

## Hat Trick

While Soviet scientists cheered their Lunik back toward earth, U.S. space and missile men also put in a busy week. In a three-point hat trick after weeks of disappointing failures, the U.S. orbited an instrument-packed scientific satellite, quickly topped off that accomplishment with the most successful flights yet of an air-launched ballistic missile and a Nike-Zeus anti-missile missile. Items:

☛ Up from the launch pad at Cape Canaveral and into orbit from the tip of a four-stage Army Juno II rocket curved the 91½-lb. Explorer VII. By far the most sophisticated U.S. satellite, it is crammed with instruments that will chemically identify and count heavy particles of cosmic rays (knowledge that is crucial to manned space flight), study the transfer of heat from tropics to polar regions and from the earth back into space (which is basic to weather forecasting), and carry out other experiments. The satellite is shaped like a gyroscope and is spun to keep it whirling cleanly instead of tumbling. It squeals like a bagpipe as it signals from two transmitters—one powered by a chemical battery, the other solar-powered and possibly could transmit for the expected life of the satellite—20 years. But, through a unique timing device, the radio will shut off after one year so as not to clutter the air waves. Explorer VII takes over from the Explorer VI paddlewheel (TIME, Aug. 17), whose solar-powered radio, expected to run for years, disappointingly signed off a fortnight ago.

☛ Within hours of the Explorer VII firing, and not far away, a B-47 bomber rose seven miles above the Atlantic. It hovered off the Florida coast until the orbiting Explorer VI was passing overhead; then the three-man crew launched a two-stage, solid-fuel Bold Orion missile.

The 37-ft. Martin-made missile lifted into a steep arc, soared "within ten miles" of Explorer VI, 156 miles up. It then continued squarely on course, plunging into the ocean 1,000 miles from the launch spot. The Air Force's argument: an airborne ballistic missile like Bold Orion, mounted on a long-endurance B-70 bomber, would provide instantaneous retaliation against aggression, from a missile base that would be difficult to pinpoint and knock out; it might also be used against enemy satellites or spaceships.

☛ Next day an Army solid-fuel Nike-Zeus anti-missile missile streaked across the skies above White Sands Proving Ground, N. Mex. Among the nation's warbirds, it is the most powerful (up to 500,000 lbs. thrust v. 400,000 lbs. for the Atlas) and the fastest (more than 17,000 m.p.h.). At those speeds the Zeus encounters enormous heat and stress, and it broke up on its maiden flight in August. Last week's Zeus fell a bit short of its planned 100-mile course, but showed that the frame and propulsion system are basically solid.

## Man v. Bird

Midway Island is the happy home of 645,000 albatrosses—about 35% of the world population of the Laysan species and 16% of the black-footed species. Difficulty is, Midway is also the home of a major air facility of the U.S. Navy, and the place is not big enough for both bird and plane. Last week the U.S. Navy decided that the troublesome albatross must go.

The great birds (wingspan: about 7 ft.) go through such distressingly gooney antics that Navy men long ago dubbed them gooney birds. Among other things, they need large, clear areas to take off and land, and they find airports ideal. The friendly gooney birds lay their big eggs on or near the runways, rise in clouds as if to

welcome planes on landing or to see them off on take-offs. Often they fly smack into an airborne craft. They have dived into propellers, smashed against expensive radomes, causing about \$300,000 damage a year. Far worse is the ever-present danger that a Midway albatross may someday really clobber a \$6,000,000 plane and cause a fatal crackup.

The Navy has tried to shoo the gooneys away. Sailormen have attempted to drive them out by burning old tires, scare them out by dropping flares on them and shooting off rifles, bazookas and mortars near them. When the gooneys stoically ignored it all, the Navy people called upon the scientists. The scientists tried filching the gooneys' eggs. The birds wailed like banshees at the egg snatchers, then promptly laid some more. In desperation, the Navy packed some gooneys into planes, hauled them to far-off Guam, to Kwajalein, to northern Japan, even to Puget Sound—4,000 miles away. Unerringly, the gooneys, thoughtfully marked with a shocking-pink head dye for identification, flew back to Midway. And the Navy learned that nothing smells up a plane more pungently than a load of airsick gooneys.

