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Indiana-based Scientists Keep an Eye on Discovery Experiments

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With the space shuttle Discovery in space, we can expect to hear about the experiments the astronauts will conduct in zero gravity. There's a group of professional scientists and engineers in the small town of Floyds Knobs who will be watching closely.



You might remember a space shuttle experiment called chicks in space. Quail eggs were placed into a centrifuge, and scientists were supposed to observe the development of the birds in micro gravity. Unfortunately, the experiment was on board the ill-fated Challenger.

The engineer who designed the quail egg experiment works in Floyds Knobs, Indiana, near Louisville. John Clark Vellinger is the co-founder of [Space Hardware Optimization Technology](#) (SHOT).

"One of our strengths is I feel like we have the total development skill set. We can provide the mechanical, electrical, and we feel that is our forte," said Vellinger.

Vellinger, a Purdue grad, and his company have bypassed NASA. It had to stay afloat.

SHOT scientists and engineers have developed a device which will look for cancer cells using magnets. They worked on a rotating wall bio-reactor partially devised by Dr. David Wolf.

SHOT scientists are growing crystals from proteins so pharmaceutical companies like Lilly can develop drugs. They are even developing talking inventory management devices.

"Everything we do here at SHOT is one of a kind or first of a kind because we are inventors, professional inventors. This is what has come out of the minds of our 30 engineers lately," said Richard Boling, SHOT business manager.

SHOT engineers and scientists still have their hands in outer space projects. "One of the most fascinating projects they're working on is recreating the atmosphere of Mars."

Inside a refrigerator-like cabinet is a tube with very special dirt. It's Martian dirt, called regulith. Scientists want to know what kinds of bacteria or organisms can grown in those conditions.

"This device will recreate the environmental conditions on Mars. It will have the same atmospheric pressure you'd find on Mars. Same temperature range. It would be from minus 135 degrees Celcius to plus 24 degrees Celcius all within a 24-hour, 36-minute Martian day," said Boling.

Whether it's quail eggs in space or recreating the Martian atmosphere or the myriad other inventions shot is coming up with, innovation is happening right here on Earth in Floyds Knobs, Indiana.



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