

U.S. NUCLEAR TESTING The Shots Heard Round the World

CPYRGHT

THE WEEKLY NEWSMAGAZINE



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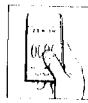
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TIME

THE WEEKLY NEWSMAGAZINE

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TIME, MAY 4, 1962

CPYRGHT

A letter from the PUBLISHER

Bernhard M. Auer

WE have had considerable experience in doing cover stories on people who at the crucial moment won't talk to us—mostly dictators, Communist or otherwise. This week Contributing Editor Ed Magnuson had the task of writing a cover story on an *American* inaccessible to us, and to everyone else, as he performed his vital part in one of the week's big news events.

Luckily, as readers will recall (TIME, April 20), we had already got to know quite a bit about Bill Ogle, scientific director of the nuclear tests on Christmas Island. And our reporters, seeking out his colleagues at Los Alamos, learned much more last week about Ogle and his teammates. Our difficulty, of course, was shared by all the press—it lay in the Administration's decision, for reasons of international public opinion, to minimize the U.S. resumption of nuclear testing.

Naturally we share every American's desire not to have any of our nuclear secrets given away, and when in doubt always clear with proper authority in Washington discreet information that we sometimes come across. But we don't think a political decision to minimize an event for propagandist reasons is quite the same thing; we think it conflicts with a basic national right to be told as much as possible (within the limits of security) about a program that has so much importance to us and to the world, that costs so much money, and that ultimately involves decisions on which the public must have understanding and knowledge.

We think that this public knowledge is best gained through the normal process of security-conscious reporters interviewing security-minded sources, rather than merely quoting Defense Department handouts. We are aware of the philosophical intricacies involved, and in this week's cover story believe we stay within bounds while properly adding to public knowledge. And it is surprising how much, observing these limits, can be told.



MEDICINE EDITOR CANT

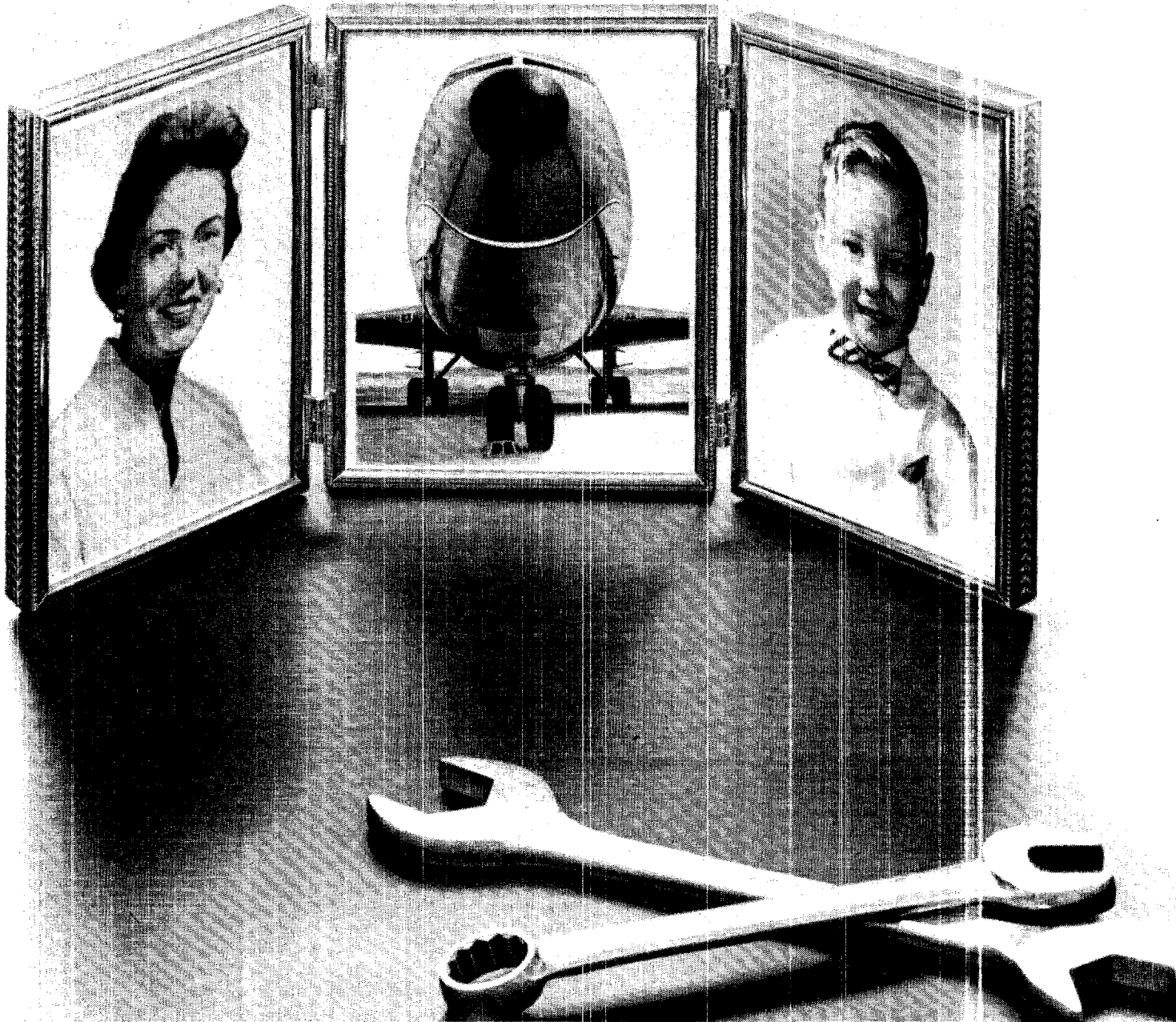
WE were pleased to learn that Gilbert Cant, TIME's Medicine editor since 1949, has been awarded \$2,500 and a gold statuette as winner of the 1961 Albert Lasker Medical Journalism award for outstanding medical reporting in magazines. Cant's cover story on Virologist John Enders (TIME, Nov. 17) was cited for "presenting an exciting and informative view of the world of viruses" that "has set a high standard deserving of emulation." Nobel Prizewinner Enders himself, in a letter to Cant, called the piece "an excellent statement in a short compass of the present state of virology. Comments from colleagues have been uniformly favorable."

