grams and reluctant to increase Federal spending. And when they turned the NIH budget out of committee, roughly as it had come in, even the President's Regional Medical Program, a popular plan to dot the country with 53 first-rate medical centers, was $10 million poorer than it had been. The program is not advancing fast enough to spend more than $75 million next year, they said.

The Congressmen also sliced $3.7 million from the new environmental health sciences program in North Carolina, set up to seek cures for air pollution and other man-made threats to health. Officials speculate however, that Senator Lister Hill (D-Ala.) will put the $3 million back as his Senate Appropriations Subcommittee meets on the budget this month.

Senator Hill, NIH's guardian angel on his side of Congress, traditionally raises the requested appropriations for research—last year by $36 million. He is likely to move in this direction again this year, though more cautiously, NIH and Senate spokesmen predict. "Senator Hill is a practical man, money is tight because of the war, and he won't go whole hog with extra money this time," an NIH observer says. Hill will also have to justify increased spending to the House, in conference on differences between versions.

It probably will be September before the NIH appropriations bill passes through both houses in its final form, but chances are 99 to one that this will be the first year NIH gets just about what it asked for and no more.

"The NIH request for $1.2 billion is an eight percent jump over last year's appropriation, and it really isn't very much," a Congressional spokesman says. "But, on the other hand, a lot of Government agencies won't get any increase this year at all, so comparatively speaking NIH is doing fine."

An NIH economist agrees. "Things aren't as bad as they seem—under the circumstances. After all, we're at war," he says.

Most biomedical research fields will have to make do without a substantial increase, but a chosen few are earmarked for stepped-up activity. NIH asks an additional $2.5 million to study blindness, a raise of $1.8 million to investigate drug action in humans, $1.1 million more to study emphysema, $2 million for cystic fibrosis research and an extra $810,000 for family planning. The latter request, though hardly major in terms of dollars and cents, represents a bigger step in the direction of birth control research than NIH has ever taken. Until oral contraceptives became well accepted in the U.S., NIH cautiously avoided the subject.

ADDISON'S DISEASE

Pathologist-sleuth Reopens Kennedy Controversy

In the heat of the campaign for the Democratic Presidential nomination in the summer of 1960, supporters of the late John F. Kennedy were capitalizing on a heart attack Kennedy's chief rival, Lyndon B. Johnson of Texas, had had four years before.

In retaliation, Addison's disease, for the first time in history, became a political issue.

At a press conference, Johnson's aides announced what had been rumored in Washington for some time—that the adrenal insufficiency Kennedy had known about since shortly after World II was, in fact, the dread-sounding disease named for the English physician Thomas Addison, who identified

Kennedy: clues in the Archives

it a century earlier. And Addison's disease, though science had modified the definition and prognosis considerably in the intervening 100 years, was still being commonly described as tuberculosis of the adrenal glands, which destroyed their function and in the end led to emotional instability, nervousness and generally death.

Addison's disease, as now defined, is a chronic insufficiency in the production of hormones by the cortex of the adrenal gland. Its cause is unknown; the tubercular form is apparently only one of many.

Kennedy had known of an adrenal insufficiency since shortly after his discharge from the Navy. It apparently followed the extraordinary stress to which he was subjected when his torpedo boat was rammed and sunk during World War II, and a subsequent bout with malaria. It was diagnosed and treatmnt was begun in London.

In response to rumors about Addison's disease which had begun to circulate in the year before the 1960 convention, Senator Kennedy sought a medical evaluation. And in response to the campaign charges, he had ready medical testimony ruling out Addison's disease; he released medical statements to the effect that:

- The meaning of the term has changed over the years until it has come to include all grades of adrenal insufficiency.
- The prognosis, or outlook, in the disease first recognized by Addison has also changed in recent years.

Since the advent of cortisone in the 1940s, the disease has been relatively easy to manage.

Kennedy had been on a regimen of implanted desoxycorticosterone and cortisone for some years, but though he underwent periodic endocrinologic checkups and continued oral doses of other corticosteroids until his death, the specific regimen had been discontinued several years earlier.

The term Addison's disease was never officially employed in describing Kennedy's condition. He never admitted having it in any form.

And his physician, Dr. Janet Travell, never used any term other than "adrenal insufficiency."

She used it again last week, in response to a piece of medical sleuthing by a pathologist, Dr. John Nichols of the University of Kansas Medical Center, who declares, as a result of his research, "it can be strongly presumed that President John F. Kennedy had Addison's disease."

Dr. Nichols began with an article on page 737 of the 1955 ARCHIVES OF SURGERY by Dr. James A. Nicholas of Cornell University Medical College, and collaborators including Dr. Philip D. Wilson, who performed surgery on Kennedy's back Oct. 21, 1954.

Dr. Nicholas—a resident orthopedic surgeon on the case—had delivered a paper at the 1955 American Medical Association convention on the back surgery the 37-year-old Senator Kennedy had undergone at the Hospital for Special Surgery in New York. A lumbar spine fusion was attempted by inserting a metal plate. That attempt to correct an old back injury was unsuccessful; other, later methods worked.

Addison's disease offers serious, sometimes fatal complications to surgery—a reason Dr. Nicholas discussed the case in the 1955 ARCHIVES.

While he never names his subject, he describes him as a 37-year-old male patient "with adrenal insufficiency due to Addison's disease," who underwent elective surgery.

"Owing to a back injury," the anonymous subject "had a great deal of pain. . . . Orthopedic consultation suggested that he might be helped by lumbosacral fusion together with a sacroiliac fusion."

"Because of the severe degree of trauma involved in these operations and because of the patient's adrenocortical insufficiency due to Addison's disease, it was deemed dangerous to proceed with these operations. . . .

