

San Francisco Examiner

April 20, 1986

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The Magazine of Northern California

TAKING OFF

Plane Folks and
Their Home-Built
Flying Machines

DAVID BROWER
Man Apart

A GUIDE TO
THE TEA
CEREMONY

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Sasha Munir with her home-built VariEze

P L A N E

BY MICHAEL PARFIT

SASHA MUNIR'S FAVORITE ROOM IS ABOUT 40 feet long, 36 feet wide and made of steel. The "yard" is a stretch of cement on the easternmost edge of Concord. The room is carpeted with shag that previously occupied several guests' quarters in the Concord Sheraton. It contains two filing cabinets and a refrigerator on which is glued the slogan "From Prague with Love." There's a card table, folding chairs and white wine in the refrigerator. The room would be stark, except that it contains one other thing: an airplane.

On some sunny weekends Munir pushes the big doors open and lets people wander in and visit. They come in, and—although Munir herself is a very pretty, cheerful person and pleasant to be around—they don't spend much time talking to her. They prowl about the airplane, which sits lightly poised above the shag. They run tentative, appreciative hands across the polished wings, peer into the narrow cockpit, crawl underneath to look at the way the nosewheel retracts. They muse to each other about why it looks as if the whole thing was built in reverse, with the tail on the nose and the engine on the back. And some of them no doubt glance aside at Munir and think to themselves: This slender woman with the nice smile must have something special, a quality of doggedness, something I don't have, surely; a tremendous, mighty discipline.

But if Munir heard those thoughts she would laugh, as she did one afternoon when I asked her about it.

"Discipline?" she said. "Discipline? There is no discipline. It is obsession!"

We were sitting at the card table in the big room, which despite its comfy appearance is actually a hangar at Concord's Buchanan Airport. The airplane was there with us, a dominant third at our conference. Munir looked delighted at the idea that she had done anything under the burden of discipline; the plane, all shiny white with a red stripe down the middle, looked light and eager, as if it couldn't wait to take off and go flitting around the rafters.

The plane was a VariEze, made of foam and fiber glass rather than aluminum. Fin-

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Barry Fell with his Solitaire, a kit-built powered

ished in 1983, it can carry two people at a speed of 180 miles an hour. But the most remarkable thing about this plane is not its looks, but the fact that there are several hundred other VariEzes flying in the skies above the United States, and not one was built on an assembly line. All were put together in garages, hangars, even living rooms, by people whose professions are not the manufacture of aircraft.

THE VARIEZE IS AMONG THE MOST POPULAR of all "home-built," "amateur-built," or "ex-

perimental" aircraft (all ways of describing planes built by people at home). There are more than 150 active businesses in the United States that will put this and other aircraft plans in the mail for you, and more than 30 other companies that offer kit airplanes, which arrive on your doorstep, in pieces delivered by the UPS truck, all ready (so you hope) to just glue together and fly.

No home-built aircraft, however, is quite that simple. "Houses are easier than airplanes," Gordon Jones once told me. Jones is a member of the Livermore Chapter of the

FOLKS

Getting off the ground with the build-it-yourself flyers



sailplane, which is nearly finished and ready to fly.

Experimental Aircraft Association (EAA), to which almost all builders belong. Jones was one of the chapter's first members to finish a Long-EZ, sister ship to the VariEze. "It took me ten months to build a house," he says. "The plane took five years."

Sasha Munir, whose real first name is Alexandra, didn't take that long. There's no "typical" time, in fact, that it takes an aircraft builder to complete a craft; the construction process is so idiosyncratic that no two builders work in the same way at all.

Munir, a nurse, is assistant manager of

the Surgery Center at John Muir Hospital in Walnut Creek. Her determination goes beyond just wanting to fly; she is a former Czechoslovakian refugee, who fled her homeland in 1968 during the revolution, reached the United States in 1970 and subsequently earned a bachelor's degree in health system administration in 1978.