In fields as specialized as medicine, we try to be intelligible to the layman while keeping the respect of the professionals in the field. Carrying out this double obligation is a specialty of Gilbert Cant's. The author of a dozen cover stories in the field, Cant, 52, before he became Medicine editor, spent five years as a writer and correspondent for TIME. During the war, Cant made two extensive tours of the Pacific theater as a correspondent, wrote three books on the Navy's role there. An enthusiastic sailor (sloops, not stinkpots) and field birder, Cant carries over into these fields some of his passion for meticulousness.

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CPYRGHT



“Give me a man who loves his work.”

There aren't many places left where a man can get this personally involved with his work.

We're lucky; ours is one of them.

Most of the mechanics who work for us have been crazy about airplanes ever since they were this high; they wouldn't be happy or satisfied doing any other kind of work.

Some of the youngsters who've got the “bug” will come back to our employment office 10, 15, even 20 times for a chance to be a mechanic at American Airlines.

Mechanics like this aren't in it just for the money. They have a fierce pride in their work, and a sense of responsibility.

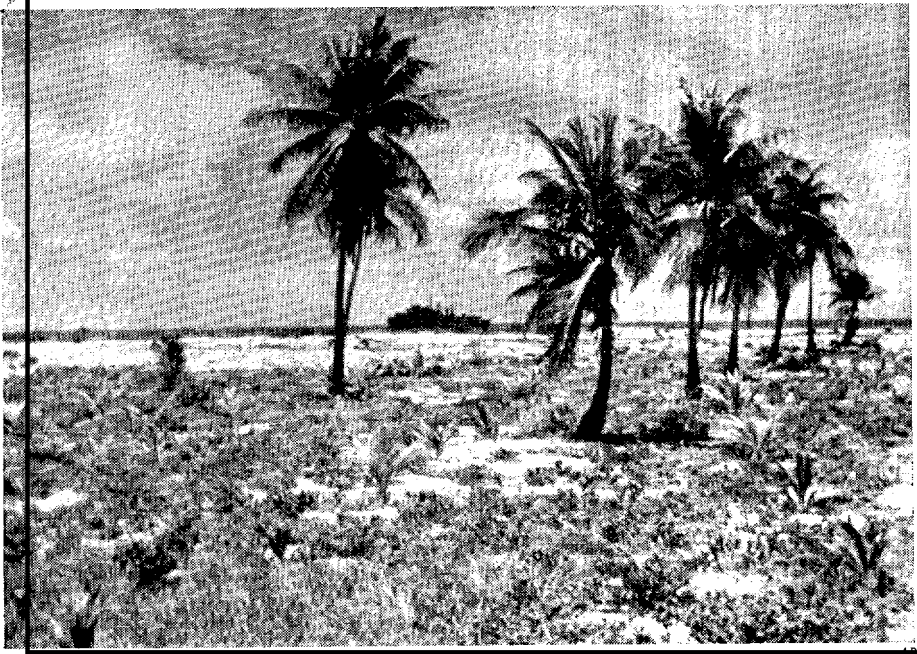
They work under men who've been with us since the days when we were flying the mail routes in biplanes; the grand old men of civil aviation. And the spirit is contagious.

Few ever leave; of those who do, a surprising number come back.

They love their work, and their work shows it.

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AMERICAN AIRLINES
AMERICA'S LEADING AIRLINE



CHRISTMAS ISLAND

Above its sand and scrub, what the free world did not want but could not avoid.

THE ATOM For Survival's Sake

(See Cover)

Dawn's first light broke through a heavy haze, diffusing Christmas Island's end-of-the-world ugliness. The barren stretches of sand and scrub, the grey hulls of freighters and barges in the tiny harbor, the naked steel testing towers, the exposed beams of half-completed buildings, all took on a weird beauty. It was already a humid 76°. An 8-knot breeze rippled the coconut fronds. In a small operations building, about 15 technicians sat amid the coffee-cup litter of a sleepless night. Alone in a darkened room, an electronics technician pressed a microphone switch and began the countdown on Operation Dominic—the U.S. series of nuclear tests in the atmosphere that the free world did not want, but for its survival's sake could not avoid.

Loudspeakers carried the countdown across the claw-shaped coral atoll to scientists huddled in and around instrument-filled trenches. Radio carried it to some 40 ships and 100 aircraft of Joint Task Force 8 deployed over 6,000,000 sq. mi. of the Pacific. One of those aircraft, an Air Force B-52, sped at high altitude toward the island. In the operations center, Dominic's scientific director, William Elwood Ogle, wearing khaki shorts and a green aloha shirt, nodded to Joint Task Force 8's commander, Major General Alfred Dodd Starbird, a tough, tall (6 ft. 5 in.) veteran of atomic testing at Eniwetok and former chief of military applications for the AEC.

