

Training Schedule for First Space Flight Physically Demanding

Bacteria Becoming Resistant To Antibiotics Worries Scientists

By DELOS SMITH
UPI Science Editor

New York (UPI)—Medical science is so worried over subtribes of disease-causing bacteria getting wise to its most effective way of killing them that it has needed the government to act.

U. S. Surgeon General Le Roy E. Burney is sponsoring a medical-hospital conference in September to go into this deepening problem. Simply stated, the problem is this: disease-causing bacteria are being educated in how to live and flourish in the presence of the antibiotic drugs.

This education is being administered by physicians and often in hospitals—unwillingly and usually unwittingly, of course. It is a pity because the antibiotics (penicillin is the best known) are the most miraculous of the "miracle drugs."

Adapt Selves to Drug

Medical science has never had other bacteria-killing nearly as effective as these. But where will we be if and when the day comes when all bacteria are able to resist all the antibiotics without the slightest harm either to themselves or their prodigious reproductive capacity.

Say you have a human body in which there are x-billion bacteria making it very sick. You inject an antibiotic. It kills all the billions, presto, and the body rebounds into health. But if you repeat it often enough in enough bodies you're going to run into a relatively few bacteria which

adapt themselves to the drug. These few become parents of a new sub-tribe of their kind, all of whose members are resistant to that particular antibiotic. This is going on right now. More and more of these bacterial strains are appearing around the country, indeed, around the world.

Not the Answer

They still are a very small minority of disease-causing bacteria, and the common way of dealing with them is to inject a different antibiotic—one to which they are not resistant. But that permits



LEFT OUT—Mrs. Jessica Freeman-Mitford Truehaft, wife of Oakland, Calif., attorney, and sister-in-law of British Fascist Sir Oswald Mosley, was pointedly disinherited in will of her late father because her political sympathies differed from those of her father and her brother-in-law.

them to acquire even more education. Strains now are in existence that resist as many as five antibiotics which formerly killed them.

Medical science feels the answer can't be a new antibiotic indefinitely. Antibiotics come from chemical stews produced by earth molds. Many kill people as well as bacteria; only a very few are potentially usable as drugs. Thus the day can come when most disease-causing bacteria are "resistant" to all antibiotics and there is no new antibiotic to save the day.

Physicians use antibiotics in copious quantities. Hospitals team with them. If you have an effective weapon, you're going to use it fully and often, naturally. But the more the antibiotic weapon is used, the greater is the chance of it becoming progressively less effective.

Thrive in Hospitals

Small epidemics of illnesses caused by resistant bacteria now appear occasionally in hospitals. They're quickly put down with a newer antibiotic, but they show what's going on. Bacteria are everywhere, even in hospitals, and so hospitals are places where bacteria get educated, since all the antibiotics are always around.

Leaders of medical science believe the antibiotics should be used against offending bacteria only when the need is great and nothing else will do. Hospitals should rely more on older drugs and older methods for holding down the bacterial population to the barest minimum and less on antibiotics, they say.

Joseph Haydn, the great Austrian composer, was a chorister in Vienna at the age of 12.

Doctors Aware Pilot Can Stand Forces Imposed

Editor's note: Following is the third of five articles on plans of the United States to send a man into outer space. In previous articles Author Martin Caidin wrote that basic is essential if this country hopes to beat Russia as the first nation to rocket a man into space. The first man to attempt the feat will be a perfect physical specimen and will be found in the ranks of test pilots, according to Caidin.

By MARTIN CAIDIN
(Written for United Press International)
(Copyright 1958 by UPI)

The training schedule for Jim Randall's first flight beyond the earth was so demanding physically that the average man would have regarded the punishment as sheer torture.

There are no second chances on this space mission; the doctors know that Randall can withstand the forces imposed by his rocket plane's performance. Further, his superiors know he is able to operate controls and equipment during those same moments when he may be suffering most severely.

Can he take high gravity-forces? In a jet fighter, a steep turn at high speed imposes tremendous loads (g-loads) on a pilot's body. As a jet pilot Randall has taken as high as 9-g's, when with his personal flying equipment his body weighed nearly a ton. Can he take 14-g's?

Placed in Centrifuge
To find out, scientists placed him in a centrifuge, a giant machine that was whirled around rapidly. At the end of long steel girders rode an enclosed cabin, simulating the X-15. Inside Jim Randall was whirled faster and faster. The g-loads increased until Randall's arms were like steel bars. He could not move his feet. His head seemed to be imbedded in concrete. The blood drained away from his brain, forming a grey cloud before his eyes. His heart pounded madly, his chest muscles could barely raise his lungs. Finally, "weighing" more than 3,000 pounds, Randall blacked out.

The doctors were pleased. Randall worked fingertip controls with his right hand up to a force nine times that of gravity, much higher than that required for his impending space flight. But what about the return to earth? When Jim Randall's X-15 plunges back into the atmosphere from space it will race into air that resists the rocket's performance as though it were a thick and viscous mass. The ship may decelerate rapidly, slowing down with such force that Randall will be subjected to violent punishment—a deceleration force of nine gravities.

Body Bursts Forward
But on that earthbound day of testing, Randall returned to the centrifuge. With a booming whine the great machine began to whirl, spinning faster and faster. Suddenly the control engineer slammed on the brakes. Within the sealed cabin, Randall's body burst forward against his restraining straps. The pressure mounted with cruel force. Blood pounded heavily against his eyeballs. His skin stretched and twisted into a rubbery, grotesque mask. Small blood vessels ruptured. Finally, at a force just above 9-g's, he passed out. His limits of control operation were carefully noted; the X-15 is designed to fly with maximum forces well below Randall's limits.

