ment on new weapons systems. Nixon was sharply critical of civilian officials in the Pentagon who, wielding new budget-control methods, had, he said, overreached themselves (*Science*, 18 October).

It will be particularly interesting, therefore, to see what changes are made in the office of the Assistant Secretary of Defense (Systems Analysis) on the departure of the incumbent, Alain C. Enthoven, who is a senior member of the generation of "whiz kids" who helped McNamara transform management at the Pentagon.

Enthoven and his operation have also drawn the fire of House Armed Services Committee chairman L. Mendel Rivers (D–S.C.), a dedicated McNamara critic. In a somewhat less exposed position is John S. Foster, director of Defense Research and Engineering. Appointed by the President with the advice and consent of the Senate, the director is adviser to the Secretary of Defense on scientific and technical matters as well as on the development, testing, and evaluation of weapons. Foster and his appointive deputies will hand in their resignations, but the post, under Foster and his predecessors Herbert York and Harold Brown, has been fairly free of controversy, and Foster's relations with Congress seem reasonably good. Foster has indicated no post-inauguration plans and could be willing to stay on, at least for a while. Foster is in the midst of preparing next year's budget and, like many other federal officials so occupied, probably feels a responsibility to carry through, into next year, with presentation of the budget to the next Congress.

In HEW, some changes in the approach to administering welfare and education legislation are expected. HEW Secretary Wilbur J. Cohen, who made a reputation as a university authority on social security policy, has announced he will return to the University of Michigan, where he held a professorship. Commissioner of Education Harold Howe II will leave the Office of Education on 31 December to join the staff of the Ford Foundation. Howe, who has served in the post since 1965, has been responsible for administering an education budget that grew to $4 billion a year under President Johnson. Howe also was a central figure in the development of federal guidelines which set forth the conditions under which federal aid funds should be withheld if school districts did not meet civil rights provisions in education legislation. This made him a target for the hostility of hardliners in Congress and elsewhere, even after enforcement responsibility was moved out of OE. The Nixon appointment to the commissioner's job will serve as a strong hint of intentions in a sensitive area.

On the health side of HEW, the job of director of the National Institutes of Health has been viewed as nonpolitical, and the new director, Robert Marston, who succeeded James Shannon this summer, is expected to carry on. Assistant Secretary for Health and Scientific Affairs, Philip R. Lee, a physician, is expected to leave government. Observers say that the reorganization which changed the relationship of NIH and the Public Health Service has progressed satisfactorily because Lee and Surgeon General William Stewart and other officials worked very well together, and there is some question about the effects of new management.

In other line agencies, science advisers and science administrators have risen to sub-Cabinet level in the last decade. Professional competence is the main criterion for their choice, but they work closely with top departmental officials, and sympathy for the new administration's aims counts.

Some impending changes in the atmosphere of federal science in Washington are not necessarily tied to political changes. There is a constant two-way traffic of academics and industry scientists in and out of Washington. Federal fatigue takes its toll; leaves of absence expire and greener pastures beckon.

Next year the National Academy of Sciences will get a new president as Frederick Seitz leaves to take up the presidency of the Rockefeller University.

The Institute for Defense Analyses, a nonprofit research organization with contractual ties to the Defense Department, is looking for technically qualified candidates for two top posts. Gordon J. F. MacDonald, who came to IDA from UCLA 2 years ago as executive vice president, has returned to California as vice chancellor of the University of California, Santa Barbara. Another IDA executive, Ali Bulent Cambel, has resigned a vice presidency to go to Wayne State University as dean of the school of engineering. IDA and other organizations which operate in the federal government's gravitational field can have such things as recruiting affected by the kinds of uncertainties that accompany a change in administration.

The Nixon talent hunt is only beginning, and many key federal science appointments could come after Inauguration Day. There seems to have been little ardor among academic scientists for the Nixon candidacy, and observers say that Nixon is likely to draw on industry for science advisers and administrators more heavily than his immediate predecessors did. There is no Kennedy Camelot atmosphere to attract talent; federal science, with luck, will be run with an approach which is, in the best sense, businesslike. If academic scientists sulk in their tents, what they could get in federal science is not an orderly transition but some rude shocks.