All instrumentation was ready. In separate control posts, the Air Force deputy, Brigadier General John S. Samuel, and the Navy deputy, Rear Admiral Lloyd M. Mustin, checked their radarscopes; all ships, all planes, were in position. No unwanted craft had strayed into the danger zone. At 5:45 a.m. (Christmas Island

time), the countdown reached zero. The B-52 dropped its nuclear payload. A flash pierced the haze. The tests had begun.

Laconic Statement. A special circuit carried the news to Atomic Energy Commission Chairman Glenn T. Seaborg in Washington. The AEC relayed the word to President Kennedy, then cruising on his yacht, the *Honey Fitz*, on Florida's Lake Worth. The President's casual surroundings were deliberate—they were part of a major U.S. policy decision to underplay the resumption of atmospheric tests. Kennedy had no comment about the test, stood on the March 2 speech in which he explained why the U.S. felt the new series necessary. All that the U.S. Government had to say was contained in a laconic, one-paragraph statement from the AEC, which announced that the detonation had taken place at 10:45 a.m. E.S.T., and was in the "intermediate-yield range."

Two days later, the U.S. fired a second shot, also in the "intermediate range." That term meant that the power of both explosions was of more than 20 kilotons, but less than one megaton—insignificant in comparison with Russia's 58-megaton terror blast last year. A low-power test was also held underground in Nevada.

Despite the puniness of the U.S. shots, Washington had been fearful that they would set off a wave of anti-American, ban-the-bomb reaction and rioting around the world. Against this, the Kennedy Administration had clamped the strictest sort of secrecy on the Christmas Island operations—admittedly more for psychological than for security reasons (after all, the Russians could learn with instruments just as much about these tests as the U.S. learned about theirs). There were to be no eyewitness news reports from Christmas Island, no photographs of mushroom clouds over the Pacific. A medical officer returning from Christmas told reporters in Hawaii: "I can't even tell you if we've got any Band-Aids out there."

Arranged Reaction. Such secrecy precautions seemed superfluous. Most of the world's peoples were well aware that it was the Soviet Union that last fall broke a three-year test moratorium and made such advances as to endanger the world's balance of nuclear power. They also knew that Russia's Khrushchev had rejected repeated U.S. offers to forgo testing if he would only sign a meaningful no-test agreement, controlled by on-site inspectors.

There were, to be sure, ban-the-bomb demonstrations, but most had a prearranged, perfunctory quality about them.

In Japan, which has good cause for hating A-bombs, a drizzle discouraged demonstrators, but about 600 chorused antibomb songs in front of the U.S. embassy in Tokyo. U.S. Ambassador Edwin Reischauer later was heckled by 800 students at Kanazawa University, where he was lecturing on modern Japanese history. Some 800 leftist Zengakuren youths pushed and got pushed by cops who rather easily kept them away from the U.S. embassy. In Great Britain, where peace movements are strong, 1,500 marchers paraded past the U.S. embassy in London's Grosvenor Square, chanting "No more tests." Read some of the signs: "God Save the Queen, the Bomb Won't."

Among the neutralists, India's Prime Minister Nehru told his Parliament: "I am not here to blame either party, but I beg and appeal to all the nuclear powers to refrain from these tests while the Geneva conference is on." Cairo's *Alghurria* wrote: "As the world cried in panic from Soviet explosions in Moscow a year ago, it does cry in panic today from the Washington explosions."

In Turkey, only one newspaper even put the news on Page One; some ignored it completely. Radio Iran approved the test resumption. There were no demonstrations in Buddhist Burma, but the Rangoon *Guardian* said that the nuclear



PAULING AT THE WHITE HOUSE
The pickets and placards . . .

CPYRGHT

CPYRGHT

Vol. LXXIX No. 18

TIME

THE WEEKLY NEWSMAGAZINE

May 4, 1962

THE NATION

THE COLD WAR The Theology of Freedom

One was a Prime Minister and one was a pastor. But both were preachers, and each was in the U.S. with an Epistle to the Americans. The sum of their gospel: with patience and courage, backed by power, the U.S. and the free world will yet see their principles triumph and emerge victorious from the cold war.

Before his end-of-week conferences with President Kennedy in Washington,



DEN MARTIN

MACMILLAN IN MANHATTAN
An Epistle to the Americans:

Britain's Harold Macmillan stopped off in Manhattan to speak to the American Newspaper Publishers Association. In the past, Macmillan has shown an eagerness to negotiate with Russia's Khrushchev not always shared by America. Said he now to the publishers: "Our duty is surely simple—to be firm but patient, never to yield and never to give ground, but never to take provocative action ourselves; and to wait maybe one, maybe two generations, maybe more, until in God's good time the ordinary peoples of that far area [Russia], encouraged by higher

standards of material life, begin to look again for that spiritual food, without which man has never lived for prolonged periods since he came into the world."

Appearing at the University of Chicago, Swiss Dogmatist Karl Barth, whose *Epistle to the Romans* 24 years ago started him on the theological career that has taken him to the top rank of Protestantism (TIME cover, April 20), had a new message for the U.S. Everyone was aware that Barth has long faulted the West for being as materialistic as the Communists and—worse—cloaking secular ambitions in religion. Said he now to the American theologians: "If I were myself an American citizen and a Christian and a theologian, I would look at that liberty statue in New York harbor. She needs a little or a good bit of demythologizing—nevertheless, she may also be seen and interpreted and understood well as a symbol of the true theology, one not of liberty but of freedom. It is a real human freedom, one which God gives us in his grace to obey him."