In 1981, while taking flying lessons, she flew to the Nut Tree airstrip out along Highway 80 in a friend's home-built aircraft. When she crawled out of the cockpit and walked away, something about seeing the

strange little plane parked there caught her imagination. She thought with a sudden and powerful longing: That could never happen to me, that I could build an airplane with my own hands and have it parked in front of that little fence at the Nut Tree.

"It was like wanting to go to the moon," she said to me in the hangar. And yet it was something that just might be done. She found a VariEze that had been crashed, bought the wreck for \$10,000 and started to reconstruct it. The plane was so damaged that it was like trying to put a horse back together out of dog food, but she persisted.

"I didn't know anything about tools," she remembered. "I had to learn everything from scratch. How to use power tools, how to use a regular wrench." And how to use sandpaper, sandpaper and more sandpaper. Since it's a fiber glass plane, the VariEze must be sanded smooth, and Munir's sandpaper bill alone finally ran to \$340. Because of this, some builders have called the plane, with exasperated affection, the "Vari-Tedious."

She worked every night after work, every weekend and most of every vacation for two years, and spent a total of about \$18,000. Obsession. And she was driven by more than just that longing to land her own plane at the Nut Tree. "I sometimes forget how much fun it is to see how things grow in front of your eyes," she said, her Czechoslovakian accent still strong. "It's a positive reinforcement of work well done, I guess." But some things were not so reinforcing.

"In the beginning the men didn't accept me," she explained with a smile, outlining the skepticism of the male members of her EAA chapter (only three of the 125 people in the organization are women). "Was raised eyebrows," she said. "For a good year I was often crying because of stupid remarks." She laughed. "But I have to tell you: Now, I'm one of them. I think men didn't realize that women can do anything." They do now.

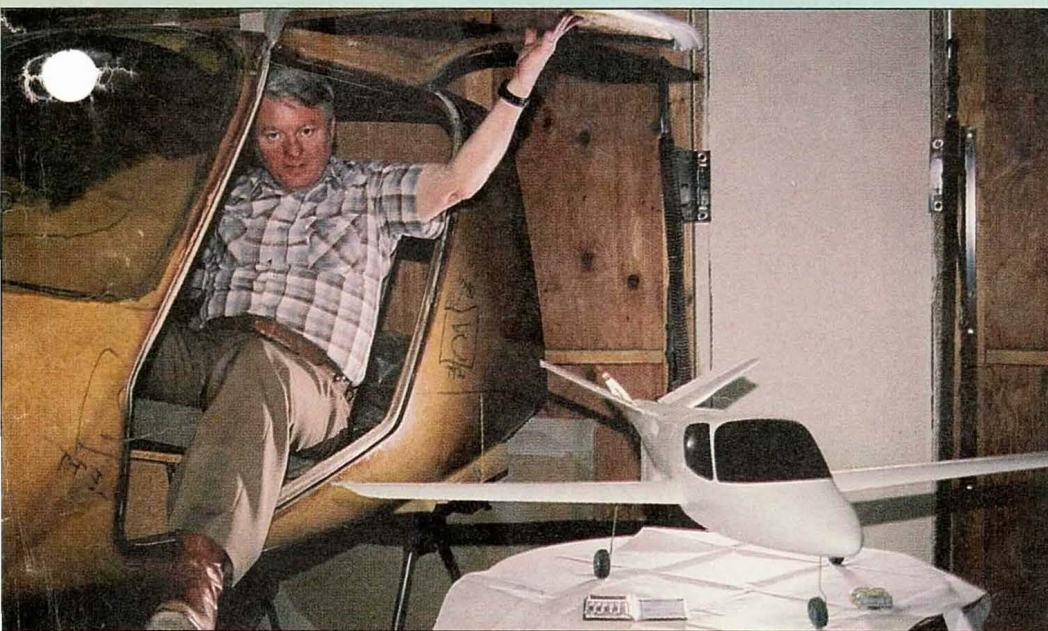
"Sasha did a year and a half of the most intense work you ever saw," Lyle Powell, a Walnut Creek ophthalmologist who builds cars, planes and motorcycles in his spare time, had told me earlier. And another male EAA member had said simply: "She's got more guts than any two people I know."

