

## U. S. Scientists Expect Russians To Fire Venus Rocket This Year

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phone from San Diego, Calif., that on specific projects like moonshots and Venus probes this country is at least two years behind Russia. In general in the field of rocketry, the American lag probably amounts to 18 months, he said.

### "Too Little, Too Late"

While Capitol Hill sources clamored for action to retrieve America's newly re-lost prestige in the space age, the cry of "too little, too late" was heard from some high Government quarters.

A leading space scientist, intimately involved in Government work, commented in a private conversation yesterday:

"The Russians organized a Commission for Interplanetary Exploration in 1954 and developed a sound and consistent program at that time. It is just starting to pay off now with this lunar shot."

A co-ordinated American effort to put satellites in the sky did not get under way until 1956, despite official mentions of satellites as early as 1948.

The latest Russian triumph gave both pungency and pertinence to a remark made by a scientist attending the meeting here last week of the American Association for the Advancement of Science:

"The first man on the moon will probably be a dead Russian."

### Adviser to Conair

Mr. Ehrlicke, an adviser to the Conair Division of General Dynamics Corp., which makes Atlas ballistic missiles, said the comment was apt. But he added that serious colonization attempts on the moon—even by the Russians—are probably many years off.

While Mr. Ehrlicke and many other scientists thought the Russians might have gone all-out to fire their "Lunik," at least one top American space man thought they had used equipment the United States could duplicate from its own arsenal.

"I'd be very surprised if they had used a 450,000 or 500,000-pound thrust engine, as has been suggested in early reports," said Dr. Homer Stewart, director of program planning and space evaluation for the National Aeronautics and Space Administration.

### Somewhat Shorter

Dr. Stewart said he envisioned the Russian rocket that gave the new satellite its initial impetus as being somewhat shorter and squatter than our Atlas. On top of this, he said, there probably was a fairly large rocket as a second stage—about the size of a United States Army Sergeant.

Mr. Ehrlicke conceded Dr. Stewart might be right, and said his analysis was sound. He agreed that a 500,000-pound thrust booster would not be required to do the job done by the Russians Friday night.

As Dr. Stewart and other scientists explained it, the Sputnik III booster rocket was adequate for a launch of this kind. It was pointed out that if Sputnik III's 3,000-pound payload could be put into a long-lived orbit, a payload roughly one-fourth that size could be sent past the moon by the same propulsion.

If this suggestion is accurate, an Atlas with a hopped-up Vanguard second stage ought, from a technical standpoint at least, to be able to do the same trick. And both Atlases and Vanguards are in ready supply.

### Only Clear Inking

Dr. Stewart's idea came to him, he said, from something made public last month by Soviet Academician L. I. Sedov, apparently in derogation of the American feat of putting an Atlas into orbit. Sedov's remark, Dr. Stewart said, was the only clear inking we have had to date of Russian Sputnik rockets.

The Soviet scientist said the Sputnik III carrier rocket weighed about 7,000 pounds, which made it lighter than the single-package carrier-plus-payload 8,800-pound Atlas. But with its instrumented 2,925-pound payload, which separated from it in orbit, the Sputnik III constituted the biggest mass ever injected into orbit at one time, Sedov pointed out.

Dr. Stewart's reasoning in "extrapolating" from Sputnik III to Lunik was duplicated by Mr. Ehrlicke in predicting that a Venus shot might be attempted soon.

"By going into this kind of an orbit around the sun," Mr. Ehrlicke said, "they have shown that they are perfectly capable of sending exploratory payloads to Venus."

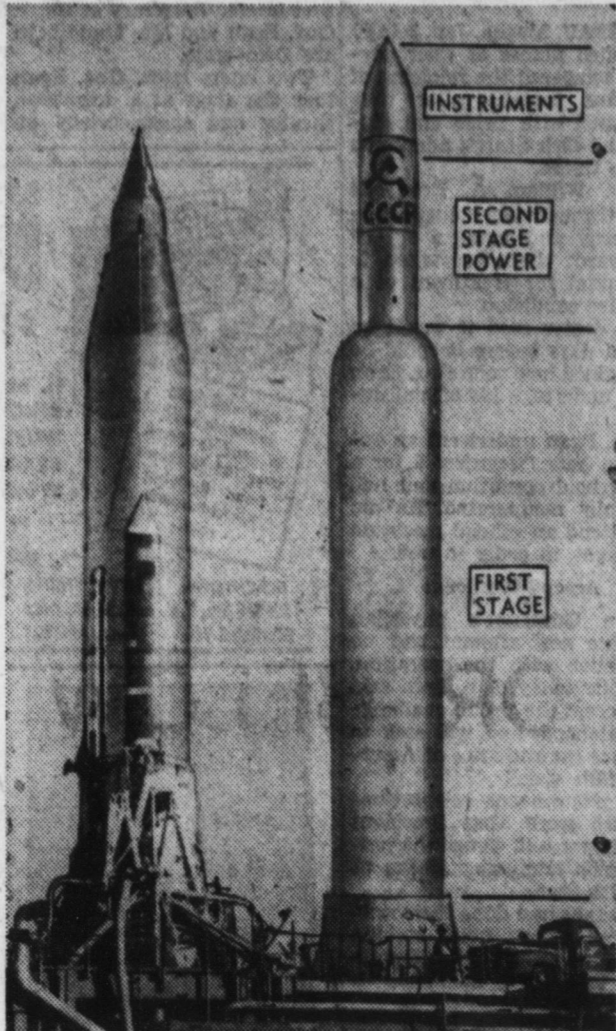
"I should think they could put 500 or 600 pounds in the necessary flight path, seeing that they have put 800 pounds into this orbit."