An American theology of freedom, Barth said, should include "freedom from any inferiority complex over or against good old Europe, freedom from a superiority complex over or against Asia and Africa." It should also include freedom "from fear of Communism, Russia, inevitable nuclear warfare and, generally speaking, of all principalities and powers." Said Barth, summing up: "This theology of freedom should be a freedom for humanity."

Ancient advice? Perhaps. But it was freshly drawn from intellectual sources. There is a correlation between patience and courage. There is another between talk and action.

Through the already long years of the cold war, the world has seemed condemned to talk—for its own good. And it will have to keep on talking for a long while. Last week the U.S. Secretary of State met with the Russian ambassador in amiable conversations that, as the leaks had it, might conceivably lead to an agreement of some kind. The following day the Secretary took off on yet another trip around the world for more talk, from Athens to Australia.

But after weeks of talk and weeks of all, there was, at last, also a week of action—most of it on the part of the U.S. At Cape Canaveral, the rockets soared, not just nice little technical marvels,

but big giant boosters that hissed and roared and one of which hit the moon (see SCIENCE). At Christmas Island, in the hot Pacific, the U.S. resumed atomic tests in the atmosphere, firing shots heard round the world. They were heard not for the size of their bang but for the certainty of their intent. For the U.S. knew what it had to do, why it had to do it, and did it. If the immediate reaction was any indicator, most of the world understood the reasons behind the U.S. position.

The theology of freedom, as espoused



ARTHUR SIEGEL

BARTH IN CHICAGO
courage, patience, power, hope.

by the Prime Minister and the pastor, and as already practiced by the U.S. during the cold war, seemed to have an effect. The resumption of tests, coming in the face of Khrushchev threats, seemed to convince the Soviet Union that the U.S. will not be bullied.

With myriad trouble to worry about at home, Khrushchev seemed almost willing to think about being reasonable abroad. As summer beckoned, the relaxation of the calm before another storm. It almost seemed like calm.

race now "endangers mankind with annihilation." In the Philippines, apathetic reaction was summed up by citizens who asked: "Where's Christmas Island?"

In Europe, France's anti-American leftists failed to hold even a single meeting or publish a petition. Christian democrats and moderate socialists in Belgium organized a five-minute strike for May 8, but the U.S. embassy had not had a single protest. Stones were thrown through a few windows at the U.S. embassy in Copenhagen, 50 demonstrators were held back by police, but the newspaper *Berlingske Tidende* said, "The U.S. was given no choice," had "a duty to restore strategical balance." No demonstrations were reported in Latin America or Africa.

Communists, predictably, fussed about the tests. At the arms-control talks in Geneva, Soviet Delegate Zorin charged the U.S. with "hypocrisy, an aggressive act against peace, pushing the world closer to an abyss of atomic war." There were no immediate demonstrations in Moscow or in Communist China, although the Chicoms sounded angriest of all. Peking newspaper *Ta Kung Pao* charged that the tests showed that President Kennedy is "more vicious, more cunning and more adventurist than his predecessor."

Across the U.S., most ban-the-bomb groups seemed simply dispirited. Thirty motorists in Boston turned on their headlights, followed a black station wagon filled with flowers through downtown Boston in a mock funeral staged by two women's peace groups. About 20 pickets huddled at Chicago's Congress and Michigan Avenues under a banner proclaiming: "Nuclear Tests Threaten Mankind." Admitted their leader: "It's awfully hard to keep up a sustained campaign." In Washington, Nobel Chemist Linus Pauling was among marchers outside the White House.

Along the Road. Behind the comparatively mild reaction to the tests lie the lessons of experience. The tortuous route



PRESIDENT KENNEDY & FRIENDS* ON YACHT "HONEY FITZ" Underplaying it.

UPI

from the first U.S. atomic blast at Alamogordo, N. Mex., to the latest at Christmas Island stretches over nearly 17 years; it includes nearly 200 atomic explosions, about 100 megatons of nuclear energy set free in the atmosphere, 353 fruitless diplomatic test-ban meetings. The men who traveled that road were filled with doubts about their eventual destination, and at every crossroads they argued bitterly over which turn to take. Much of the history of atomic testing has been forgotten, but once recounted, its meaning is clear. Judged against the proven nuclear capability of the U.S.S.R., the doubters, those who preferred to stand still or even retreat, were always shown to be wrong. If their advice had been heeded, Khrushchev would now be the world's military master.

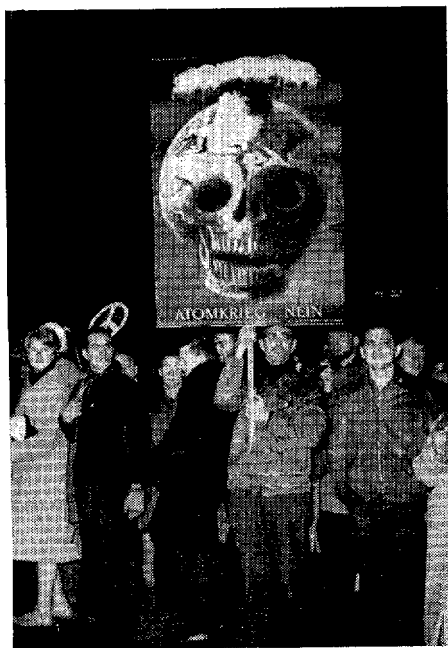
Christmas Island's Scientific Director Ogle is one of a strange breed of professional weapons testers who have traveled the atomic route in the conviction that what they are doing will make the U.S. stronger. They are fascinated by their wondrous weapons, whose forces even they do not fully understand. Another such tester, Physicist Walter Goad Jr. of the University of California's Scientific Laboratory at Los Alamos, puts their view simply: "Everyone here recognizes that these weapons are terribly destructive and that we don't know what will ultimately happen. But we feel that in a world of so much force, we have to be able to do as well as anybody else."

