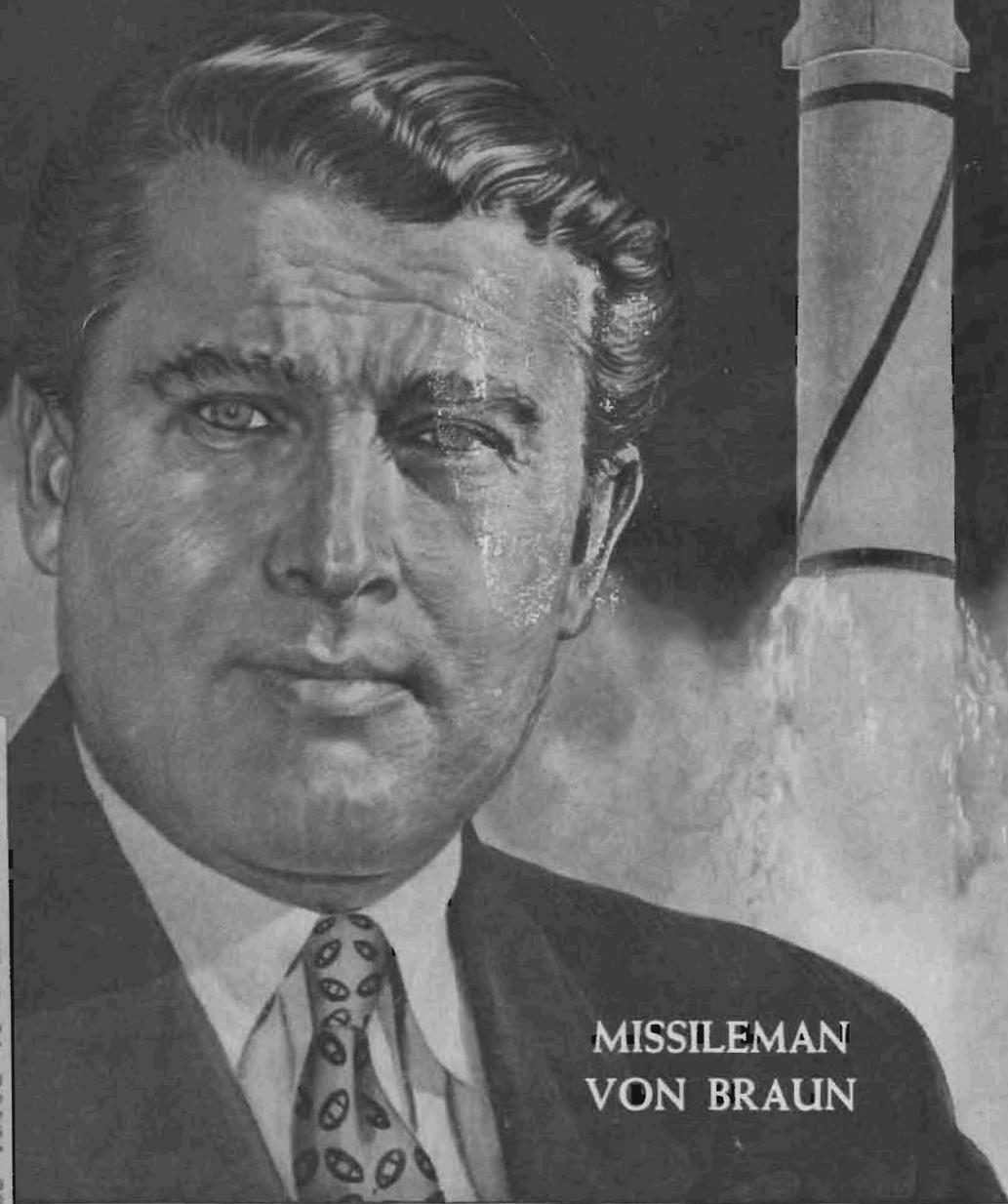


TIME

THE WEEKLY NEWSMAGAZINE



MISSILEMAN
VON BRAUN

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FOREIGN RELATIONS

Toward the Summit

In a shuffle of letters to Western chiefs of government and cocktail-party comments to Western diplomats, the Kremlin has been working hard to spread the notion that a parley at the summit is inevitable—on the Kremlin's terms. Newsmen in Europe and Washington have helped the notion along by reporting surges of what was called "world opinion" in favor of a parley to "end" the cold war. When the U.S., anxious not to repeat the letdown of 1955's spirit of Geneva, insisted that points at issue be explored at the foreign minister or ambassadorial level before any summit meeting, the Kremlin set about making mileage with the appeasement-minded by charging that the U.S. "attitude on peace" was "negative."

But one day last week the U.S.S.R.'s Bulganin, in his third letter to President Eisenhower in two months, went more than a step too far. In a too-obvious attempt to discredit Secretary of State Dulles, Bulganin suggested bypassing a meeting of foreign ministers in the preparations for the summit because of the "biased position" of some foreign ministers. Said Bulganin: "It is hardly necessary to explain why we would like to avoid this." At once U.S. Congressmen and editorial writers began to rally around Dulles with a rare show of strength that fortified the whole U.S. position.

Down with Rapacki. From the floor of the Senate, Dulles got more praise than he has heard in months. New Hampshire's Republican Styles Bridges, bitter critic of Dulles on foreign aid, called him "the most principled and resolved statesman of the West." Montana Democrat Mike Mansfield, who needled Dulles unmercifully during last year's great debate on the Eisenhower Doctrine, now reminded the Kremlin that Dulles is "the Secretary of State of the United States of America." At his weekly press conference the President, questioned on Bulganin's crack about biased foreign ministers, got a laugh when he cracked right back that the Kremlin "must have been talking about Foreign Minister Gromyko."

The White House disposed of Bulganin's latest letter with a request for "further clarification." The State Department, addressing itself to the much-discussed let's-neutralize-Central-Europe proposals of Poland's Foreign Minister Adam Rapacki—since endorsed by the Kremlin as a suitable topic for the summit—warned all U.S. diplomatic missions overseas that such a plan is "extremely dangerous." Added the President at his press conference, in a definitive statement of policy on such neutralize-Europe agreements:

"Free nations, of which we are only one—and though we may be the strongest, we are simply another equal among equals—cannot make decisions respecting other free nations unilaterally or bilaterally with the Soviets. There has got to be an agreement in which the affected countries must be participants . . . We have established the NATO association realizing that the

defense of the free world must work by cooperation when confronted by a monolith of force and power so great as the strength of the Communist area . . . We must not make a unilateral proposal that we go out, or that we demilitarize all Central Europe."

