

Spacecraft Designers Continually Plagued with Problems

By JOSEPH L. MYLER
United Press International
Washington - (UPI) - There must be days when a spacecraft designer wishes he had got into some other line of work.

There seems to be a law operating out there which says that whatever you do, you may wish you hadn't.

For example, if you shield against one kind of radiation danger, you may increase vulnerability to another.

Striking through space at speed approaching the velocity of light are nuclear particles which make a clean wound, so to speak, when they pierce a human body.

Unless they course through particularly sensitive tissue, like that of the brain, these fantastically energetic projectiles from outer space do relatively little harm.

Tiny Bullets

But suppose a spacecraft designer wanted to take no chances whatever. Suppose he built shields around his craft which would be absolutely impervious to these tiny bullets.

The shielding would be so massive that no rocket ever imagined could possibly lift it off the pad.

If the spacecraft designer compromised with a shield that would merely slow down these high speed particles, he would be compounding the danger.

Shooting through the body at reduced speed, the nuclear projectiles would have more time to spread their energy around and thus would do far more damage.

They also, upon collision with atoms in the shield, would trigger so-called secondaries whose effect might well be disastrous.

Atomic warfare suggests an analogy. An exploding A-bomb might not knock down a reinforced concrete building some distance away. But the blast might create a host of secondary projectiles in the form of shattered glass, chipped concrete and other loose

or loosened objects which would kill or wound everybody in the building.

Indirectly Detected

Recently a primary particle from a distant galaxy was indirectly detected by a recording station installed by the Massachusetts Institute of Technology on a mesa top in New Mexico.

This one particle was so tiny that if you inflated it trillions of times it still would be invisible to the naked eye. But it also was so powerful that when it hit atoms in the earth's atmosphere, it triggered a shower of secondary particles which bombarded the entire mesa, an area of several square miles.

The atom smasher at the Brookhaven National Laboratory on Long Island drives nuclear particles at energies up to 30 billion electron volts. The particle which invaded

New Mexico had three billion times that much energy.

Such particles presumably are rare; this one was detected only because a recording station happened to have been built at the place where it arrived.

But space swarms with other nuclear particles which, though less energetic, are far more numerous.

There are the particles spewed from the sun when solar flares erupt on its surface. There are the particles in the natural and artificial radiation belts around the earth.

Fairly Energetic

The particles in the radiation belts are considered to be fairly energetic, for them, if they pick the equivalent of more than 100,000 electron volts.

A particle carrying 100,000 electron volts of energy would

be only on quintillionth (one over one followed by 15 zeros) as powerful as the New Mexican invader. Heretofore spacecraft designers have assumed that particles so feeble could be ignored.

Now come Edward Lodi David Crowther of the Lockheed Research Laboratories, Palo Alto, Calif., with news that 100,000-volt particles also can make trouble.

Such particles, they report, can reduce the power output of solar cells supplying electricity to spacecraft instruments. It has long been known that particles of higher energy in the radiation zones would damage unprotected solar cells.

These higher energy particles lower the cells' capacity to produce current. The low energy particles, Lodi and Crowther discovered, reduce the cells' capacity to produce

voltage. And, of course, it takes both current and voltage to produce power.

Frustrating Low

So the spacecraft designer now must do something about the numerous low as well as the high energy particles. This is where that frustrating space law (whatever you do may be wrong) comes in.

If you shield against the higher energy particles, you can cut down their speed, all right, and avert the special kind of damage they do. In the act, however, you convert them into low energy particles.

The upshot is that, in preventing one kind of damage, you are merely increasing the chances of suffering another kind.

Who'd want to be a spacecraft designer?

Didn't Erase Doubts

West in Skeptical Frame of Mind At Demonstration of Computer

By DICK WEST
United Press International
Washington - (UPI) - Roughly 30 years ago, I blew an entire week's allowance - roughly 15 cents - on a ticket to a tent show that was billed as "Professor Moriarty and his talking horse."

The memory of that evening still pains me because I was roundly gulled. All the horse did was answer the professor's questions by shaking his head or stamping a forefoot.

I'll concede they were hard questions, but intelligence wasn't the issue. When I pay money to see a talking horse, I expect something more than sign language.

At those prices, he should have recited Mark Antony's funeral oration.

Approaches Show Skepticism

Once burned, twice shy, as Socrates used to say, and so it was with considerable skepticism that I went to a demonstration this week of what was billed as a "talking computer."

The computer, called Telex, was developed by the Telegister Corp. of Stamford, Conn., to serve the needs of members of the American Stock Exchange in New York.

When it goes into operation later this year, brokers will be able to pick up a telephone, dial the computer's number and hear it recite the latest stock quotations, which at times can be even more eloquent than Mark Antony.

Telegister staged the demonstration here in hopes of selling a few talking computers to the federal government. A spokesman said they could be adapted to many uses, including airline traffic control.

If radar showed that two airliners were on a collision course, he explained, the com-

puter would recognize the danger and warn the pilots.

Causes Some Discussion

This caused some discussion in the audience as to what form the warning should take.

I suggested to a fellow sitting next to me that the computer should scream "look out!" But he said that might startle the pilots and cause them to jerk the controls or something.

He said it would be better for the computer to appeal to

Magician Featured At Veterans Show

White City - Oregon State Elks association's regular monthly night at the Veterans Administration last week featured Johnny Eads, magician, Tom Ginn, alternate Elks representative for Emil B. Kroeger, president.

Ginn introduced Reuel K. Ryans, newly elected Exalted Ruler of the Medford lodge.

Eads, a disabled veteran whose rehabilitation came through the Veterans Administration, is manager of a neon sign company in Medford.

ELECTED CHAIRMAN

Salem - (UPI) - Rep. Cornelius Bateson (D-Salem) has been elected chairman of the Legislative Fiscal committee.



UNLOADED FROM TRANSPORT - Atlas rocket 130-D is unloaded from transport airplane after flight from San Diego, Calif. Rocket will be used to boost U.S. Astronaut Gordon Cooper Jr. on 22-orbit space voyage now planned for mid-May. Atlas was taken to hangar and will be installed on launching pad No. 14 in a few days. (NASA photo via UPI)

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Nehru Cities Red Troop Movements

New Delhi - (UPI) - Prime Minister Jawaharlal Nehru told parliament Saturday the Chinese Communists have moved 2,000 troops up to the India-Tibet border and said they may be planning new aggression.

Nehru, speaking before the lower house, said Peking had sent a series of notes to the Indian government in the past few weeks and that they "have become sharp and provocative, some actually scurrilous."

While Nehru spoke Chinese Communist Foreign Minister Chen Yi, in a statement broadcast by the Communist New China news agency, renewed the attack on India with a charge India was stepping up its war preparations "with imperialist military aid."

Firemen Called to Check Smoke Odor

Employees at the Groceria Super Food Market at Sixth and Grape sts. smelled the odor of smoke near the meat case and called firemen at 8:38 p.m. Saturday.

But when firemen arrived, they couldn't find or smell anything. The odor had apparently dissipated in the meantime.

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