"We Puny Things." In the predawn darkness of July 16, 1945, dance music echoed from loudspeakers as men smeared their faces with sunburn cream and waited ten miles from a 100-ft. tower in the desert near Alamogordo. Some had been working and waiting three years for this moment—and when that tower ignited at 5:30 a.m. in the world's first atomic explosion, the flash was so blinding that they wore dark glasses, never really saw it. General

Francis Farrell, one of the military supervisors, told of his feelings: "Thirty seconds after the explosion came, first, the air blast pressing hard against the people, followed almost immediately by the strong, sustained, awesome roar which warned of doomsday and made us feel that we puny things were blasphemous to dare tamper with the forces heretofore reserved to the Almighty." Physicist J. Robert Oppenheimer, who directed the creation of this weapon at the Los Alamos lab, was reminded of a passage from the Hindus' sacred *Bhagavad Gita*: "If the radiance of a thousand suns were burst into the sky, that would be like the splendor of the Mighty One."

Also watching from a mountainside that morning was Los Alamos Physicist Ogle, barely a year past his Ph.D. from the University of Illinois. Though his role was minor, he had caught the fever of the race to make the bomb.

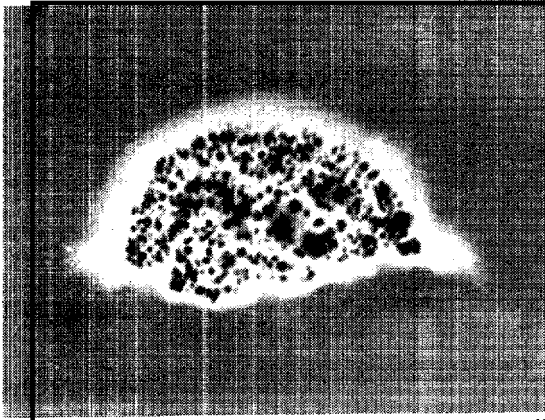
J-7. After the war, many scientists, appalled at the human toll their work had taken in Hiroshima and Nagasaki, deserted the field of nuclear-weapons development. Ogle was not one of them. Says he of the wartime deaths the bombs had caused: "Our purpose was to do just that." Congress placed atomic development under a newly created, civilian-controlled Atomic Energy Commission in the hope that its pursuits would be mainly peaceful. Yet some scientists were already warning that the U.S. atomic monopoly could not long be maintained, that the Russians were making progress. A far-sighted AEC commissioner, Rear Admiral Lewis Strauss, argued for a high-altitude patrol and seismographic network to detect Russian atomic explosions when and if they came. But AEC's idealistic first chairman, David Lilienthal, decided it was not needed. Finally, aroused by



PICTORIAL PARADE

PROTESTERS IN GERMANY

... seemed merely perfunctory.



FIRST A-BOMB TEST

Those who preferred to retreat . . .

Strauss, the Pentagon picked up the tab, got AEC to furnish the technical knowledge to set up a rudimentary net.

The commission was even torn by doubts over whether atomic-weapons development should continue at all. In April and May of 1948 it conducted a supersecret Operation Sandstone at Eniwetok in which 9,800 men of Joint Task Force 7 fired three explosions from atop 200-ft. towers—the biggest U.S. blasts up to that time (unofficial estimate: 120 kilotons). Ogle manned Sandstone instruments as part of the Los Alamos team. The tests convinced AEC that it should set up a permanent nuclear-weapons division at Los Alamos, and Ogle became one of its seven-man experimental nucleus, known as J-7.

Ivy & Castle. When the test-detection system that Strauss had demanded disclosed that the Russians had set off their first A-bomb on Aug. 29, 1949, a new controversy split AEC and the nation's atomic scientists. Should the U.S. start a crash program to develop a hydrogen bomb? Strauss pleaded for it, but Lilienthal and the other three commissioners argued that the U.S. had a sufficient atomic superiority. J. Robert Oppenheimer, head of a general advisory committee of scientists to AEC, maintained that the doubtful project would only divert personnel from the proven A-bomb program. To Strauss's side, however, came AEC Physicist Edward Teller, whose studies indicated that the H-bomb was scientifically feasible. Connecticut's Democratic Senator Brien McMahon, chairman of the Joint Committee on Atomic Energy, Secretary of State Dean Acheson, Defense Secretary Louis Johnson, and finally AEC Commissioner Gordon Dean. On Jan. 31, 1950, President Truman ordered the H-bomb to be built.

Many of the tests that followed are just vaguely familiar names now, but they loom large in the memories of the weary scientists, including Ogle, who sweated them out. There was Ranger at Frenchman Flat near Las Vegas, Greenhouse at Eniwetok, Buster-Jangle and Tumbler-Snapper. With Ivy in November 1952, the first hydrogen bomb was exploded, wiping out the tiny island of Elugelab, and digging a crater 1,000 ft. deep in the ocean's floor, near Eni-

wetok. During Castle, near Bikini in the spring of 1954, miscalculations on power and meteorology caused radioactive ash to fall and injure 23 Japanese tuna fishermen—one fatally—on their trawler, *Lucky Dragon*, which was 14 miles outside the restricted zone. Ogle was a top technical official at Ivy and Castle, ironically considers Castle the test "which gave us more of practical value than any other." The U.S. H-bomb success came a mere nine months before the Russians fired their own hydrogen superbomb—proving again that the doubters had been wrong.