Moscow Reacts. In sum, the basic U.S. position for the start of any negotiations was just about as President Eisenhower had outlined it in his letter to Bulganin three weeks before (TIME, Jan. 20): 1) reunification of Germany by free elections—promised by Russia at the 1955 summit conference. 2) permission for the Red

SPACE

Reach for the Stars

(See Cover)

Shirtsleeved, tousled, and bright-eyed with the dream that gave Germany its V-2 and the U.S. its first orbiting satellite, bull-shouldered Wernher von Braun paced the yellow-walled office in Building 4488, nerve center of the Army Ballistic Missile Agency at Huntsville, Ala. Already on his cluttered mahogany desk last week was a new satellite assignment: preparing a Jupiter-C to power Explorer II into space late this month. More work was on



RUSSIA'S MENSHIKOV (RIGHT) & WIFE BEING WELCOMED TO THE U.S.*
Smiles at the ambassadorial level.

Associated Press

satellites to have freedom to choose their own governments, 3) suspension of nuclear-weapons tests along with foolproof suspension of the production of nuclear weapons. 4) outer space for peaceful purposes. And as for the roots of the struggle, Dulles even contributed to a debate started by the British left-wing *New Statesman* by reminding soft-liners everywhere that, but for the use of force and violence, "Communist parties could not exercise power anywhere in the world."

All this did not mean that there would be no summit conference; in fact some Washington reporters were assuming that a conference was a foregone conclusion. What it did mean was that the U.S. was stating its minimum terms for approaching such a conference. Moscow responded in two interesting ways: 1) by sending to Washington a smiling new ambassador, Mikhail Alekseyevich Menshikov, 55, who lost no time in paying a friendly call on Secretary Dulles, and 2) at week's end by a terse broadcast on Radio Moscow: "We can but admit that the idea of adequate preparations for a summit conference advanced by U.S. leaders is correct."

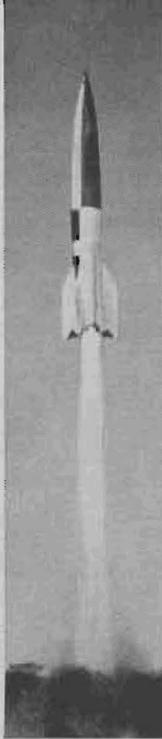
the way; called by the telecommunications room, Space Engineer von Braun hurried down the hall, talked to Defense Department Missile Director William Holaday in Washington, turned to an aide with the heady news that two more Huntsville rocket projects had been approved ("O.K. on No. 8 and No. 10"). Back in his office, Von Braun flopped into a chair behind a huge pile of congratulatory messages, found just a moment to reflect on the fantastic rush of events. "Oh, to be in space this week," he grinned. "It's so quiet up there."

It was anything but quiet on Planet Earth. Under the impetus of the satellite Explorer's fiery success came the first federal space agency, the Senate's first space committee, the first Democratic and Republican attempts to stake political claims on space—and a full-throttle U.S. Army drive to exploit its satellite success after months of telling itself that it was the Pentagon's stepchild. Army brass marched with a color guard into a Capitol Hill hearing room to present a new service

* At Baltimore's Friendship Airport, by State Department Protocol Chief Wiley Buchanan.



PEENEMÜNDE INSPECTION*



V-2



SURRENDER TO AMERICANS*

by Walter Dornberger © 1954, Viking Press

Deutsche Gesellschaft für Raketen- und Raumfahrt E.V.

His only consuming loyalty is to outer space.

flag to the House Military Appropriations Subcommittee. Patrols of Army public-relations officers prowled Pentagon corridors, passing out word that, given the chance, the Army could develop a rocket motor to put a 15-ton satellite into space with a man aboard. The Air Force stood that sort of talk as long as it could, then leaked a story about using its Thor intermediate-range ballistic missile to put up a 1,000-lb. satellite as early as June. The Army promptly upped the ante to 1,500 lbs.—and the Pentagon's interservice storm signals were flapping furiously.

A Broomstick Would Do. Yet for all the rivalry, hard-working servicemen and civilian specialists along the whole broad front of U.S. missileery felt a new nearness to space as Explorer radioed back its readings (see SCIENCE). And of the legions of scientists, generals, admirals, engineers and administrators at work on missiles and man-made moons, German-born Wernher von Braun, 45, best personified man's accelerating drive to rise above the planet. Von Braun, in fact, has only one interest: the conquest of space, which he calls man's greatest venture. To pursue his lifelong dream, he has helped Adolf Hitler wage a vengeful new kind of war, has argued against bureaucracy in two languages and campaigned against official apathy and public disbelief on two continents through most of his adult years.

A robust (5 ft. 11 in., 185 lbs.), hearty man with a booming laugh and a frank manner, he can be both ruthless and devious in his striving for space. To some, Von Braun's transfer of loyalty from Nazi Germany to the U.S. seemed to come too fast, too easy. Von Braun's critics say he is more salesman than scientist; actually, he learned through the bitterest experience that his space dreams had to be sold ("I have to be a two-headed monster—

scientist and public-relations man"). Others claim that the onetime boy wonder of rocketry has become too conservative, e.g., a West Coast rocketeer says that Von Braun is wary of unproved new ideas, no matter how promising, and that he "still takes the conventional view that we should go into space with chemical rockets, with overgrown missiles of conventional design." To this, Wernher von Braun pleads guilty. "The more you're in this business," he says, "the more conservative you get. I've been in it long enough to be very conservative, to want to improve what we've got rather than begin by building what we haven't." So long as the frontiers of space are broken, Wernher von Braun does not care how; he would happily ride a broomstick into the heavens.