### They Could in June

Mr. Ehrlicke said the Russians, if they choose, can fire their Venus probe this June, when that planet's "position" will be more favorable than it will be again for a long time.

We will be unable to fire at Venus this time, he said flatly. Mr. Ehrlicke indicated that payloads of the order of a quarter of a ton are necessary on such flights if anything is to be accomplished. So far the biggest instrument-load lifted moonward by the United States has been about 40 pounds.

The rocket expert warned the United States it had better start moving if it is going to get into interplanetary space in the next decade. There will be only seven times between now and 1969 when—with present techniques—we will be able to fire a probe at Venus, and only four times for Mars probes.



### HOW RED ROCKET MAY HAVE LOOKED—

From a description by Space Agency Programs Chief Homer Joe Stewart, an artist has drawn a conception of what the Russians' latest rocket may have looked like. It is pictured for comparison purposes alongside the photograph of an Atlas like the one fired into orbit last month. Dr. Stewart believes the first stage was a standard Sputnik launcher, sturdier than an Atlas, topped by an instrumented second stage which separated from the big booster moments after launching and eventually went into orbit around the sun.

—Interpretation by Star Staff Artist John Hejny.

The first chance at Venus will have to be passed up, Mr. Ehrlicke repeated, and refused to predict whether we would be ready at the next Mars approach, in the fall of 1960.

### Velocity a Record

Andrew G. Haley, president of the International Astronautical Federation, hailed the Soviet achievement as "one of the greatest scientific achievements in world history."

Mr. Haley, whose U. N.-recognized group encompasses most of the world's rocket societies, said the rocket's velocity—7 miles a second—is a record and therefore significant in itself.

But Mr. Haley, a communications lawyer, renewed his appeal for order to be brought

out of the chaos which seems to be threatening world radio communications as the space age dawns. The IAF president observed that three of the four frequencies used by the Russian rocket fall right in the middle of world-wide standard frequencies—"the most sacred of all frequencies," as he put it.

A threat to the integrity of the United States' uniform time signal on Station WWV, at 20 megacycles, exists from side-band interference, Mr. Haley asserted.

### Won't Last Long

The threat is not likely to last long, however. Distance attenuates the strength of radio signals rapidly, and before many days the missile is expected to be in an orbit of its own around the sun.

It was too early for precise calculations of the orbit Lunik will assume. But already some scientists were beginning to have fair ideas of its size and shape. The immediate notion—that it would go into a narrowly elliptical path and come dangerously close to the sun—seemed to be in the discard.

Mr. Ehrlicke said that, taking the position of the moon into account, the rocket could be expected to orbit outside the earth's orbit. Its closest point to the sun would be close to the orbit of the earth; its farthest point from the sun would be between the earth and Mars.

Another scientist thought the satellite would orbit the sun in a path that would take it 10 to 15 million miles closer than earth to the sun at one extreme and 10 to 15 million miles farther away at the other. Such a path would take about one earth year for the satellite to travel, but would be so different in shape from earth's that the rocket and its mother planet might not meet again for hundreds of years.

Each of these estimates was different—but not radically so—from Soviet estimates of Lunik's orbit as revealed later in Moscow.

As the planetoid began its long, possibly eternal career as Planet No. 10 of the Solar System, there seemed scant possibility that it would ever come back to earth. Except for a couple of pellets fired last year in an Air Force experiment, it was the first man-made object ever to leave terrestrial influence.

This was the prediction of Alexander Khabakov, a moon expert. It also will provide a more accurate idea of the shape of the moon, he said. There was no indication that the rocket was equipped to take pictures.

Instruments Send Data.  
Other instruments were sending back data on the earth's magnetic field, the band of radioactivity girdling the globe, interplanetary gas and the intensity of cosmic rays.

"A colossal amount of information has been received," said Mr. Topchev. The rocket was broadcasting from radio sets at 19.997, 19.995, 19.993 and 183.6 megahertz, a unit of wavelength measurement similar to the megacycle. The signals were being picked up by Czechoslovak as well as Soviet stations.

They also were being picked up elsewhere in the world but the data was in code. The Russians had not given outsiders the key.

The Russians lost radio contact temporarily when the rocket passed below the horizon. But Moscow's radio said it could be observed in North and South America as it passed westerly over the Pacific.

