

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 co-workers 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

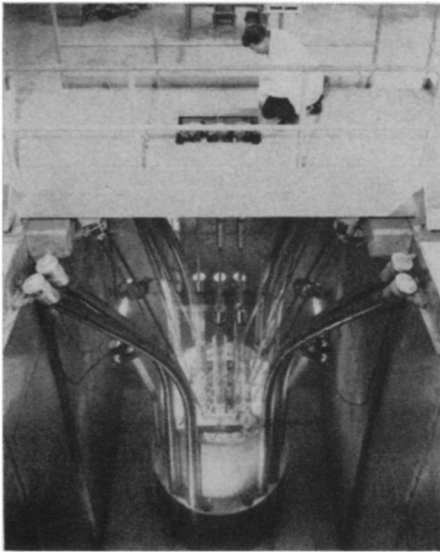
Five-year Test in One

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.



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-