The Navy's latest proposed stratagem is simple: a bash on the head for every gooney. But chances are this plan will never really get off the ground. First of all, it will take the Navy at least five years to purge the birds: young gooneys leave Midway shortly after birth to wander, return only at the age of five. Furthermore, back in the U.S., outraged conservationists have organized a concerted protest to Congress against the projected slaughter.

In an attempt to soothe man and bird alike, the Navy is creating an airport for albatrosses on the nearby, nonstrategic island of Kure, hopes to build up the small albatross population there (current count: 700). Fortnight ago Navy bulldozers cut a series of 50-ft. swaths through the brush to make special gooney runways. But last week, at the peak of their mating season, the gooneys again defied the U.S. Navy. As ornithologists had predicted, not one winged off to the new, man-made sanctuary.

## Toward Control of Growth

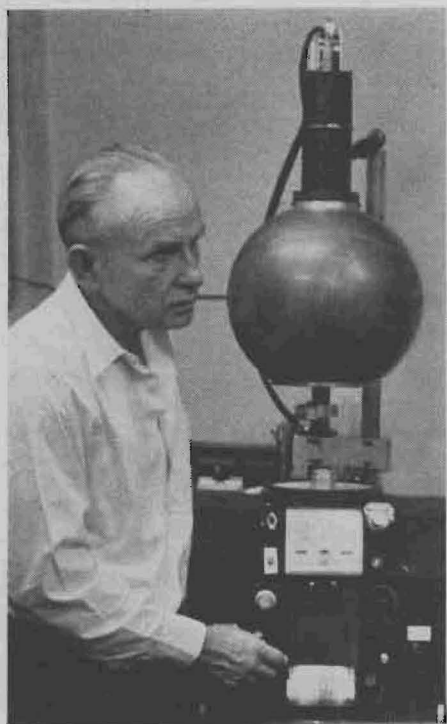
Amid the gently rolling countryside of Beltsville, Md., there is a strange garden that would drive any weekend horticulturist to distraction. Among the odd sights: pine trees that grow only 8 in. tall, chrysanthemums that flower in spring instead of fall, poinsettias that bloom in June's heat instead of Christmastime cold. But these plant anomalies are man-made. For U.S. Department of Agriculture scientists have discovered the mysterious chemical in plants that regulates plant growth, have found that they can stunt trees at their pleasure, make flowers bloom when they choose.

**Light in the Darkness.** Nurserymen have known since 1920 that certain plants could be made to bloom earlier than usual by shading them with opaque cloth for part of each day. Guess was that some-



P. A. DuMont—Fish and Wildlife Service  
ALBATROSSES & NAVY PLANE ON MIDWAY

Neither flames, nor burning tires, nor egg snatchers deter the friendly gooney.



Walter Bennett

**BELTSVILLE'S DR. HENDRICKS**

Eight-inch pines and June poinsettias.

thing in the plant's internal mechanism recorded the smaller amount of sunlight, signaled the plant that the days had shortened, that colder weather was approaching, and that it had better flower fast. But botanists were unable to identify the day-measuring mechanism or explain how it worked.

To study this mechanism, Beltsville scientists under Dr. Sterling B. Hendricks, 60, first played all the colors of the spectrum on a variety of plants. Most colors had no effect. But when red light was played on the plants, the effect was dramatic. They reacted even to a brief, 30-sec. flash of red light during a 14-hour period of darkness. Apparently programmed to the proposition that a new day had begun, the plants altered growth cycles accordingly.

Having learned that red light was the key, the scientists squeezed the juice out of bean seedlings, separated the juices into many different fractions, and tested each for its reaction to red light. Their quarry proved to be a protein-containing pigment that makes up only one part in one million of the juice.