The Bitter Debate. The U.S. continued testing, at Nevada and in the Pacific, from Operation Teapot through Operation Hardtack in October of 1958. During that period, the scientists tested tactical atomic weapons, dropped an H-bomb from a B-52, fired a depth charge, triggered a missile warhead 100 miles high, tried fallout-free underground testing. The Russians had been testing furiously, too—and the world was embroiled in a bitter debate over the fallout effects of such things as strontium 90, carbon 14, cesium 137, iodine 131. Adlai Stevenson had fanned fallout fears in his presidential campaign of 1956, urging the U.S. to stop testing. Now Russia announced it would stop its tests unilaterally. While President Eisenhower pondered about halting U.S. tests, the nation's scientists were at one another's throats.

MILESTONES IN NUCLEAR HISTORY

JULY 16, 1945—World's first atomic explosion, by U.S., at Alamogordo, N. Mex.

AUG. 6, 1945—Atomic bomb dropped by U.S., on Hiroshima, Japan.

AUG. 9, 1945—Second atomic bomb dropped by U.S., on Nagasaki, Japan.

JULY 1 AND JULY 25, 1946—First test series, Operations Crossroads, at Bikini.

AUG. 29, 1949—First Soviet atomic explosion, ending U.S. monopoly.

NOV. 1, 1952—World's first hydrogen bomb explosion, by U.S., in Operation Ivy near Eniwetok.

AUG. 12, 1953—First Soviet hydrogen bomb explosion.

MARCH 1, 1954—Biggest U.S. explosion on record (15 megatons), Operation Castle, showers radioactive ash beyond safety zone, burns 23 Japanese fishermen.

OCT. 31, 1958—U.S. begins test moratorium. Russia follows three days later.

SEPT. 1, 1961—Russia breaks moratorium, launches two-month, 50-explosion series up to 58 megatons.

SEPT. 15, 1961—U.S. resumes underground testing in Nevada.

MARCH 2, 1962—President Kennedy announces U.S. will resume atmospheric tests in April, unless Russia signs a no-test agreement, permitting inspections.

APRIL 25, 1962—U.S. resumes atmos-



FIRST H-BOMB TEST

proved to be wrong.

Teller and then-AEC Commissioner Willard Libby, a Nobel Prizewinning chemist, asserted that the fallout dangers were highly exaggerated. Teller said that the U.S. must keep testing, since there was no sure way to detect Soviet cheating in low-power or underground tests. AEC Chairman John McCone doggedly opposed a test stop. Physicist Edward U. Condon prophesied that "many thousands of persons will die agonizing deaths from bone cancer and leukemia." Nobel Chemist Pauling cited the mutation threats to future generations. Cornell Physicist Hans Bethe, who had opposed H-bomb development, headed a presidential study, reported that detection of Soviet tests was technically feasible. Reluctantly, Eisenhower said that the U.S. would refrain from tests for one year beginning Oct. 31, 1958, if the Russians would start talks on an inspection system by that date. Thus the tiresome talkathon and the tricky moratorium began.

Time for Tinkering. The moratorium was a period of frustration for the weapons specialists at Los Alamos and at the University of California's other AEC laboratory in Livermore. They had no way of knowing when—if ever—their nation might desperately need their rare knowledge again. As the moratorium continued, they gleaned every last vial of past data, developed new theories that lay useless without test confirmation. Some began drifting into other fields.

Ogle shifted easily into the AEC's program to develop nuclear rocket propulsion, ostensibly a peaceful venture—but with obvious military possibilities. After spending more than a quarter of the previous twelve years away from home (he had not missed one U.S. atomic-test series either in the Pacific or Nevada), he enjoyed being with his wife Minnie and their five children, now aged three to 20. He could tinker with his four battered used cars, catch up on his avid reading of Arctic exploration (sample title: *Narrative of the Discovery of the Fate of Sir John Franklin and His Companions*, published 1825), or work on the ranch house that he and his sons

were building on a lonely 13-acre site near Los Alamos.

Ogle is a lively man who loves western clothes, detests neckties and big cities, and barely tolerates strangers. "Nature's a lot easier to grasp, because you can take a specific natural law and be sure it'll repeat itself—not so with people." He excels at his unusual specialty because he thinks straight, argues his points forcefully, easily bridges the gap from the theoretical problem to its technical solution. Says a colleague: "His particular talent is to function essentially as a science chairman—hear all the arguments, draw conclusions. His being attached to any experiment increases the odds on its success. People have confidence in him."

Ogle's fascination with the bomb is shared by others of his breed. Says his friend, Physicist Goad: "It is such a great phenomenon, so far outside the field of human experience, that it remains awesome." These men are tough-minded about their jobs, yet not insensitive to its portents for civilization if misused. Says Los Alamos Physicist George Cowan: "I think there is more honest-to-God worrying on this hill than you ever find among the bleeding hearts outside. But there aren't too many scientists around who know how to do this job—so you do it, and do it as best you can." Adds Ogle: "This is a frighteningly dangerous world we live in—it's scary." Yet he is less nervous about nuclear testing than about the frequent air travels his job requires: his palms turn moist every time he takes off in an airplane.

