ly with employees," he says. Kansas law, he indicates, must be changed to recognize bargaining rights for employee unions and spell out bargaining procedures. And, obviously, an important question to be settled is how, and at what point, the legislative leaders who control the purse will be brought into the discussions on higher pay and upgraded jobs.

Some states, such as California, are far ahead of Kansas with respect to the salaries and career opportunities offered such workers. But in only a few states, such as Washington, Montana, Michigan, Illinois, and Delaware, have any state mental hospitals entered into contracts with AFSCME.

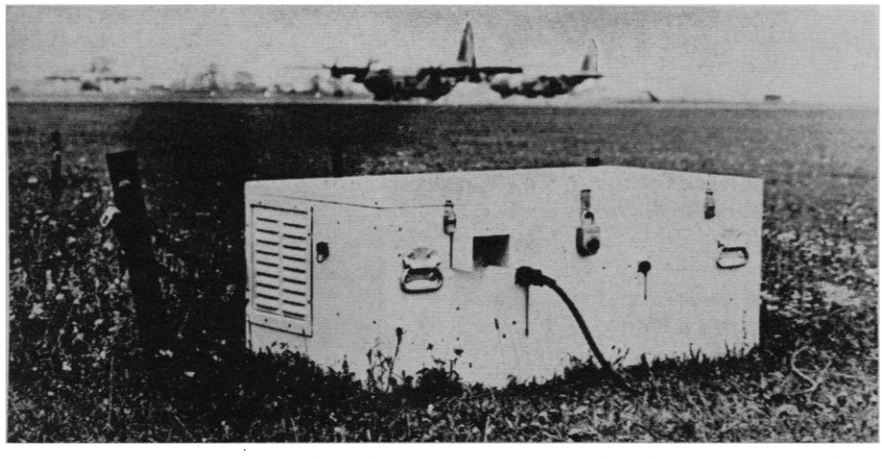
The psychiatric aide's role in mental-health care is growing in importance, for the shortage of psychiatrists and other professionals, together with the rapid expansion of mental-health facilities, is making the aide more valuable than ever. It seems just as certain that the aide's education, professionalism, career ambitions, and militancy (if he is frustrated) will all be on the upswing. Also significant is the fact that many of the younger psychiatrists and other health professionals represent a distinctly new breed, and are likely to be encouraging the aides' new aspirations. Further, the necessity for hospitals and state mental-health systems to forget the plantation system and treat with the aides, collectively, is the clearer because of the strong pressures that the black community and an increasingly self-confident national union movement for public employees will bring to bear.—LUTHER J. CARTER

Arms Control: U.S., British Conduct Big Troop Inspection Experiment

Newbury, England. Though the bottom has fallen out of the market for arms control agreements, it should perhaps not go unnoted that the United States and Great Britain have just completed what is probably the biggest and most complex arms control experiment yet held, a 3-month field test called "First Look." The experiment, which ended on 20 September, was aimed at developing simple, aboveboard, nonirritating techniques for verifying compliance with agreements on the type and size of military forces that may be kept in a given region. Underlying the test was the belief that, since the Soviets have been sensitive to agreements that require close-up verification, any agreement on the limitation of forces will probably have to get by with a minimum of intrusions by inspectors.

For carrying out the experiment, the British made available in southern England a 2000-square-mile area that is the base and training ground for approximately 30,000 troops. With 80 American military officers employed as roving inspectors, once-a-week aerial reconnaissance, automatically operated cameras on runway, and unmanned sensing devices, the experiment sought to determine how well various combinations of these elements could monitor the comings and goings and deployment of the forces. Since the experiment took place during the summer months, when troops were going off on leave, reservists were arriving for training, and maneuvers were taking place, there was a lot of activity to keep track of. Staff members of the British Defence Ministry and the U.S. Arms Control and Disarmament Agency (ACDA), joint sponsors of First Look, say that it will take a year to complete a full analysis of the experiment. Nevertheless, the preliminary conclusions are that, given a fair amount of freedom to roam through an area, even a handful of inspectors can quickly detect a significant change in military forces. A real-life inspection system probably would require far fewer than 80 inspectors for covering forces and an area comparable to those in the test, according to the First Look staff. Actually, the 80 were divided into various independently operating subgroups for the purpose of comparing different inspection techniques.

The experiment proceeded from two assumptions: (i) that in any arms control agreement the side to be inspected would agree to issue an inventory of the forces maintained in the inspection area; (ii) that, in looking for a change in military intentions, the key is the composition and deployment of forces, not simply a gross count of people and equipment. The experiment proceeded as follows. After 3 weeks of instruction each of the 80 inspectors was provided with a Land Rover and a British driver familiar with the inspection area. These two-man teams were then assigned to various groupings. Some were provided with insignia that gave them the right to enter military posts; others were restricted to public highways. Some of the inspection groups were permitted to consult aerial reconnaissance photos; others were not. Situated at 26 locations around the test area were unmanned sensors in steamer-trunk-size



Unmanned sensing station: 26 of these boxes were distributed throughout the First Look test area. Each contains an infrared device for detecting heat emission, two microphones for measuring acoustical effects, and a spike driven into the ground for detecting earth vibrations caused by passing vehicles.

boxes that contained devices for tape-recording the sound, heat-emissions, and earth vibrations from passing vehicles. (After calibrating these devices for various types of military equipment, the testers say, they could generally distinguish a passing tank from a milk wagon, or a heavy aircraft from a helicopter.) Finally, on three runways in the test area, automatic cameras clicked off photos every 7 seconds, whether or not anything was coming or going. In various combinations, the sensor and photographic data were provided to, or withheld from, the inspection groups.