**Change in the Morning.** In a way that scientists still do not fully comprehend, the pigment changes its chemical structure when red light hits it. As long as the red light lasts, the new structure persists. When the light dies, the pigment begins slowly to change back to its original state, a process that takes roughly twelve hours. Thus, when the red rays in the morning sun strike a leaf, the light-sensitive pigment changes into its new state and stays that way until sundown. This tells the plant, in the chemical language to which it responds, how long the day is and therefore what the season is.

To check their findings, Beltsville's men

dosed plants with red light at all hours of the night. Fooling plants into believing the nights were longer or shorter than they really were seasonally, the scientists were able to make plants bloom months early or late. They have so efficiently programed some pine trees that they grew only 8 in. in four years—responding to the signal that it is winter, no time for growth—while their unmolested neighbors rose to 20 ft.

The Beltsville substance is so new to chemists that it has not yet been analyzed or even named. But it is a major discovery in basic knowledge, may lead to bigger crops grown faster, and to control over harvesting times. "It's as if we had been hitting a carburetor with a hammer for years in an attempt to adjust it," says Dr. Hendricks. "Discovering this pigment is like learning that a screw on the bottom of the carburetor is what regulates it."

**Waves Under the Sea**

In the 60-year history of radio, man has learned to send signals over mountains, across oceans, and up to the moon and back. But the search for a radio that could transmit signals beneath the water's surface was sterner. To receive messages in World War II, subs had to surface or poke up the antenna-bearing periscope and risk detection. Last week word leaked that the U.S. Navy has whipped this underwater communications problem.

On a peninsula jutting from the rocky northern coast near Cutler, Me., the Navy is building a \$63 million transmitter complex that, by any measure, will rank as the world's biggest. Rising 980 ft., its two main antenna masts are almost as tall as the Eiffel Tower (984 ft.). With their flanking arrays of twelve smaller masts, each complex occupies the ground space of eleven Pentagons. Operating at 2,000,000 watts, the station will be 40 times more powerful than the biggest commercial stations and three times more powerful than the mightiest military transmitters known to exist in the U.S. or the Soviet Union.

When it goes on the air in January 1961, the new station will operate on a very low frequency band (14 to 30 kilocycles), sending out radio waves up to one mile long audible to surface ships and shore stations around the world. It may be utilized experimentally to try out the new Tepee scatter-back system for detecting missile firings in Russia. But specifically, it should be capable of sending orders to subs operating under the surface of the North Atlantic and Arctic Oceans. The Navy says that the signals will reach "deep down." Best estimate is that they will penetrate more than 100 ft. of water.

Cloud on the horizon, no bigger than a boatswain's hand, as the sun rises on a new era in underwater communication: if radio waves can penetrate water to communicate with submarines, they may eventually be usable with different instrumentation for detection of submarines, which are now immune from anything but surface sighting and chance encounters with short-range sound devices.

**What's wrong with your stocks?**

That may seem like a strange question for us to ask, but it's one no investor can afford to ignore.

Because the bad things about a stock you own can be just as important as the good things—at times even more important.

Look at it this way: Before you buy a stock you check both the good and the bad, make as sure as you can that it really is the best you can buy for your purposes.

But once you've bought it, the emphasis sometimes shifts. Like a lot of people we know, you may tend to forget the bad things—just keep looking for all the evidence you can find to support your original judgment—to prove that you made a good buy.

That's only human, we admit.

But it can be dangerous—especially if it blinds you to change.

Because investment values *do* change, and if new facts should develop that make one of your stocks far less desirable—well, the sooner you know about it the better.

That's why our account executives get so many calls from experienced investors . . . why these investors keep checking on the current status of their holdings to make sure that nothing's gone wrong.

If you're not sure about the stocks you own, you might find it helpful to discuss your portfolio with one of our account executives yourself. You can reach one by phone if you like, or talk to one in person anytime you care to visit—

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