His flight in space will be in vacuum. Because the X-15 orbital flight is a crash program, the rocket is not designed for pilot comfort. The pressurized cabin is small, and Randall will wear his pressure suit for the entire mission. If the cabin suddenly springs a leak and the air rushes into space, the suit will mean his life. Without this suit pressure, the air in Randall's body would explode outward. Under zero-pressure conditions his blood and other body fluids would boil with such violence that they would literally explode. Without his pressure suit Randall would be unconscious in a few seconds, dead in less than 15 seconds.

Decompression Chamber
Can he live, can he perform his flight duties, in a tight pressure suit? During his preparation for the space flight, the doctors placed Randall in a decompression chamber, inflated the suit, and depressurized the chamber. They kept Randall there for two days, eating baby foods and drinking liquids within

the suit. After the first three hours he perspired freely from the slightest movement. "It was hell in there," he reported. But he could survive, and he could control his spaceship. Another hurdle had been overcome.

During his orbit around the earth, Jim Randall will be totally weightless. No human being has ever been in a weightless condition for longer than 45 or 50 seconds. To simulate zero gravity conditions, in readiness for this, Randall flew as a passenger in a jet fighter. The pilot dove the jet, then pulled up sharply to swing into a great soaring arc in the sky. For as long as 48 seconds, while the fighter coasted "up and over," Randall was weightless. At first he couldn't coordinate his hands. Everything "seemed wrong." But after a dozen flights weightlessness no longer bothered him. The doctors

were elated, for Randall's natural pilot instincts and continued practice in the weightless flights, meant he would experience little or no difficulties from zero gravity in orbit.

For more than a year, while he flew special test flights, while he visited the North American factory to keep pace with the rocket plane's construction, Randall continued with his special medical tests. Finally they were all completed. He had passed every test that aviation and space medicine could devise. As much as any man on earth could possibly be prepared, Jim Randall is ready for the first manned space flight in history.

(Next: Randall's ticket to space.)
Both sea and lake sturgeon live in the fresh waters of the St. Lawrence river the year round.

Goldfine Tells of White House Visits

Washington (UPI)—Bernard Goldfine said today that he had visited the White House a number of times in this administration and once lunched with White House executives, including President Eisenhower.

The Russian-born textile tycoon told newsmen of his White House visits after his sixth round of testimony before a House subcommittee investigating whether his firms got favored treatment from federal agencies because of his friendship with Presidential Assistant Sherman Adams.

Portland (UPI)—Word has been received here of the drowning of the Rev. Patrick G. Madden, assistant at St. Peter's Catholic Church here during a visit to his native Ireland.

New England's thousands of ponds and lakes were formed during the retreat of the continental ice sheet.

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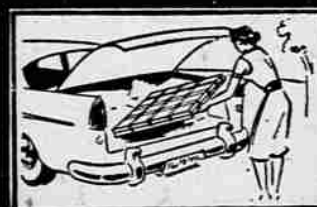
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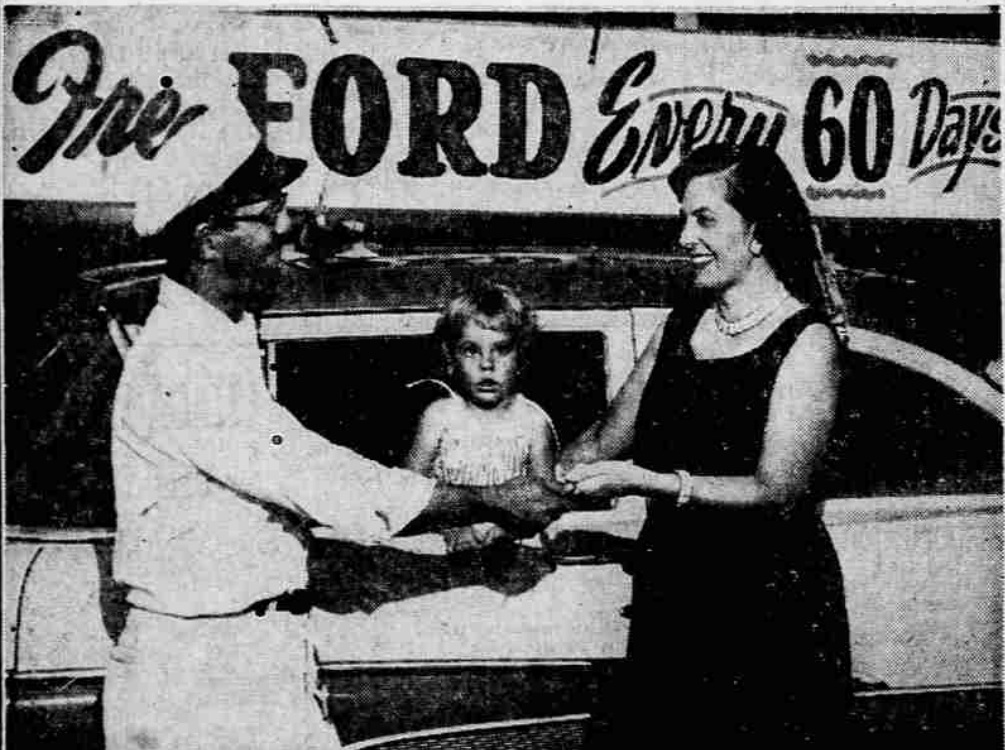
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Mrs. Robert DeGroot WINS FORTUNE FORD



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