Says Germany's veteran Rocketeer Rolf Engel, who has known Von Braun since 1928: "He is a human leader whose eyes and thoughts have always been turned toward the stars. It would be foolish to assign rocketry success to one person totally. Components must necessarily be the work of many minds, so must successive stages of development. But because Wernher von Braun joins technical ability, passionate optimism, immense experience and uncanny organizing ability in the elusive power to create a team, he is the greatest human element behind today's rocketry success."

Mother Knew Best. Von Braun's origins had deep earthly roots in Prussian *Junkerdom*. A Von Braun fought the Mongols at Liegnitz in 1245, and the family's aristocracy was certified by the centuries. Wernher was born in Wirsitz, East Prussia (now part of Poland), the middle son of Baron Magnus von Braun, the local state administrator. Today Wernher's older brother, Sigismund, is counselor at the German embassy in London; his younger brother, Magnus, is program-control manager of the Chrysler Corp.'s new missile division in Detroit. Last week in a com-

fortable Oberaudorf apartment, Baron Magnus von Braun, tanned and vigorous, celebrated his 80th birthday, marked by a four-page letter from Wernher and a gift of twelve bottles of Rhine wine. Said he, fingering his white walrus mustache in wonderment—now mixed with pride—at his son's strange fascination with space: "I don't know where his talent comes from."

Unquestionably, much of it came from Wernher's mother, an enthusiastic amateur astronomer ("Odd," says Wernher von Braun, "but few mothers are"), who pointed out to him the planets and constellations in Prussia's clear night skies. "For my confirmation," says Wernher von Braun, "I didn't get a watch and my first pair of long pants, like most Lutheran boys. I got a telescope. My mother thought it would make the best gift."

Blood on the Walls. Reading an astronomy pamphlet in the mid-1920s, Von Braun saw a drawing of a rocket streaking through space to the moon. It illustrated an article about Pioneer Rocket Theorist Hermann Oberth, now 63 and a consultant to Von Braun's Huntsville team, which venerates him as "The Old Gentleman." Von Braun sent away for a copy of Oberth's classic book, *The Rocket to the Interplanetary Spaces*, was shocked to discover that it contained mostly mathematical equations. Until then, Von Braun had disliked math, and indeed had flunked it in school. "But," says Von Braun, "I decided that if I had to know about math to learn about space travel and rocketry, then I'd have to learn math." He did just that, wound up teaching physics and math to his fellow students at a boarding school on an island in the North Sea when the teacher fell ill.

Rocketeer Oberth's work had inspired many another young German rocket bug, most of them flirting dangerously with de-

* At left, Grand Admiral Karl Doenitz; head turned. Dornberger; in multi, Von Braun. In background: V-2 fins.

* At left, Magnus von Braun and Dornberger; arm in cast, Wernher von Braun.

struction as they pursued their untried hobby. Von Braun joined a small group firing rockets from an abandoned ammunition dump in suburban Berlin. When he left for a term at Zurich's Institute of Technology, he continued his experiments, built a contraption that spun mice in simulation of rocket take-offs. Afterward, his roommate, an American medical student, dissected the mice, announced to Von Braun that the high acceleration caused cerebral hemorrhages. Their landlady had another kind of announcement: any more mouse blood on her walls, and the young scientists would go out on their ears.

Techniques of Flimflam. Von Braun returned in 1931 to his little Berlin group, joyously helped launch 85 primitive rockets. As it happened, the German army was then looking for some sort of long-range weapons not banned by the Versailles Treaty—and it seemed just barely possible that rockets might be the answer. Captain Walter Dornberger, a boss of the embryonic program, watched some of Von Braun's rocket shoots and was impressed "by the energy and shrewdness with which this tall, fair young student with the broad, massive chin went to work, and by his astonishing theoretical knowledge." Result: in October 1932, Wernher von Braun, at 20, became the top civilian specialist for the German army's new (and only) rocket station at Kummersdorf, hidden in a pine forest south of Berlin.

"Our aim from the beginning," says Walter Dornberger, now technical assistant to the president of Bell Aircraft in Buffalo, "was to reach infinite space." But if Wernher von Braun had any notions about the German army's spending millions to achieve his dream of space exploration, they were quickly dispelled. Germany wanted weapons, period. The Budget Bureau would not even permit Kummersdorf to buy office equipment, and Von Braun learned early in the game the techniques of flimflaming the bureaucrats, e.g., it was a rare budget official who realized that Kummersdorf's request for funds to buy an "appliance for milling wooden dowels up to 10 millimeters in diameter" meant that the rocketmen needed a pencil sharpener. Years later, during the darkest days of the U.S. Army's missile program, Wernher von Braun was to put such Kummersdorf experience to historic use.

Despite its difficulties, by 1935 the Kummersdorf group had successfully fired two liquid-fuel rockets, christened Max and Moritz (the German cartoon equivalents of the Katzenjammer Kids), and had outgrown the Kummersdorf facilities, moved on to a new range at desolate, marshy Peenemünde, on the Baltic Coast.

Adolf's Attention. At Peenemünde, with its 250-mile rocket range, Germany's missiles went higher and higher, building steps into space. That was fine for Von Braun—but it was not yet the sort of military hardware that Germany wanted. World War II put on the pressure: Peenemünde must either produce a devastating military weapon or get out of business. Peenemünde's answer was the A-4 (stand-

"ROCKET CITY, U.S.A."

HUNTSVILLE, ALA. (610-636 alt., est. 55,000 pop.), Madison Co. seat; 5 mi. from U.S. Army's Redstone Arsenal, Ballistic Missile Agency, Ordnance Guided Missile School; 2 R.R. lines (Southern Ry., Louisville and Nashville R.R.); 2 airlines (8 flts. out dly., incl. direct service to N.Y., Wash., Chi., Atlanta, Miami); Accommodations: 3 hotels, 21 motels; Local bus fare: 10¢; Swim: municip. pools; Fish: Tenn. River; Yrly. events: Catholic Festival (Aug.), co. fair (Sept.); 1-hr. pkg. Int. dwntwn.; Aveg. temp.: 74.6 deg. summer, 50 deg. winter.