—JOHN WALSH

CBW: Britain Holds Open House at Its Biological Weapons Center

Porton Down, England. With an invitation list ranging from the Canine Defence League to the House of Lords, the Microbiological Research Establishment (MRE), Britain's center for biological weapons research, opened its doors last month in an effort to persuade the public that it is not the devil's workshop.

Whether it is or isn't turns out to be a matter of taste and interpretation. MRE, which is operated by the Ministry of Defence some 80 miles southwest of London, persuasively argues that its military role is confined to protecting Britain against biological attack, and, furthermore, as the country's best equipped laboratory for large-scale production and handling of microorganisms, it does a great deal of work of

no military value at all. But MRE acknowledges that, under a U.S.-British agreement, it tells all to the U.S. Army research center at Fort Detrick, Maryland, which makes no bones at all about having military interests. What Fort Detrick does with the information, says MRE, is Fort Detrick's business. Measured in papers, MRE reports, about 15 to 20 percent of its output is classified, but this is material that is considered of possible use to an enemy, and, after a time, a fair portion of it is declassified.

In any case, MRE, like Fort Detrick, has been the object of a campaign depicting it as morally unclean (*Science*, 12 June), but, unlike Fort Detrick, MRE conceives of itself as a beneficent institution, and in this spirit it undertook to fight back. The result was a public-relations performance that merits at least some note in the annals of how science talks to the public. (MRE's companion center at the Porton Down site, the Chemical Defense Experimental Establishment, will put on its public performance in June.)

At MRE, where about 1500 invited guests came during the 3-day visiting period, science talked to the public by opening up some 50 rooms of scientific gadgetry, converting fermentation apparatus to the production of beer (one batch coming out 28 proof, according to gas chromatography reading), serving lunch in a red-carpeted, white-and-yellow striped tent, and showing a movie which, among other things, pointed out that, just as MRE's workers are maligned today, the scientific saviors who produced radar for the Battle of Britain were once accused of making "death rays." The movie also showed that, though MRE's detractors portray its staff members as gas-masked demons, they actually are ordinary-looking fellows, and some even play chess at lunchtime and take their kids swimming in the community pool. And the staff was on hand, many in white lab coats, stationed in each of the open laboratories and affably responsive to the 50th repetition of even the most banal inquiry. In most of these labs, and also along flower-bedecked corridors, were scores of well-prepared posters that noted MRE's military work but particularly stressed its contributions to public health. MRE, these posters stated, developed the Porton Needleless Injector, which makes possible virtually painless, high-speed, mass inoculations; it produced some 600,000 doses of vaccine for the 1957 Asian flu epidemic; it has done research on the air-borne spread of foot-and-mouth disease, and it is also working on the "green monkey disease," which last year killed several German and Yugoslav researchers who had been working with vervet monkeys from East Africa.

Since animal lovers are well-organized and pugnacious in Britain, and have their own peculiar reasons for being curious about what goes on in MRE's laboratories, they were well represented on a special invitation list titled, "Anti-Organizations." But when they got there, they found no substance for their no doubt well-justified fears. As was stated in a glossy, illustrated booklet given each visitor, "For some purposes, there is no alternative to animal experimentation. Animals are essential for establishing the safety and effectiveness of many vaccines, antibiotics. . . . The animals on view are all healthy and normal. Public display of animals under experiment *anywhere* in Britain is forbidden by the Cruelty to Animals Act of 1876."

MRE's Military Role

As for MRE's military role, it was stated—reportedly for the first time publicly—that Britain's vulnerability to biological weapons attack became a matter of high-level concern following tests in 1957 and 1958. With a "harmless chemical" it was shown, according to the MRE account, that a single aircraft flying off the coast could dispense a cloud of biological agents which would spread over the heavily populated southeast region within a few hours. This being the case, it was stated, common sense calls for Britain's taking steps to develop the means for detecting and protecting itself against a biological attack.

