robert O. Riggs**, dean, School of Education, Madison College, to president, Austin Peay State University. . . . **Lattie F. Coor**, vice chancellor, Washington University, to president, University of Vermont. . . . **John P. Hanley**, dean of planning and development, Sullivan County Community College, to president, Mercer County Community College. . . . **Timothy S. Healy**, vice chancellor for academic affairs, City University of New York, to president, Georgetown University. . . . **Roy A. Young**, vice president, Oregon State University, to chancellor, University of Nebraska, Lincoln.