The Clincher. The long moratorium was cynically prolonged when Soviet delegates at Geneva first agreed to the principle of inspection, even indicated willingness to permit on-site inspection stations, then retreated to their no-inspection stand. Meanwhile, U.S. nuclear strength clearly suffered. The nation was gambling its whole deterrent posture and billions of dollars on its Polaris, Minuteman and advanced Titan missiles. Theoretically, scientists were certain that these missiles' nuclear warheads would work—yet the complete systems had never been tried.

Thus, even before the Russians broke the moratorium, pressure was being exerted on President Kennedy by some scientists and Pentagon officials for a resumption of U.S. testing. They argued that the Reds probably were cheating anyway. After Soviet skies erupted in a scatter-shot array of 50 blasts last September and October, there could be no real doubt about what the U.S. would have to do.

The first analysis of the Soviet tests was not alarming, despite its fearsome megatonics and Nikita Khrushchev's boastful threats. Outside the Administration, some of the old voices were still crying against a resumption of U.S. atmospheric testing. Kennedy was then also getting go-slow counsel from his scientific adviser, M.I.T.'s Jerome Wiesner. The President immediately ordered underground testing to resume in longstanding tunnels in Nevada and, on Nov. 2, ordered preparations for atmospheric tests to proceed.

While Kennedy seemed to be weighing all the arguments, his mind was made up: the U.S. would almost certainly have to test in the air. The clincher came from old Testing Foe Hans Bethe, whose detailed study showed that the Soviet blasts had been badly underrated. That 58-megaton bomb, Bethe reported, actually was a 100-megaton giant tamped down by a casing of lead. The U.S.S.R. could hang this on its biggest operational missile and hurl the full 100 megatons across 3,500 miles to the U.S. The Russians had made great gains in putting a bigger punch into a smaller package (weight-yield ratio), thus could increase either the range or power of existing weapons systems. They had approached perfection in a clean bomb. (In some of their blasts, the fission trigger—which is the main source of a bomb's radioactivity—formed only 2% of the explosive yield.) They were able to

boss; Starbird in turn selected Ogle to run the scientific end of the show. Since Eniwetok and Bikini were uncomfortably close to sizable Asiatic populations and technically under the control of the test-skittish United Nations, Kennedy persuaded Prime Minister Macmillan to let the U.S. test at Britain's equatorial Christmas Island, 1,200 miles south of Hawaii.

Soon Starbird was organizing his task force behind the Lincoln Memorial in a decaying frame building recently vacated by the CIA. Amid cartons and bare walls, he summoned all the old test veterans he could find. As his force grew, so did the costs: up to \$1,000,000 a day. Involved are some 1,700 airmen, 6,600 sailors, 600 soldiers, 100 marines, 1,000 civilian technicians, 1,800 civilian construction workers. Starbird's air armada includes high-flying U-2s, workhorse C-130s, B-57s and



WALTER BENNETT

MUSTIN, STARBIRD, SAMUELS & OGLE
But don't ask them about the Band-Aids.

fire warheads that survived the punishment of re-entry into the atmosphere, something the U.S. had not even tried. Most significant, their high-altitude tests indicated work on an anti-missile missile. The main reason that Kennedy did not order immediate U.S. atmospheric tests was that the scientists were not ready for a meaningful series.

Tools of the Trade. The presidential green light sent the testing pros at Livermore and Los Alamos into an explosive burst of activity. A thorough series takes up to 18 months to prepare; they were given five months. Each lab sent its suggestions on what to test to Washington for top decision by AEC Chairman Seaborg. Military experts fired off plans to Defense Secretary Robert McNamara. Actual programming was done by AEC's atom-wise general manager, Major General Alvin Lueddecke, 51, and Defense's brilliant, abrasive research chief, Harold Brown, 34. In McNamara's suggestion, Kennedy tapped Starbird for overall field

B-52s, versatile Neptune antisubmarine patrol craft.

For Ogle, getting ready for Dominic meant a frantic air chase between Hawaii, Omaha, Nevada, Washington and Denver—an average of some 1,000 miles a day. Working to coordinate the plans of some 90 electronic, construction and research firms and Government specialists, he picked Denver as a convenient air stop to meet the company representatives periodically. As scientific director, he is in charge of all the experiments—and Dominic is essentially a scientific affair. He is also in charge of safety, which boils down mainly to fallout. To predict fallout patterns, he has 15 new weather stations, which cost \$2,000,000 to assemble and stretch 4,600 miles east and west, 3,000 miles north and south. More mundanely, he frets about technicians who become homesick, scientists disabled by sunburn, engineers who grine about how to cater to his own personal quirks. Ogle carries a bulging attaché case filled

with odd items: a small compass ("I'm always getting turned around on these islands"), an altimeter ("to see if my Air Force plane is really getting off the ground"), some tin drinking cups ("for beer in the desert or coffee on a MATS plane"). With the attaché case goes the ever-present padlocked briefcase enclosing the tools of his trade: a slide rule and sheafs of classified documents.

Worse than Alcatraz. The mass and machines—from construction bulldozers to fragile milliammeters—transformed 30-mile-long, 15-mile-wide Christmas Island. The island's two ramshackle towns, ludicrously named London and Paris by the British, were invaded by Stateside workers who grouched about the heat, the lack of latrines, sun hats, soap and razor blades. This is the island that inspired acid poetry by a British R.A.F. man stationed there in 1958: "The island abounds with monstrous ants/ Which affect our clothing, our shirts and our pants/ And since we came here we've done nothing but curse/ For even Alcatraz couldn't be worse."