At one point the rocket by prearranged signal cut loose a cloud of sodium resembling a comet's tail. Bad weather prevented pictures in Moscow. A scientist said the cloud was photographed by an observer

Soviet Scientist, Yakovlevich Martynov said Friday night the flight was "a true last rehearsal for the real cosmic journey" of man.

But subsequent statements were more cautious, referring to manned flights to planets "in our generation."

Scientists in interviews with Tass were quick to point out the soaring flight that began Friday far outstripped heights reached by four futile moon probes by the United States. The United States Air Force Pioneer I reached 71,300 miles.

Loaded with 796½ pounds of scientific instruments, the rocket was sending back what was described as priceless information on space to meet the problems of future manned flights.

On its near approach to the

## U. S. Tracked 'Lunik' Minutes After Takeoff

The Pentagon said late yesterday that United States military radio stations have been tracking Lunik since minutes after the big Russian rocket went up Friday.

Up to the time of the announcement, the word was only that the Pentagon had known about the sun-satellite even before Moscow radio made its announcement Friday afternoon. Exactly how the Defense Department learned of it—and who in the Pentagon got the word—was locked in mystery.

A public relations spokesman said Pentagon News Chief Murray Snyder knew nothing about it until the official Russian announcement. Army and Navy publicists insisted that their tracking stations had not picked up the moon-bound rocket.

At the civilian Space Agency, no one professed to have received information before the Moscow disclosure.

### Clark Denies Reports

Rear Admiral John E. Clark, head of the Pentagon's Advanced Research Projects Agency, denied reports that ARPA had somehow gotten the word.

## Khrushchev Accolade Hails 'New Victory'

MOSCOW, Jan. 3 (AP).—Premier Nikita Khrushchev hailed today the Soviet Union's new cosmic rocket as a weapon to end the propaganda directed against the Communist way of life by its enemies.

Speaking at Minsk, where the Soviet premier joined the celebrations of the 40th anniversary of the Byelo-Russian Communist Party, Mr. Khrushchev said this "new victory" is doubly significant since it coincides with the start of his seven-year plan.

"The launching of the cosmic rocket means we are the first in the world to pave the way from the earth to the moon," he was quoted in a Tass dispatch. Mr. Khrushchev said the new triumph was the result of "creative labor by the Soviet people constructing a Communist society."

"This is proof of the victories which the Soviet people gain under the leadership of the Communist Party," said the Soviet party boss.

Soviet scientific victories like the cosmic rocket, he said, "destroy the slander of enemies who try to blackmail the Soviet order of socialism."

He told a Communist Party meeting in Minsk that the rocket goes to show "that the socialist order stimulates the speedy development of economy, science, technology and culture."

It was Mr. Khrushchev's first

tory near Alma Ata, in Soviet Central Asia, and a photographer in Scotland also shot what he believed was the cloud.

The government announcement said the rocket attained a speed of 11.2 kilometers (about 7 miles) a second, described as the impetus needed to escape the earth's gravitation.

### Too Great a Speed

A top Soviet scientist said it developed too great a speed to become a satellite of the moon.

Prof. Alexander Mikhailov, president of the astronomical council of the Academy of Sciences, estimated the launching speed at nearly 50 per cent greater than that needed for sending a satellite into orbit around the earth.

Mikhailov told Tass the launching marks the beginning of a study of other members of the solar system by manned space vehicles.

Nikolai Kozlyev, Soviet scientist who claimed recently to have discovered a volcanic eruption on the moon, said instruments will give information about the moon impossible to obtain by the telescope.

It was the first announced Soviet venture into space since last May, when the giant 1½-ton Sputnik III was sent aloft. It is still spinning.

tified monitoring signals at approximately 70 megacycles, at 19.997, 19.995, 19.993 megacycles and at 212 megacycles."

### First Pickup

A reporter pointed out that the Hawaiian station must have made its first pickup only 15 or 20 minutes after the rocket was launched in the interior of the Soviet Union.

"Where did the information

so from there? Who in the Pentagon knew about it?" the Defense spokesman was asked.

"I can only tell you that this information came from ARPA," he replied.

Wherever the information may have come from, and gone to when it reached the Pentagon, it apparently was authentic. It largely confirmed Soviet reports of the performance of their rocket.



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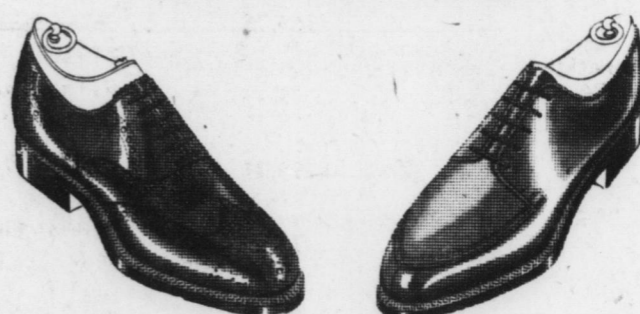
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