Yesterday. Huntsville, on rich bottomland along the Tennessee River 90 miles north of Birmingham, with high hills to the east and west (Wernher von Braun lives on one of them, which has been dubbed Sauerkraut Hill, and is building a home on the highest, Monte Sano), was founded in 1805 by John Hunt, a Revolutionary War militia captain. It was Alabama's first incorporated town (1811), with the first incorporated bank (1816), site of the state's first constitutional convention (1819); from Confederate War Secretary Leroy Pope Walker in Huntsville came the 1861 order to fire on Fort Sumter. For years, Madison County was Alabama's top cotton producer (80,000 bales in 1948) and Huntsville, with nine mills, lived on King Cotton. The Depression almost left one-industry Huntsville a ghost town. Says a longtime resident: "If you could stand on the courthouse steps with as much as a dollar in your pocket, you were the richest man in town." Huntsville's big boom began in 1950, when Wernher von Braun & Co. arrived to start making Army missiles at Redstone Arsenal, a World War II shell-loading installation that had been taken out of commission in 1946.

Today. Sleepy Huntsville, "the water cress capital of the world," came alive almost overnight; its easy Southern cadences intermixed with the get-it-done twang of Yankee technicians and the business-first guttural of the German scientists. Although only one of the cotton mills now remains in operation, Huntsville thrives as never before on an \$81-million-a-year Army payroll. Where once Huntsville extended a mile in each direction from its yellow brick courthouse, it now covers 40 square miles, with gracious antebellum homes, squalid Negro slums, and \$15,000-per-unit development homes for Redstone's 16,000 employees. In 1950 there were 8,807 telephones in Huntsville; now there are 25,678. Building permits totaled \$2,500,000 in 1950; last year the total



was \$10,767,000 (not including the \$20 million building program at Redstone itself). Memorial Parkway, a new four-lane stretch of U.S. 231, is lined with housing developments, more than a dozen modern motels, a \$3,000,000 shopping plaza (with a delicatessen featuring Wiener schnitzel), and two new schools. A pride of the community is the new 55-piece Huntsville Civic Orchestra—with Werner Kuers, one of Von Braun's old German rocket hands, as concertmaster.

Tomorrow. Huntsville's future obviously depends on Army missile fortunes—and after Explorer, the hopes of self-styled "Rocket City, U.S.A." shot sky high. Under able, rough-talking Mayor R. B. ("Spec") Searcy, Huntsville has done a good job of meeting the demands imposed by its boom. With pupil enrollment expanding by 1,200 a year, Huntsville last week opened a million-dollar junior high school, plans to open two more schools in September, has three others on the drawing boards. (Because of the heavy load of Redstone children, the U.S. provides federal aid to schools—\$1,000,000 in 1957.) Says School Superintendent Raymond Christian: "So far we haven't had to double-shift. Let 'em come. We'll be ready." Bonds for a \$4,000,000 sewage disposal plant went on the market last week. The Huntsville Housing Authority has built 620 low-rent housing units, has 539 more in the final planning stage, will have three urban renewal projects underway by midyear. The Albert Pick Hotels chain plans a 250-room motel with a banquet room for 400 people, and the Chrysler Corp. and other Redstone contractors plan expanded Huntsville field offices. When Explorer orbited, the daily-except-Saturday Huntsville *Times* put out a Saturday morning "Satellite Extra" with a 120-point streamer: JUPITER-C PUTS UP MOON. Huntsville hopes to ride just as high as that moon. Says *Times* Editor Rees Amis: "I just don't see how we can do anything but grow and prosper."

ing for Aggregate-4, but later named V-2, for Vengeance Weapon Two, by Hitler's gang). Its first test was a dismal flop. So was the second. For Peenemünde, the third test was do or die. On Oct. 3, 1942, the A-4 soared supersonically to a history-making height of nearly 60 miles, functioned perfectly. Peenemünde's men danced and wept in their joy. Walter Dornberger turned to Wernher von Braun. "Do you realize what we accomplished today?" he asked. "Today the spaceship was born."

The success ultimately won Hitler's personal attention, but Hitler's blessing proved only a curse. Impossible production schedules were set for the V-2, driving Von Braun to the point of resigning. Nazidom's power-grabbers began fighting for control of the weapon Hitler had approved, and in February 1944, Wernher von Braun was jailed by Heinrich Himmler's black-shirted SS because he declined to connive in putting the Peenemünde project under SS control instead of army control. Only after Dornberger convinced Hitler himself that the V-2 program would collapse immediately without Von Braun was Von Braun released. By that time he had begun to like his jail. "I had plenty of time to think," says he, "and it was so quiet there."

U.S. Attention. Von Braun returned to Peenemünde to rain V-2 ruin on London (when the first V-2 smashed London. Spaceman von Braun remarked to a friend that the rocket had worked perfectly except for landing on the wrong planet). But the war was already lost for Nazi Germany. Caught between the advancing Russian and U.S. armies, Von Braun and most of his tried, tested rocket team decided to go with the West. They fueled trucks with rocket alcohol and headed south. Von Braun had printed official-looking stickers with the mysterious letters VZBV—standing for some fictional sort of "Special Project Disposition"—which cleared all roadblocks for them. During the trip Von Braun's driver fell asleep at the wheel, the car crashed, Von Braun's left arm was broken and his face gashed (he still has a scar above his lip). Von Braun and Dornberger stayed three weeks in a Bavarian mountain lodge, finally sent Von Braun's younger brother, Magnus, bicycling downhill to invite the Americans to come and capture Peenemünde's top rocketmen. (Says Magnus: "I was the youngest, I spoke the best English, and I was the most expendable.") The U.S. Army was delighted to accept that invitation and, in a project known as Operation Paperclip, selected Von Braun and 120 of his best team members to go to the U.S. under contract with the Army to build rockets.

"How Dignified?" Once it had them, the U.S. hardly knew what to do with the German rocketeers. The world was again at peace, and no Congressman in his right mind would appropriate money for missilery or for Von Braun's dream of space exploration. Von Braun and his men, lonely and discouraged, were set down at Fort Bliss, Texas, left to tinker around, pretty much by themselves, with

old V-2s, moved no closer to space. The Korean war changed that: in 1950 the German scientists were rushed bag and baggage to Huntsville (see box) with orders to build the Army a long-range missile with nuclear-payload capability. Result: the Redstone missile, successfully launched at Cape Canaveral in 1953.