Amid the chaos and the complaints, JTF-8 plunged ahead toward the April deadline set by the President in his nationwide television announcement in March—a notable speech in which he ticked off the Soviet test achievements and declared: "I must report to you in all candor that further Soviet series, in the absence of further Western progress, could well provide the Soviet Union with a nuclear attack and defense capability so powerful as to encourage aggressive designs." Noting the world's fallout fears, Kennedy said he found it "deeply regrettable that any radioactive material must be added to the atmosphere—that even one additional individual's health may be risked in the foreseeable future." He promised that the U.S. tests will add only 1% to the natural background radioactivity of the world's environment.

Coming Up. Right up to the countdown on Operation Dominic, the President offered to halt the whole massive operation if Khrushchev would sign on the controlled-test-ban line. The *nyt* left it all up to JTF-8—and the pragmatic Bill Ogle of U.S. science. Throughout most of the summer, the results of their work will glow in Pacific skies in some 35 explosions with a force up to 15 megatons to prove the reliability of present U.S. weapons, improve the efficiency of developing missiles, test the nuclear vulnerability of the nation's multibillion-dollar radar defenses. Polaris missiles will gush out of the ocean from submarines, Minuteman ICBMs will roar off island launching pads—and, unless the weapons theorists have been wildly wrong, their nuclear payloads will ignite as planned. Hopefully, in the shots near the mid-Pacific's Johnston Island, the U.S. may progress toward the anti-ICBM missile, possibly by setting off a nuclear blast in the path of an Atlas missile speeding 40 miles high. As the testers testify, such experiments are both fascinating and frightening. But there is no choice.

POLITICS

The Brass Ring

"Why not shoot for the brass ring?" asked New Hampshire's Republican Governor Samuel Wesley Powell Jr. "Why not go for the presidency?"

So last week mused Wes Powell, 46, even as he recuperated in White Sulphur Springs, W. Va., from a mild heart attack suffered in March. The scoffers could scoff and the skeptics could sneer, but Powell was in dead earnest about grabbing for the brass ring in 1964. He had already laid out a set of plans, based mainly on his record as a rip-roaring stump speaker, a perpetual-motion campaigner—and a fellow who has never seemed to know when he was whipped.

Brick by Brick. Powell, along with most others, figures that he is a cinch for re-election next November to a third



BILL FINNEY

GOVERNOR POWELL

He and Abe is the way he figures it.

gubernatorial term. But his figuring goes far beyond that. He plans to start barnstorming nationally in 1963, then to enter New Hampshire's presidential primary, the first of the year, in March of 1964. He will gleefully invite other Republican national aspirants to contest him in that primary. And, as it happens, Powell can only be bad news for New York's Governor Nelson Rockefeller, who has a devoted Dartmouth College following and would love to get his own 1964 campaign off to a rousing start with a New Hampshire primary win. After that, Powell says he will enter the important Wisconsin primary—"I think a man with my background will appeal out there"—and then sweep on to the G.O.P. nomination.

That would leave only Jack Kennedy between Powell and the White House—and Powell says he has already figured out how to handle Kennedy. Beginning next week at the President. And if he wins

the Republican nomination, Powell will really set out after Kennedy: "I'll just build up every brick, brick by brick, in that wall around Berlin. I'll ask every day, 'Why didn't you put those planes over the Bay of Pigs?'"

"By God." To Powell, the prospect is so real that he jokes with friends about becoming "the last President the country ever had who studied by lamplight." Powell has, in fact, climbed a long way. His father was a day laborer in Portsmouth, N.H.; his mother worked as a maid in the mansion of ex-Governor Ichabod Goodwin. Both of his parents were members of the Salvation Army, and young Wes tooted the cornet while his father pounded the big bass drum.

Powell worked his way through two years at the University of New Hampshire, then set out for the West to earn enough money to finish his education. He rode circuit in Wyoming as a lay Congregational minister, got his law degree at Southern Methodist, and ended up in 1940 working for a young New Hampshire Senator named Styles Bridges. When Powell arrived at 8:14 a.m. on his first work day, Bridges exclaimed: "By God, you and I are going to get a long all right."

They did, indeed. As Bridges' political protégé, Powell managed the office of the man who managed New Hampshire. After combat duty in World War II (he was severely wounded in the left arm as a B-24 gunner), Powell returned to Bridges' office. But in 1949 he quit to pursue his own political career and promptly ran into trouble. In 1950 and 1954, Powell was beaten in senatorial primaries; in 1956, he was defeated in the gubernatorial primary. Then, in 1959, he began his current regime as Governor. Last year, when Styles Bridges died, Powell completed his declaration of political independence by refusing to appoint the Senator's widow to his seat.

"Yes, Ma'am." A man who calls himself a "pragmatic" Republican, Powell's greatest political asset is his determination. In 1938, after years of defeat, he had just filed his papers for Governor when a woman approached him in the general store of his home town, Hampton Falls. "You running again?" she sneered.

"Yes, ma'am," replied Powell. "The way I figure it, I've got a few times to go to catch up with Abe Lincoln. As I remember, he ran eight or nine times and was defeated.* Then they elected him President, and then they shot him. It's a hell of a future to look forward to." Come what may, Powell can hardly wait.

Bob Bows Out

With his landslide re-election as New York's mayor last fall, Robert F. Wagner established himself as the state's leading Democratic vote getter, and a principal in any Democratic plans to defeat New York Governor Nelson Rockefeller next November. Last weekend, in a hastily called

* In point of fact, Lincoln lost three elections for public office: one for the Illinois House of Representatives (1832), one for the U.S. Senate (1835, 1838).