



SIMULATE ASTRONAUTS — A scientific observer peers through square "porthole" as North American Aviation Corporation engineers simulate astronauts during "take-off" in mockup Apollo two-man spacecraft.

'Orbital Rendezvous' Won't Be Easy, Space Scientists Report

By JOSEPH L. MYLER
United Press International
Washington—Some time in 1964 two American astronauts will try to couple their Gemini spacecraft with an Agena-B rocket in orbit above the Earth.

Upon the success of the Gemini program to perfect the art of "orbital rendezvous" depends the success of the Apollo program to land men on the moon before 1970. Apollo plans call for the decoupling and recoupling of craft in space.

Space being what it is, bringing objects together out there won't be easy. If the Gemini spacecraft and Agena-B rocket were automobiles on a circular track, all one would have to do to catch the other would be to move faster.

In space, however, that would defeat the purpose. Dr. L. A. DuBridge, president of the California Institute of Technology, once remarked that space is a peculiar "environment where one must slow down in order to go faster."

Not a Race Track
Suppose by 1964 that the launch crews at Cape Canaveral had become so good at

their trade that they could fire a two-man Gemini spacecraft into precisely the orbit occupied by a previously launched Agena-B. As DuBridge has noted, "an orbit is not a racetrack in which one vehicle can overtake another."

If the Gemini astronauts fired a burst from their propulsion rocket to accelerate their craft in the direction it was going, it would just move off on a tangent into a higher orbit. As it moved out against the earth's gravitational pull, it would slow down.

It is a rule of celestial mechanics that the higher the orbit, the slower the speed. Gemini spacecraft in orbit at an altitude of 150 miles will be going about 17,500 miles an hour. The moon, which orbits the earth about 240,000 miles, is traveling at only 2,300 miles an hour.

Increase Orbital Speed
So if the Gemini pilots want to increase their orbital speed, they will have to reduce it temporarily by firing retro, or braking, rockets. This will drop them into a lower orbit in which they will whirl faster.

By alternating between pro-

pulsion and braking, assuming they had plenty of fuel and their rockets could be throttled, the astronauts thus could flit from orbit to orbit until they got on Agena-B's tail.

According to a recent Senate Space committee report, the "target" Agena and the "seeker" spacecraft probably will be launched into different but converging orbits which will bring the two close together at precalculated times.

The Agena would be launched one day and the Gemini capsule the next. This calls for great aiming precision and fine timing. A mistake of a few seconds would find the two vehicles hundreds of miles apart at the planned time of rendezvous.

Have Propulsion Units

Still, both would have propulsion units aboard and would be able to maneuver—subject, of course, to the laws of celestial mechanics. Any maneuvering of the Agena would be by controllers on the ground who would have to coordinate their operations with those of the Gemini pilots.

It will be a lot harder to do than it sounds. Suppose, however, that seeker and target do manage to get within a few miles of one another. They are traveling at approximately the same speeds. The seeker, say, is going 17,530 miles an hour, the target 17,500.

The speed of the one relative to the other would be only 30 miles an hour. If they can't get it down further, however, they might as well give up, go their separate ways, and try again later.

For "if they were to hit at 30 miles per hour," according to House Space experts, "the result might not be too different from hitting a parked car with its brakes off at the same speed."

Moose Defined Flying Object For Insurance

By GORDON W. SCHULTZ
Fairbanks, Alaska—UPI—When is a moose not a moose? Simple. When a moose is a flying object, that's when.

Two Fairbanks residents on a trip over the Alaska highway between here and Tok answered the question of a moose's identity — only they did it the hard way.

Kathleen and Betty Reap drove right to the source for the answer. Or should it be that the source came to them?

The Reaps, like many motorists on the highway, found themselves on a collision course with one of the huge critters. But this moose, unlike many of his stubborn relatives, decided to yield the right of way to the motorist.

And with the grace and poise that only another moose could appreciate, this traffic-conscious moose decided to

jump over the oncoming car. He did — almost.

The short-sighted animal came down a little early and poked one leg through the windshield of the Reap's car. But only the car was damaged and that was when the sisters found out the real moose identity.

Everyone knows that a moose is not a car — even insurance agents — so the damage could not be charged as a collision.

But in this case the damage came under the "comprehensive" insurance category — one that covers damage by fire, theft or falling objects through no fault of the car's owner.

From this point it was simple. The moose had to be a falling object and so he was.

The two sisters were happy to have the damage paid and

insurance company more than likely glad to settle the claim. As for the moose, he may not be so happy nursing a sore leg. Maybe the next time he hurries a car he'll have eye-glasses.



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Shrine Visited By Millions Each Year

By RALPH VILLERS
United Press International
Fatima, Portugal—UPI—Visibly there is little to indicate why millions of persons feel a compulsion each year to visit this little cluster of buildings set in the poor, rocky hill lands more than 100 miles north of Lisbon.

Fatima is one of the Roman Catholic world's major European shrines. But tens of thousands of non-Catholics make the trek, if not the pilgrimage, to Fatima every year.

The Shrine of Our Lady of Fatima is, according to Catholic belief, the scene of the apparition of the Blessed Mary, Mother of Christ, to three Portuguese shepherd children six times between May 13 and Oct. 13, 1917, and the famed three predictions of Fatima.

Two of the three predictions—foretelling the end of World War I, the beginning of World War II and the rise of communism—long ago were revealed. The third, sealed in an envelope and held by ecclesiastical authorities, was ca-

gerly anticipated in 1960. However, its contents never have been disclosed and probably never will be, according to an American priest who is an authority on Fatima.

Picturesque Countryside
The drive here from Lisbon, best taken by tour bus over the narrow, unfamiliar roads, passes through some picturesque countryside and villages to the quadrangle-like collection of white buildings that mark the shrine.

Focal point of the shrine, even more than the single, towered white Basilica and its flanking colonaded wings, is a tiny open-sided, red tile-roofed building set on one side of the expanse of ground that sweeps back from the Basilica.

The little building stands on the spot of the little oak tree where the children said they saw the visions. The tree is long since gone, literally torn to shivers of wood by early visitors. Under cover of the roof is a plain white and gold-trimmed statue of Our Lady of Fatima.

Thousands of people collect about the little building, kneeling in prayer or even circling the shrine on their knees. A reverent hush hangs over the area.

Flanking two sides of the quadrangle are plain white buildings, one a hospital for the sick who visit the shrine, and the other a building to house the clergy.

Pilgrims Gather
A towering cross stands on the fourth side facing across the expanse toward the Basilica. These acres are where the thousands of pilgrims gather each month from May through October on the night of the twelfth for a candle-lit vigil of prayer and the completion of their pilgrimage the following day after Mass said on an open air altar in front of the Basilica.

Although the shrine attracts visitors every day, it is on the pilgrimage days — and especially those in May and October, when the mass of people overflows out of the grounds — that Fatima is at its most remarkable.

The limbs of two of the children who saw the apparitions — Jacinta and Francisco Maria, a brother and sister — are at the front of the Basilica, marked by marble plaques.

The third shepherd child is now a nun, Sister Mary, and lives in a cloistered convent near Lisbon.

People Reading More Books Than Ever Before

New York—UPI—Despite television, people are reading more books, particularly the paperback printing, than ever before.

Television exposure, in fact, has created new popularity for certain themes in the book field, according to Carl W. Holstrom, head of book operations for the F. W. Woolworth Co., largest paperback book seller in the world.

Fiction remains the biggest seller in the nationwide Woolworth chain.

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