For the first time, Wernher von Braun's reach for the stars was accepted as more science than science fiction. In the summer of 1954 Von Braun and a dozen other space enthusiasts from the services and industry gathered in the Washington office of Lieut. Commander George Hoover, U.S.N., to talk about launching a satellite. Von Braun proposed to slam a 5-lb. chunk of metal into orbit with the brute force of a souped-up Redstone; the Office



Associated Press

ARMY'S MEDARIS
"Wernher, let's go!"

of Naval Research kicked in \$88,000 for work on an instrumented satellite, and Project Orbiter was born. It was short-lived; a panel of scientists sailed into the picture to recommend that the U.S. satellite become a project for the International Geophysical Year, and decided to put their money on the beautifully designed but totally untried Navy Vanguard. Argued Wernher von Braun: "This is not a design contest. It is a contest to get a satellite into orbit, and we're way ahead on this." He was overruled. In the astonishing 1955 decision to divorce satellite development from weaponry, the Vanguard was accepted as having more "dignity." Snorted Wernher von Braun at the time: "I'm all for dignity. But this is a cold-war tool. How dignified would our position really be if a man-made star of unknown origin suddenly appeared in our skies?"

Wernher von Braun and his rocket team, the world's most experienced, were specifically ordered to forget about satellite work. They did no such thing, and neither did their U.S. Army bosses. The Von Braun team had been authorized to

develop the Army's Jupiter intermediate-range ballistic missile as a competitor of the Air Force's Thor—and Von Braun said he needed test vehicles to iron out some of the problems. He wangled permission to build twelve Jupiter-Cs—actually, almost the same jazzed-up Redstones with which he had proposed to put a small moon into orbit.

By Sept. 20, 1956, the first Jupiter-C was ready for firing at Cape Canaveral. It was a four-stage missile, with even a dummy fourth-stage satellite configuration—just like the bird that last fortnight put Explorer into orbit. By this time, Pentagon brass had a notion that Von Braun might be trying to beat the Navy into space with an unauthorized—and presumably undignified—major satellite. The Army, which had had the foresight to bring Von Braun and his team to the U.S. in the first place, and which had supported him all along in the face of awesome obstacles, would have liked nothing better than for him to toss up the first U.S. satellite. Such men as Lieut. General James Gavin, the brainy chief of Research and Development, and Major General John Medaris, the able military commander at the Army Ballistic Missile Agency, saw in a successful moon, and its proof of rocket superiority, a way for the Army to break out of its post-Korea roles-and-missions bog-down. But the orders giving Vanguard its exclusive franchise on space were clear and firm, and the Army could not risk defying them.

General Medaris therefore had no choice but to call Von Braun. "Wernher," said he, "I must put you under direct orders personally to inspect that fourth stage to make sure it is not live." Without a satellite, Jupiter-C flew 3,300 miles—farther than any U.S. missile before or since. Wernher von Braun knew then that he could surely launch a satellite—if given the chance.

The Chance. He got his chance, months later, the hard way. On the night of Oct. 4, 1957, Von Braun was called to the telephone from a Redstone dinner honoring Defense Secretary-designate Neil McElroy. Voice on the wire: "New York Times calling, Doctor." Von Braun: "Yes?" Timesman: "Well, what do you think of it?" Von Braun: "Think of what?" Timesman: "The Russian satellite, the one they just orbited."

Von Braun hurried back to the dinner table, broke the news of Sputnik I, turned earnestly to Neil McElroy. "Sir," he said, "when you get back to Washington you'll find that all hell has broken loose. I wish you would keep one thought in mind through all the noise and confusion: we can fire a satellite into orbit 60 days from the moment you give us the green light." Army Secretary Wilber Brucker, who had accompanied McElroy, raised a hand of objection: "Not 60 days." Von Braun was insistent: "Sixty days." General Medaris settled it: "Ninety days." Neil McElroy remembered the Army's promise (for that matter the Army, with constant pleas for a stake in space, did not give him a chance to forget), and two weeks after taking office he made

his decision. Wernher von Braun heard about it when Medaris' voice came over his Redstone squawk box. "Wernher," said Medaris, "let's go!"

A Good Dusting. Von Braun went—and fast. The very next week, he reserved Cape Canaveral range time for the night of Jan. 29, 1958, between 10:30 p.m. and 2:30 a.m. (he would have hit it right on the nose except for bad weather). Jupiter-C had been ready for months. Says Von Braun: "All she needed was a good dusting. We simply took every bit of care on her that was humanly possible. That is the most you can do and the least you can do in missilery."

But the satellite itself, with its delicate instrumentation, might well have held the whole project up for months or years—had not Wernher von Braun, during most of the period that he was barred from engaging in satellite work, been in what he calls "silent coordination" with Caltech's William Pickering and the University of Iowa's James Van Allen in planning Explorer and its instruments.

A Genius Quality. Thus, just 84 days after the go-ahead from McElroy, the U.S. Explorer streaked into space. And last week Wernher von Braun, who sweated out the shoot in Washington (TIME, Feb. 10), returned to his white frame house on Huntsville's "Sauerkraut Hill"—and to the brightest new day that his Army-run German rocket team had faced in more than 20 years.

Some 3,300 scientists and technicians work under Von Braun—but the top men, without exception, are old Peenemünde hands. Nearly all of them, including Von Braun, have become U.S. citizens. Nearly all could make more money in private industry, but they have refused to leave the job. Why? Because they are all enthusiasts, caught up in the space dream. Asks Wernher von Braun scornfully: "What corporation would have sent up a satellite two weeks ago?"

Redstone has no set routine. "Once you have routine," says a lab chief, "you don't have development any longer. Everything changes, and if we stopped changing, we would be out of business." Each man is tops in his own field, works with a minimum of interference from Von Braun. Says one: "If you leave me alone in peace, maybe I'll get finished in a year. If you try to help me, it may take me three years." Yet the work has to be held together, and that is Von Braun's job. It is a job to which he brings a spectrum of knowledge that spans many specialties. Explains Test Lab Chief Karl Heimburg: "I might find it hard to comprehend what Walter Hausserman [head of the guidance and control lab] is saying. His field is strange to me. Yet Professor von Braun can restate it and make me see clear as day. This is a genius quality."