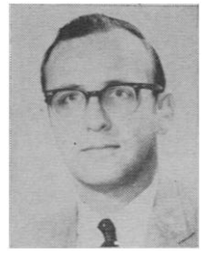
At the heart of the experiment were the 80 roving inspectors, who, with cameras, tape recorders, and binoculars, systematically went through the area looking for anything from the unit markings on a convoy to previously unseen insignia on the uniform of a soldier in town. All the information was reported back to a compilation center set up at an abandoned military air base near here. There it was examined and then prepared for computer analysis in Britain and also by the Research Analysis Corporation, of Arlington, Virginia, which helped design the experiment, under contract to ACDA.

First Look regularly welcomed visits by the press and foreign governments. (Alone of the Soviet-bloc nations, the Czechs accepted an invitation to visit early in the summer, but failed to show up.) Almost invariably during these visits, the staff reported, questions were raised about the possibility of deception under an agreement. British Brigadier Paul Ward, head of the test, replies that the results are yet to be fully analyzed but that, at various times throughout the test, deceptions were introduced. His preliminary conclusion, he said, is that it would be very difficult to carry out a covert violation of the agreement that could seriously affect military capabilities before being detected. Ward also points out that First Look's inspectors received only brief training, and that no intelligence information went into the analyses. Furthermore, he noted, it is doubtful that any region coming under an arms control agreement would normally have as much military traffic as there was in the 2000-square-mile training area in which the test took place.

In view of the state of the world today, it is doubtful that First Look is going to find any application in the near future. But at least it will be there in the files if the market for arms control turns upward.—D. S. GREENBERG

APPOINTMENTS

G. A. Newkirk



J. A. Moxley, III

Gordon A. Newkirk, acting director of the National Center for Atmospheric Research's High Altitude Observatory, to associate director of NCAR and director of the observatory. . . . **John H. Moxley, III,** assistant to the dean of Harvard University Medical School, to dean of the University of Maryland School of Medicine. . . . **David S. Saxon**, professor of physics and dean of the division of physical sciences, University of California, Los Angeles, to vice chancellor of UCLA; also at UCLA, **Paul O. Proehl**, professor of law and director of the university's African Studies Center will become vice chancellor in charge of university relations and public programs. . . . **George G. Shor**, chairman of the geological research division of Scripps Institution of Oceanography, University of California, San Diego, will keep this position and also become associate director of Scripps. . . . **James W. Colbert**, director of the Advanced Planning Staff for the Surgeon General, Public Health Service, to associate director for Collaborative Research of the National Institute of Allergy and Infectious Diseases, NIH. . . . **Howard F. Helm,** director of the division of elementary and secondary education research in the Office of Education, HEW, to director of the Division of Educational Laboratories in the office. . . . **Leonard C. Mead,** senior vice president and provost, Tufts University, to Ford Foundation's adviser to the University of Delhi. . . . **Vernon J. Henry,** director of the University of Georgia Marine Institute, to program director of submarine geology and geophysics in the oceanography section of the division of environmental sciences, National Science Foundation. . . . **David A. Adams,** commissioner of the Division of Commercial and Sports Fisheries of North Carolina, to senior staff scientist for the National Council on Marine Resources and Engineering Development, Executive Office of the President. . . . **Roger J. Voskuyl,** former president of Westmont College in California, to executive director of the Council for the Advancement of Small Colleges. . . . **Rex B. Conn,** professor of pathology and director of clinical laboratories, West Virginia University Medical Center, to director of the department of laboratory medicine, Johns Hopkins University Hospital. . . . **Charles H. Hendricks,** professor of obstetrics and gynecology, Western Reserve University School of Medicine, to chairman of the department of obstetrics and gynecology, University of North Carolina School of Medicine.

RECENT DEATHS

Franz Altmann, 67; former clinical professor of otolaryngology at Columbia-Presbyterian Medical Center and president of the Ear, Nose and Throat section of the New York Academy of Medicine; 26 August.

Henry A. Barnes, 61; New York City's traffic commissioner; 16 September.

Crane Brinton, 70; noted author and professor of ancient and modern history at Harvard University; 7 September.

Theodore G. Bernthal, 64; chairman of the department of physiology at the Medical College of South Carolina, 1 September.

William C. MacTavish, 75; emeritus professor of chemistry at New York University; 14 September.

Franklin C. McLean, 80; emeritus professor of physiology at the University of Chicago; 10 September.

George M. Moore, 61; former chairman of the department of zoology at the University of New Hampshire; 19 May.

Mark E. Parks, 62; assistant professor of biology at Brooklyn College; 12 September.

Rudolf Schindler, 80; German-born inventor of the gastroscope and teacher of medicine in Chicago and Los Angeles; 7 September.

John R. Skeen, Jr., 69; former professor of chemistry at Northern Virginia Community College; 25 August.

Erratum: In "Sakharov: Soviet physicist appeals for bold initiatives" (9 Aug. 1968) sentence 4, paragraph 3, page 558, "up to 100 Bev" should read "up to 1000 Bev."

Erratum: In the article, "The control of fertility" (p. 1261, 20 Sept.), the second sentence of the second paragraph, third column, should have read: "He will be followed by Sheldon Segal (Population Council) who will describe recent advances in fertility control involving hormonal agents, intrauterine devices and other procedures, some of which, under investigation in animals, have not yet been applied to human studies."