"It was decided, reluctantly, to perform the operations by doing the two different procedures at different times if necessary and by having a team versed in endocrinology and surgical physiology help in the management of this patient before, during and after the surgery."

Dr. Nichols found that the surgery described by Dr. Nicholas and his coworkers matches closely that performed by Drs. Wilson, Nicholas and others on Senator Kennedy.

And his check, and independent checks as well, have turned up no other 37-year-old male patients who underwent spinal surgery at the Hospital for Special Surgery on the day in question. Dr. Nicholas's unnamed subject, it seems, has to be the late President in whose surgery Dr. Nicholas assisted.

Dr. Nichols, in reopening the old controversy in the July 10 JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, denies that he is violating medical ethics in publishing his results and conclusions.

"It may be argued," he declares, "that a breach of physician-patient relationship would result if physicians with direct professional knowledge of President Kennedy's illness made public comment without consent." (Drs. Nicholas and Wilson have both declined comment.) But, he adds, deploring the silence on the question by the Kennedy autopsy report, "The public is entitled to knowledge of the health of (its) chief executive and candidates for this office."

The information, he declares, should have been made public initially.

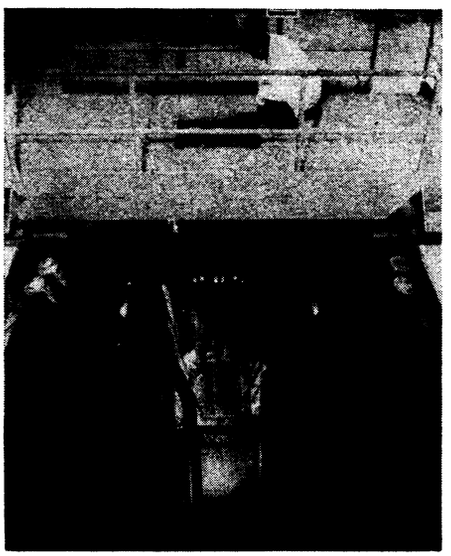
NUCLEAR REACTORS

Five-year Test in One

While concentrating on the third generation of advanced nuclear reactors, the so-called breeders, (SN: 4/15) U.S. and European atomic energy agencies continue to push research in the less exotic levels of reactor technology. Both efforts seek new developments in fuel element technology.

The U.S. research is highlighted by the recent start-up of a high-power Advanced Test Reactor at the Atomic Energy Commission's Idaho Falls Testing Station. The ATR, designed to put out 250,000 thermal kilowatts of energy, will be used to test the effect of irradiation on fuel elements and shielding material.

The reactor elements are in the shape of a cloverleaf with four lobes.



AEC

Cloverleaf reactor goes critical.

In the center of the lobes are nine tubes to hold test samples. Each tube can run as an independent unit, with its own pumps, heaters and other special equipment. This allows a number of materials to be tested under different conditions simultaneously. Three of the lobes are cooled with water; the fourth lobe, not yet completed, will be gas cooled.

Neutron irradiation is a serious problem when designing reactor units. When a uranium 235 atom is split by a neutron, it gives off heat and also more neutrons. Some of these go to split other U-235 atoms, but others are absorbed by the reactor core and the fuel element container or cladding.

The ATR provides a way of speeding up the testing of reactor materials. If a fuel element is designed to last five years in an ordinary reactor, it will have to undergo an equivalent irradiation in test to show that it can stand up. Since the ATR provides something like a hundred times the concentration of neutrons that a typical power reactor puts out, a five-year test could be carried out in less than a year, according to Dr. E. E. Sinclair of the AEC's reactor development and technology division.

The ATR is a source of slow-moving, or thermal, neutrons, such as are used in most present-day reactors.

The advanced breeder reactors, however, use neutrons that move much faster, and these will present more serious irradiation problems. Dr. Sinclair says the ATR can be used for "screening" materials for fast neutron use, but most tests of such elements will have to be carried out in the Commission's Fast Flux Test Facility, which is being built near Richland, Wash. Test results from that station are not expected until about 1975.

In Europe, tests of a new type of fuel element showed promise of improving the efficiency of present-day boiling water reactors. One problem with this type of reactor is that the water, which is circulated past the fissioning fuel to take off heat with which to drive electric generators, tends to form vapor bubbles around the fuel elements. These bubbles insulate the surface and trap the heat within, so that it isn't available to do work.

The advanced fuel assembly, developed by the French firm, SNECMA, consists of metal bands twisted between the fuel rods in the assembly. These twisted tapes have a vortex-effect on the flow of water which, says the European Atomic Energy Community (Euratom), could double the power produced with the same amount of coolant in an ordinary reactor.

One problem with adding more material to the reactor core, say U.S. experts, is that there is just that much more material to wear out in a critical area. But after a six-month test in Euratom's Kahl nuclear power plant near Frankfurt, West Germany, the new fuel-element assembly still seems to be in good shape.

PHARMACOLOGY

The Real STP

The men at the microscope and the men in the clinics seemed to be talking about different things. Each had identified an STP that didn't seem to fit the other's description (SN: 7/15). Now that the dust stirred up by the dangerous hallucinogen has settled, the men in the laboratory appear to have prevailed.

Last week, the Food and Drug Administration completed its analysis, and concluded:

STP is a new, untested drug, resembling both amphetamine pep pills and the active ingredient in mescaline, the cactus-derived mind-bender.

In California, where a dozen users had been hospitalized with three-day mania and an array of physical side-effects, Dr. Frederick H. Meyers, who had treated patients for STP highs, reluctantly abandoned his original sup-