This was the theme that was stressed in a press conference that MRE's director, C. E. Gordon Smith, held shortly after the well-attended opening of the bar in the press room. Gordon Smith was introduced by a press officer who said he was pleased to announce that the Swedish government had authorized him to say that some biological weapons research in Sweden is classified. This announcement, he made clear, was offered as a rebuttal to those who contend that Sweden does all its biological defense research out in the open, and that Britain should do the same. Gordon Smith, good-natured but bearing the expression of a man reconciled to living with what he considers to be a silly fuss, then went on to explain that, in the course of its defensive studies, MRE inevitably came across information which might be useful to an attacker, and that such information was classified. Specifically, he explained, classification was confined to four types of information: "(1) Knowledge which would enable an enemy to make naturally occurring organisms into more dangerous BW agents. (2) Details of the behavior of microbes in UK climatic conditions, because this information would help an enemy to determine the most dangerous utilization of BW agents. (3) Details of our state of readiness in early warning, detection, and identification of BW attack. (4) Assessment of the vulnerability of the UK and its armed forces to BW."

A questioner pointed out that condition 1 could be applied to a vast range of biomedical research. In the style of British press conferences, which resemble student-teacher dialogs rather than the harpooning sessions which are commonplace in Washington, Gordon Smith replied that perhaps it could, but it wasn't. Another questioner, noting that MRE acknowledges reporting all its work to Fort Detrick, asked whether Detrick reported all its work to MRE. Gordon Smith replied, "We have access to their work, but this is supplied on a need-to-know basis." When the questioner asked him to clarify his answer, the press officer, barely suppressing his annoyance, interjected, "Look, old man, how far do you intend to pursue this? I mean, after all!" The questioner persisted, and Gordon Smith went on to explain that since MRE is concerned only with the defensive aspects of biological weapons, it has no interest in Fort Detrick's offensive work. Asked whether the two can be separated, he responded, yes, they could, though there are some difficulties—or words to that effect. He was then asked for his opinion of proposals to transfer MRE to the Ministry of Health. He replied that, as a civil servant, it wasn't his place to discuss high-level organizational matters in public. But he left the impression that he agreed with those who felt that a lot of problems would go away if MRE could get out from under its military auspices.

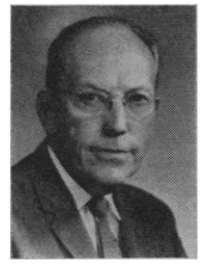
That the problems are going to remain, despite MRE's apparently successful venture into public relations, became apparent a few days later, when a senior lecturer in biology at a technical college resigned in protest against plans to permit students there to receive training at MRE. Interestingly, a large

majority of students in the department expressed support for the training arrangement. Whatever the merits, many newspapers gave as much notice to this rather small incident as they did to MRE's 3-day open house.

The agitation against chemical and biological warfare (CBW) is, of course, going to continue, but one of the most effective and persistent participants will no longer hold the strategic position that he used so well. He is Tam Dalyell, the Labour M.P. from Scotland, who last summer was reprimanded by Parliament for leaking a report of a CBW inquiry conducted by Parliament's Select Committee on Science and Technology (*Science*, 9 August). Dalyell, it has been learned, is not to be renominated for membership on the committee when it is reassembled for the newly opened session of Parliament. He will retain the post of parliamentary private secretary to a highly influential cabinet officer, Richard Crossman, who heads the newly established Department of Health and Social Security—which shows that Dalyell is far from out of grace. But the CBW issue nettles the British government, as is shown by the retribution that is being meted out for the trivial offense of releasing an unclassified document that was to be released anyway in a few days.