The Future of Man. When Wernher von Braun goes home at night, his wife Maria (they have two daughters, Margrit, 5, and Iris, 9) can tell what sort of day he has had "before he even gets to the screen door—he shows everything in his face." The Von Brauns rarely leave their home at night, listen to chamber music on their



Bert Henry

VON BRAUN & FAMILY

"There is beauty in space, and it is orderly."

old-fashioned low-fi (they have no television set) while Von Braun pores over books in the living room. There, Wernher von Braun last week talked to TIME Correspondent Edwin Rees about his team's success with Explorer—and the future of man in space.

America has really been nice to us, and although we had to sit around and see the U.S. make some of the mistakes we had made long ago in missilery—it was like coming around the same track again—and we did feel frustrated at times, we are awfully lucky to have carried the day. It makes us feel that we paid back part of a debt of gratitude we owed this country.

Missiles are really interim weapons. This is because both nations have them. Man will always seek the ultimate weapon. And you know what this is? The ultimate weapon is what the other fellow doesn't have. A Piper Cub would take care of the entire Roman army; one machine gun could have eliminated the hordes of Attila. These are ultimate weapons. And so would the control of space be. Man must establish the principle of the freedom of space as he has done with freedom of the seas. And like everything else, we can only establish this from a position of relative strength.

You know, some think of the earth as a safe and comfortable planet, and they say that space is a hostile environment. This is not really true. Earth is protected by its blanket of atmosphere, to be sure, but it is a disorderly place, and unpredictable. It is full of storms and winds, of fogs and ice, of earthquakes. It is also full of people—people with thermonuclear bombs.

There is beauty in space, and it is orderly. There is no weather, and there is regularity. It is predictable. Just look at our little Explorer; you can set your clock by it—literally; it is more accurate than your clock. Everything in space obeys the laws of physics. If you know

these laws, and obey them, space will treat you kindly. And don't tell me man doesn't belong out there. Man belongs wherever he wants to go—and he'll do plenty well when he gets there.

THE ECONOMY

From Lag to Sag

As Democratic chieftains in the Senate saw it last week, their party's Big Issue for this fall's congressional elections will no longer be the missile lag but the economic sag. The shift from lag to sag was evident both in dark grey oratory on the Senate floor and in busy bill-drafting off the floor.

"The people of this country are in serious economic trouble," cried Michigan's Pat McNamara. With Massachusetts' John Kennedy, McNamara co-sponsored a bill to fatten state unemployment benefits and make them run for 39 weeks instead of the now-usual 26. Tennessee's Albert Gore introduced a bill to boost federal aid to state and local governments for public-works projects. In keeping with a grand design sketched out by Majority Leader Lyndon Johnson—who was working on the economy when not busy with space—Senate Democrats were drafting six other recession-inspired bills, calling for increased federal spending for: roads (Gore), housing (Alabama's John Sparkman), hospitals (Alabama's Lister Hill), reclamation (New Mexico's Clinton Anderson), flood control (Oklahoma's Robert Kerr), aid to small business (Arkansas' William Fulbright).

At the other end of Pennsylvania Avenue, President Eisenhower told his press conference that, in the opinion of his economic advisers, "it is reasonable to assume some upturn sometime toward the middle or just after the middle of the year." To a newsman who asked whether the Administration might push for a tax cut if the economy failed to perk up at midyear, Ike replied yes, added that there is such

a thing as "going too far with trying to fool with our economy."

Backing up the President, Treasury Secretary Robert B. Anderson and Federal Reserve Board Chairman William McChesney Martin agreed in testimony before Capitol Hill's Joint Economic Committee that 1) the U.S. economy is basically healthy and can be expected to recover its zip without drastic Government medication, and 2) strong hypodermics, such as a deficit-producing tax cut, might do harm by stimulating inflation fever. Inflation, warned Chairman Martin, will be "one of the most crucial problems we have to face over the next couple of years." Said Anderson: "I can conceive of situations where tax reductions might appropriately be brought into play, [but] the present condition of the economy does not warrant such action now." He added a firm promise: "Neither inflation nor deflation will be allowed to run a ruinous course."

INVESTIGATIONS

The Unlovable Counsel

Tension and excitement recalling the investigative heyday of the late Joe McCarthy hummed in a packed, green-walled hearing room on Capitol Hill last week. The quaintly named House Subcommittee on Legislative Oversight was scheduled to air revelations about the Federal Communications Commission, and massed advance leaks to the press had hinted at sensational stuff, including a "criminal felony." Also reminiscent of the McCarthy period was the doomsday rumble in the voice of Subcommittee Counsel Bernard Schwartz. By week's end intense, brilliant Lawyer Schwartz, 35, New York University Law School professor and author of seven published books on law, had proved to be the most unlovable congressional investigation counsel since Roy Cohn.



LAWYER SCHWARTZ
He cried "Smear!"

United Press

Honorariums Pocketed. What the subcommittee originally set out to investigate was whether Washington's "Big Six" regulatory commissions* had been operating autonomously, as Congress intended, without undue pressures from the White House or Capitol Hill. Such an investigation might well have been valuable and would have been welcomed by the commissions themselves. But Professor Schwartz applied for the counsel post, landed it, and bloodhounded an unscheduled investigation into the individual conduct of commission members.

The week's No. 1 witness was John Charles Doerfer, 53, a Wisconsin lawyer named to the FCC by President Eisenhower in 1953, and appointed chairman in mid-1957. Relentlessly, Schwartz piled up testimony and documents showing that Republican Doerfer had collected "honorariums" (not very lavish, usually \$100) for speeches to various broadcasting-industry gatherings outside Washington. On these trips Doerfer traveled at Government expense, collecting \$12 per diem allowances, although his hosts often paid his hotel bills. Most picked-over trip: a 1954 expedition during which Doerfer 1) took part in the dedication of a station KWTW tower in Oklahoma City, and 2) made a speech to a National Association of Broadcasters convention in Spokane. On this trip, as Schwartz & Co. reckoned it, Doerfer drew \$296.91 in travel expenses from the Government, got a total of \$1,080.87 in cash and paid tabs from KWTW and the N.A.B.

