

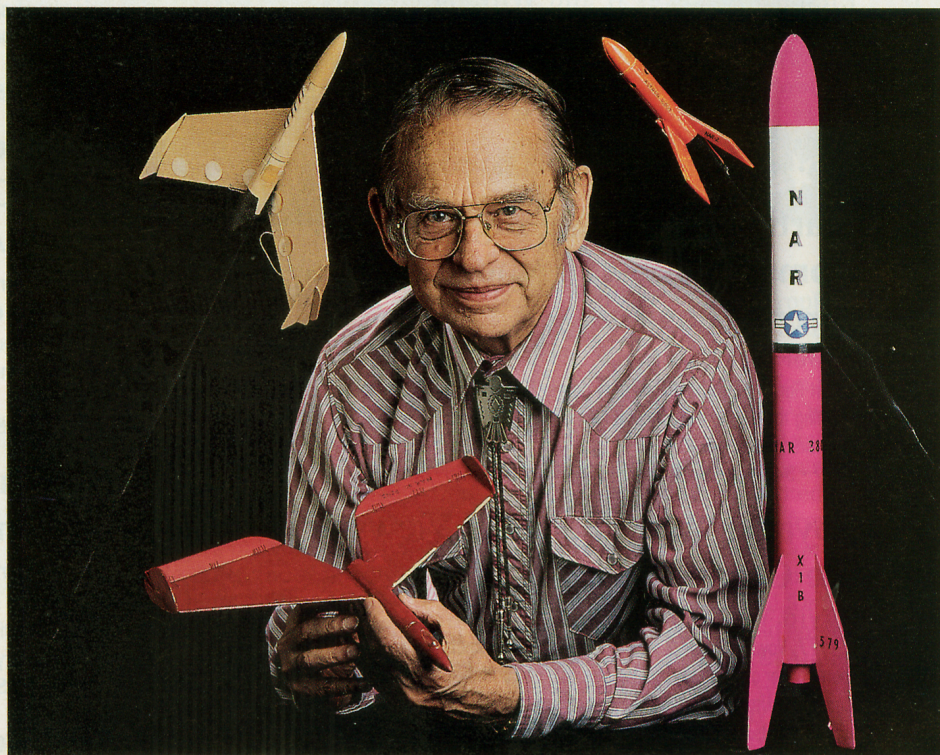
Mr. Estes Comes to Washington

Vern Estes is a quiet, soft-spoken man. Close to 70, he still has the all-American looks of a farmboy and a modest "Aw, shucks" personality. However, thanks to the work he did in the 1960s while the space race between the United States and the Soviet Union was unfolding, millions of model rockets have flown without a reported single fatality or serious injury. Through the company he founded in 1961, Estes Industries, a majority of these rockets have borne his name. Last May Estes came to the National Air and Space Museum to appraise the Museum's large collection of model rockets and recount for curators how the Space Age hobby got off the ground.

After the space era began with the 1957 launch of the Soviet satellite Sputnik, many a boy tried his hand at launching homebuilt rockets. In the book *The Rocket Boys*, the author, Homer Hickam, writes of his and his friends' attempts to launch rockets from fields near his home in West Virginia. Many of the materials needed for these experiments could be bought through ads in the back of hobbyist magazines. Because of their explosive nature, however, such materials are exceedingly dangerous.

Through his association with rocketry, Hickam eventually became a NASA engineer, but his story's happy ending has a darker side. The American Rocket Society estimated that as many as one in six amateur rocket experiments in the 1950s and '60s resulted in a fatality or serious injury. Because such unsafe experiments were being conducted by young people, the ARS referred to it as the "American Youth Rocketry Problem." Solving it was no easy matter, though. Simply loading match heads into a carbon dioxide cartridge can result in a device capable of launching a rocket hundreds of feet into the air. Just as easily, it could also produce a pipe bomb with deadly consequences. What was needed was a safe, commercial product that would allow inquisitive young people to safely experiment with rocketry.

The solution was devised by a shoe salesman named Orville Carlisle, who was



also an amateur inventor experienced in pyrotechnics. Carlisle devised the Rock-A-Chute, a rocket propelled by a small engine. At peak altitude, the engine fired a small explosive charge that pushed a parachute out of the rocket body. The Rock-A-Chute then returned slowly to the ground, where it could be fitted with another engine to fly again. To market his product, Carlisle approached science fiction writer G. Harry Stine. Together with several investors, Stine and Carlisle started Model Missiles, Incorporated in Denver, Colorado, in 1957.

The products sold by Model Missiles were beautifully designed and instantly popular. The demand was so great the company could not keep up with the orders. In particular, the rocket engines, built by a contractor, were slow to ship and extremely unreliable. Stine needed a new supplier, and the Estes family fireworks business was the first one listed in the 1959 Denver phone book.

When Stine called them, they pointed him to their young son Vern, who quickly envisioned the hardware necessary to produce a reliable model rocket engine. To save money, he scoured junkyards for parts, and in a short time he had completed "Mabel," a machine capable of manufacturing an engine every five and a half seconds. That was even faster than Model Missiles could sell them, so to unload the surplus, Estes and his family placed an add in *Mechanix Illustrated*. The response was overwhelming.

Several bad decisions later forced Model Missiles out of business, but the demand for model rockets did not go away. To fill the void, Estes began to design his own, beginning with the Astron Scout, which was small enough to fit into the mailing tubes he used to ship his model rocket engines. Estes sent the first Scout kit to his friend, G. Harry Stine, who quickly built and flew it.

After Model Missiles shut down, Stine

founded the National Association of Rocketry. Under his leadership, the NAR worked with state legislatures to improve rocket safety while promoting the value of commercial products such as Vern Estes'. Stine also saw the historical value of the culture of model rocketry. He collected everything he could, and in 1973 he donated dozens of boxes of model rocket material to the Smithsonian Institution, including original drawings, correspondence, catalogs, kits, and models. It took curators over 20 years to go through it all. With the passage of time and the death of Stine in 1997, the full significance of some items had been lost. Estes was the ideal person to help us at the Museum understand the history of some of these artifacts.

As the doors were removed from storage cabinets at the Museum's Paul E. Garber preservation facility, both the brightly colored rockets and the look on Estes' face lit up the room. There in front of him were artifacts he had not seen in years. One of the first rockets he identified was the original Astron Scout sent to Stine. It was not as well built as many of the other rockets, and it had obviously seen a number of flights. Still, it is the kit that launched Estes Industries 40 years ago.

"An original Astron Orbital Transport," Estes exclaimed as he picked up an unbuilt kit. "Two dollars and fifty cents. Sold!"

The Museum's collection also comprises model rocket artifacts from all over the world. "These Czechoslovakian engines never worked," said Estes. "They always blew up."

"So our German scientists were better than their German scientists?" someone joked.

Estes became particularly excited when he found the original Schutz-Estes Boost Glider, which he designed with a former employee. Marketed as the Astron Space Plane, it was the first device to successfully lift off as a rocket and return as an airplane, presaging NASA's space shuttle. In the same drawer were two Astron Space Planes, one in pieces. An accompanying note explained that these were prototypes. Evidently a test with a larger engine had caused the one to fall apart. Estes smiled and said, "That's my handwriting." At Stine's request, Estes had sent the rockets to his friend decades ago. The note was unsigned, and without Estes' help it would have remained a mystery to Museum staff. Thanks to Estes' visit, we now have a better appreciation of the importance of the Smithsonian's model rocket collection.

—Robert A. Craddock, a geologist at the Museum's Center for Earth and Planetary Studies, is writing a book on the history of American model rocketry.