One other matter concerning CBW is worth noting. It is charged here that Britain is the source of various materiel items for the U.S. in Vietnam, and that these include chemical defoliants, for which military demand has severely taxed U.S. production facilities. The U.S. Defense Department denies it is using British-made defoliants, and so do the British. And no firm evidence has been offered by those making the accusations. Figures obtained by *Science* from H.M. Customs and Excise don't controvert these denials, but they do suggest that, while American-made weed killers are going to war, British manufacturers have markedly increased their exports to the U.S. It must be stressed that the volume of material is small, but, percentagewise, the growth is enormous. In 1965, British exports of weed killer to the U.S. totaled only 860 hundredweight. The following year the total was 1901 hundredweight; in 1967, it had risen to 5452; and in the first 7 months of this year, it was 5440. Assuming that these official figures tell the true story, one must recognize that these amounts are next to nothing as compared to the total output of both countries.—D. S. GREENBERG

APPOINTMENTS



W. W. Rubey

S. S. Penner

William W. Rubey, professor of geology and geophysics at University of California, Los Angeles, will keep this position and will also become director of the Lunar Science Institute and adjunct professor of geology at Rice University. . . . **S. S. Penner**, director of the Institute for Pure and Applied Physical Sciences and chairman of the department of aerospace and mechanical engineering science at the University of California, San Diego at La Jolla, will keep his position of director of the institute and will also become vice chancellor for academic affairs at the university. . . . **John F. Parsons**, associate director of NASA's Ames Research Center, to acting director of the center; he succeeds **H. Julian Allen**, who is retiring. . . . **Denis L. Fox**, professor of marine biochemistry at the University of California, San Diego, to chairman of the marine biology research division of the university's Scripps Institution of Oceanography. . . . **Dean A. Horn**, production officer for the Portsmouth Naval Shipyard, to professor of naval construction in the department of naval architecture and marine engineering and head of the department of naval science at Massachusetts Institute of Technology. . . . **Albert I. Rubenstone**, chairman of pathology and director of laboratories at Mount Sinai Hospital Medical Center will remain in this position and also become chairman of the department of pathology at the Chicago Medical School/University of Health Sciences. . . . **Robert K. Chipman**, professor of zoology and associate dean of the graduate college at the University of Vermont to chairman of the department of zoology at the University of Rhode Island. . . . **T. Joseph Reeves**, professor of medicine and director of the Cardiovascular Research and Training Center, University of Alabama Medical Center, to chairman of the department of medicine at the Medical College of Alabama. . . . **Frederick M. Fowkes**, director of basic research at Sprague Electric Company, to chairman of the department of chemistry at Lehigh University. . . . **E. Leigh Secrest**, dean of the Texas Christian University Graduate School, to vice-chancellor for advanced studies and research and president of the Research Foundation at the university. . . . **Warren G. Bennis**, provost of social sciences and administration at the State University of New York at Buffalo, to vice president for academic affairs at the university. . . . **Robert J. Hubner**, chief of the Laboratory of Viral Disease in the National Institute of Allergy and Infectious Diseases, National Institutes of Health, to chief of the Viral Carcinogenesis Branch of the National Cancer Institute, NIH.

RECENT DEATHS

Joseph A. Bell, 64; former chief of the epidemiology section of the laboratory of infectious diseases of the National Institute of Allergy and Infectious Diseases, National Institutes of Health; 29 October.

Herbert F. Copeland, 66; instructor of life sciences at Sacramento City College; 16 October.

Frederic J. Farnell, 83; former clinical professor of psychiatry at New York Medical College; 4 November.

Nicholas J. Giarman, 48; professor of pharmacology at Yale University School of Medicine; 10 October.

William C. Kistler, 45; head of the department of science at the U.S. Naval Academy; 25 October.

Walter D. Lambert, 89; former chief of the section of gravity and astronomy at the U.S. Coast and Geodedic Survey; 27 October.

Paul B. Magnuson, 84; former chief medical director of the Veterans Administration; 5 November.

Lise Meitner, 89; the Austrian nuclear physicist who did much of the theoretical groundwork on which the atomic bomb was developed; 27 October.

J. Peter Nettl, 40; professor of political science and sociology at the University of Pennsylvania; 25 October.

Henry J. Oosting, 65; professor of botany at Duke University; 30 October.

Helen G. Russell, 67; former head of the department of mathematics at Wellesley College; 24 October.

Marshall H. Wrubel, 44; professor of astronomy at Indiana University; 26 October.