Brass Knuckles Rapped. Doerfer's defense was that the Federal Communications Act explicitly permits FCC commissioners to present "publications or papers for which a reasonable honorarium or compensation may be accepted." As for hotel bills, bar tabs, etc. paid by the broadcasting industry, "these things are accepted today as American amenities."

But Counsel Schwartz behaved as if accepting \$100 honorariums was a crime ranking close to arson. He hectored Doerfer so unmercifully that the American Civil Liberties Union protested and the *Washington Post and Times Herald*, no friend of the Eisenhower Administration, rapped Schwartz's brass knuckles.

As the week went by, the heralded investigation crumbled into a fiasco. The *Chicago Tribune* revealed that the subcommittee's chairman, Missouri Democrat Morgan M. Moulder, had put his teen-age daughter Marcia on the congressional payroll as his office helper, enabling her to draw some \$12,000 during the four years she attended high school in Camden, Mo. Bleated Chairman Moulder: "Smear!" Then the *Tulsa (Okla.) Tribune* reported that Schwartz had collected from the subcommittee \$400 in expense payments for four weekends he spent in Manhattan, where he has his own apartment. Thundered Counsel Schwartz: "Smear!"

* Federal Communications Commission, Federal Power Commission, Federal Trade Commission, Interstate Commerce Commission, Securities and Exchange Commission, Civil Aeronautics Board.



Associated Press

LYDIA DEAN & DAUGHTER
He done her wrong.

CRIME

The Accident

The news that Mrs. Ronald Dean had shot and killed her 20-year-old Air Force technical sergeant husband in his parents' home near Oil City, Pa. shocked the members of that town's Optimist Club. It also shocked the club's happy, do-gooding ladies' auxiliary, a group called the Optimists. Together, they decided to help Lydia Dean. They passed the hat, ran notices in the newspapers, collected a defense fund of more than \$2,000 from as far away as Florida. By the time the trial began in Venango County a fortnight ago, the whole of western Pennsylvania knew Lydia Dean's story; she had been done wrong.

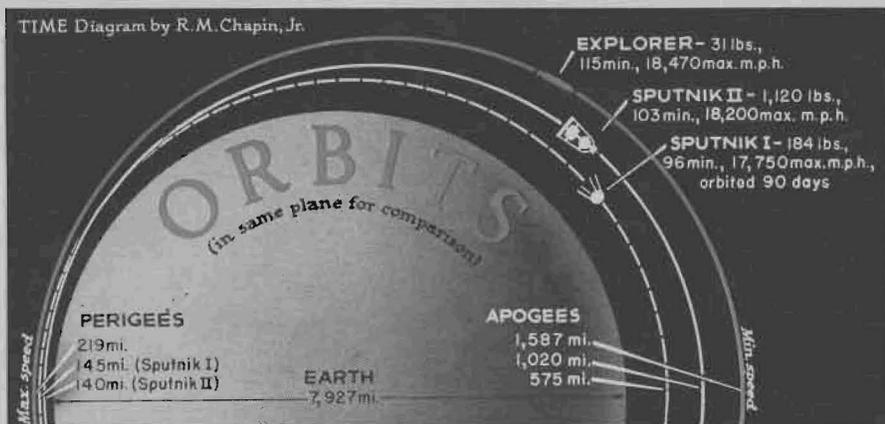
Love & Marriage. Slim, doe-eyed Lydia was a Filipina of 16 when she met Airman Dean at a dance in Luzon in 1952. They dated for 21 months ("We were talking of love," explained Lydia in her thin, childish voice), then got married. Dean brought his wife to the U.S. in 1954, and late that year, she had a baby girl. In 1956 Dean was transferred to a base in England, but before embarking, he found a four-room apartment for her in Pleasantville (pop. 704), near Oil City and near the small home of his parents in Shamburg. Lydia and Dean wrote faithfully to each other for about a year. Then Dean stopped writing. When he returned to the U.S. four months later, he called Lydia, announced that he had got an English girl pregnant, wanted a divorce. Six days later Dean was shot and killed by a bullet from an old Army Springfield rifle.

At the trial, Lydia sobbed the story of how she tried desperately to win back her husband, and of how he airily repulsed her. On the night of the killing, Dean slapped her face. Lydia ran into another room, saw the rifle. She decided, she testified, to prove her love by demanding that

Talkative Satellite

As they circle the earth, crossing each other's orbits every 50 minutes or so, the U.S. satellite Explorer and the Soviet Sputnik II stay true to their national characters. Sputnik II is silent now, but

factor observed by the Explorer, is harder to interpret. Apparently the average increase above the intensity at the surface of the earth—twelve times—is about what was expected. More interesting are hints that cosmic rays in space may fluctuate considerably with time, and vary from



even before its radio went dead its instruments talked in a secret code, and last week the Russians were still taciturn about its coded reports on conditions in space.* But the Explorer, a talkative American working in a published code, was droning away in the clear to all who would listen.

Around the world, both hams and professional radio stations picked up the Explorer's signals, sometimes recorded them on magnetic tape. They poured reports from the satellite's instruments into IGY headquarters in Washington and other official centers, in an ever-increasing flood. Analysis of the reports is a long, painstaking business, but already some of the data have been made public. The Explorer's orbit has been pinpointed fairly accurately (see diagram). According to the Smithsonian Astrophysical Observatory at Cambridge, Mass., it crosses the equator at an angle of 33.5°, and takes 115 minutes to complete a circuit of the earth. The Smithsonian scientists do not think this figure will change appreciably for about seven years. Other early reports showed:

- Two of the fine wires in the Explorer's meteor-detecting grids have been broken, presumably by micrometeorites. The microphone inside the satellite also picked up the impact of an object against the satellite's skin.

- The temperature inside the Explorer has been fairly moderate in spite of the contrast between the heat of sunlight and the intense cold in the shadow of the earth. It has ranged from 50° to 85° F., about the spread of temperature of an average spring day in the Southwest.

- Cosmic ray intensity, the third space

* Under the rules of the International Geophysical Year, the Russians are supposed to make all the data public within eight months of receiving them. They still have six months' time for Sputnik I, and not even the obvious propaganda advantage has hurried them into publication.

place to place. Dr. James Van Allen of the University of Iowa says that a radio station in Tokyo that was picking up the satellite's signals last week noted a sudden increase in cosmic rays to as much as five times above normal. If this observation proves correct, it will be a landmark in cosmic ray study.

Homo ex Machina

Computing machines have grown so efficient that the worst drag on their performance is the fallible human brain. Last week Engineering Consultant Stuart Luman Seaton told a Manhattan convention of the American Institute of Electrical Engineers that computing machines probably make less than one mistake in transferring 10^{20} (100 billion billion) digits. Humans make one mistake in transferring only 200 digits. So the machine's accurate figuring often goes for nothing because it must depend for care and feeding on error-prone humans.

One way to get more efficiency out of human custodians, says Seaton, is by "tricks and dodges" such as printing numbers large and small, or in varied colors and type sizes. Another would be to spot and correct "psychic blindness" (habits and prejudices) in humans who feed information to computing machines.

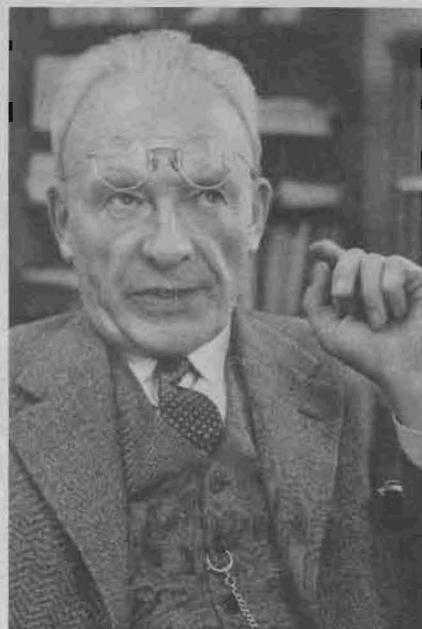
Seaton does not expect very much from such measures. Says he: "The presence of humans, in a system containing high-speed electronic computers and high-speed, accurate communications, is quite inhibiting. Every means possible should be employed to eliminate humans in the data-processing chain." But Engineer Seaton feels that humans, however fallible, still have their uses. "The human brain," he concedes, "is a most unusual instrument of elegant and as yet unknown capacity." He favors "reserving to humans the unusual problems of judgment, moral and philosophical balances."

Easier Moons

Plans for voyaging to the moon are a dime a dozen, but according to Astronomy Professor Jan Schilt of Columbia University, they are all aimed at the wrong moon. Last week he explained why man's first round trip to an extraterrestrial body may be to one of the moons of Mars.

The earth's moon is handy, only 238,857 miles away, but its considerable size (2,160 miles diameter) makes it a trap in space. Its gravitational pull is one-sixth as strong as the earth's, which means that unless a spaceship is braked in some way, it will hit the moon's surface at 5,000 m.p.h. Since the moon has no appreciable atmosphere that can be used for braking, the ship will have to cushion its fall by burning precious fuel in its rocket engine. To take off from the moon will cost fuel too, about one-sixth as much as was needed to escape from the earth. So an earth-to-moon spaceship will have to carry a very large payload of fuel if its crew hopes to get home again.

A voyage to the neighborhood of Mars, about 35 million miles away, will take only slightly more fuel than a near approach to the moon. In each case most of the fuel is expended while breaking away from the strong, close-in gravitational field of the earth. A landing on Mars and a take-off from the Martian surface would be extremely costly in fuel, but Dr. Schilt points out that landing on one of the small moons of Mars would cost practically nothing. The outer moon, Deimos, is about five miles in diameter, and has hardly any gravitation. The spaceship could drift toward it and, without expending fuel, come aboard as gently as thistledown. Then the crew would get a free ride around Mars, circling the planet every 30 hours and studying its surface from the fairly convenient distance of 12,500 miles. For a closer look they could



Walter Doran

ASTRONOMER SCHILT
On a Martian merry-go-round.

shuttle to the inner moon, Phobos, which circles Mars only 3,700 miles away.

When it came time to return to earth, a 10-lb. push would separate a spaceship from its natural merry-go-round. Free of the little moon, it would have satellite velocity, 3,000 m.p.h. in the case of Deimos, so only a moderate additional push would free it from Martian gravitation and start it on the long voyage home.

Persistent Fallout

Into a Columbia University laboratory regularly stream shipments of one of science's grimmest raw materials for study: human bones. They come from the recently dead bodies of men, women and children all over the non-Communist world, including such outskirts as Chile, South Africa and Formosa. At Columbia's Lamont Geological Observatory, in a project financed by the U.S. Atomic Energy Commission, they go under the scrutiny of scientists who analyze the bones for strontium 90. Last week the project's three scientists, Drs. Walter R. Eckelmann, J. Laurence Kulp and Arthur R. Schulert, made their second annual report. The bones told a sobering story of increasing amounts of radioactive fallout from nuclear-weapons tests.

Strontium 90 is the most feared of all the fallout isotopes. It has a long half-life (28 years), and the human body tends to mistake it for calcium, which it resembles chemically, and to build it into bone. As it disintegrates over the years, it may cause cancer by the effect of its radiation on tender living cells.

Since their last year's report, said the scientists, the world-average content of strontium 90 in human bone has increased by about 30%. The increase in young children, whose bones are growing actively, was 50%. The highest values were found in North America, the lowest in the Southern Hemisphere.

Young children have, proportionately, ten times more strontium 90 in their bones than adults, but so far the average is only about 1/150 of the MPC (Maximum Permissible Concentration) that was recommended by the National Academy of Sciences. The amount will surely grow, say the scientists. Even if no more weapons are tested, there may be enough strontium 90 in "the stratospheric reservoir" to raise the strontium 90 in the bones of children in the Northeastern U.S. to as much as 4.3% of the MPC. If weapons testing continues at the same rate as the last few years, the average for the entire population of the Northeastern U.S. will gradually climb to about 20% of the MPC by the year 2000.

Not all people get the same amount. Some children had three times the average, and the variation in adults is seven times. Most of these figures are about city dwellers, and the scientists think that the variation in rural areas will be greater still. It is thus likely that if weapons tests continue, a good many unfortunates may come dangerously close to the Maximum Permissible Concentration—which many scientists believe has been set far too high.



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