OF COURSE, ONE OF THE GUTSIEST THINGS IN this whole process is climbing into the machine you've built and trying to fly it. I was

some work space, expend hours of time, gallons of epoxy, patience and planning. While building a plane at home applies surprisingly well to these garage aerodynamicists.



Darrel Jones at work on his old-fashioned Pietenpol in his family room.



Tom Moore tries out the cockpit of his original design, the Fantom.

planes. Trouble was, he hadn't finished the design, and when it turned out to be more complicated than he had thought, the whole enterprise collapsed around him, leaving the home-built industry, which had begun to boom with the BD-5 enthusiasm, choking in a cloud of mistrust.

One of those who had trusted Bede was a United Airlines pilot named Tom Moore, who lives in Danville. Moore built most of a BD-5, then when the last parts and the engine did not arrive, sold it and began to design his own.

Moore is a quiet, pleasant man of 48, as unspectacular as Sasha Munir is flamboyant. He is so casual about his own obsession that he sometimes seems to be apologizing for it. Yet he has been putting this airplane, called a Fantom, together for five years, first in sketches, then in plans, then with a test model and now at last in fiber glass. With so many plans for sale, few builders go so far as to design their own planes, but Moore wanted something special.

"The only plans available were not to my liking," he explained one day when I dropped

by his garage, where the plane's unfinished cockpit rested on blocks. "I wanted a relatively fast airplane, good comfort, good visibility and relative quiet," he explained. Most home-buits tend to be cramped and noisy. So the cockpit that Moore built has more of the sleek but capacious simplicity of the face of the Boeing 767, which Moore flies for United, than the lean lines of Sasha Munir's airplane.

But designing an aircraft is more than just sticking a wing and tail on a place to sit; an improperly designed plane might soar like an eagle but land like an elephant. To avoid that, Moore studied. "I'm sort of self-educated," he said. He calculated the first equations by hand, and only later turned to an Apple II computer. "I would design each phase and put it together. Everybody uses the same formulas, anyway."

That may indeed be true, but in the past few years the home-built aircraft industry has sold more designs than the aircraft factories have sold small planes. EAA members like to point out that more experimental aircraft (10,839) were registered in 1984 than 1985's total sales for factory-built planes. And many of the home-builders unquestionably get more performance out of their planes than anything made on the assembly line. "We hold fuel- and speed-efficiency contests—during the Oshkosh 500 in Wisconsin, the annual meet for experimental aircraft enthusiasts—with both home-built and factory-built planes every year," said Ben Owen of the EAA. "The home-buits always run away with the contest."

ONE EVENING TOM MOORE TOOK ME TO A meeting of the Livermore Experimental Aircraft Association chapter. About 25 members were gathered in the garage in the pleasant suburban home of Don Coughlin, a retired electrical engineer. There wasn't even one car in the three-car garage. Instead it was occupied by the brown-and-golden unpainted form of a plane called the Q-2, which sat high above the group with its wings outspread like a protective mother hawk.

The metaphor is apt; the EAA itself is a broad, encompassing support group, encouraging its members by providing expert advice on the use of aluminum, fiber glass and fabric, and counseling on the building of everything from VariEzes to Pietenpols to Q-2s. Three chapter members once pitched in to help Moore complete an eight-hour fiber glass job.

"Home-builders are innovative," Moore said. "Every day they have to figure out how to do something." Often it's simply where to work. "I'd give anything for a three-car garage," said a member who was building a thirteen-meter sailplane in a space more suited to two Toyotas. Ingenuity in using all available space runs rampant among these people; when I wandered out to Coughlin's

backyard I found a Revmaster 2100 RD aircraft engine bolted to the garden fence.

This was the hit of the evening. Before the meeting began, most of the members stood in a semicircle in the dark around the engine like participants in a curious ritual. Coughlin, high priest of the machine, called out "Clear prop!" The motor thumped, wheezed and rumbled to life. The men, walking carefully clear of the lighted golden disk of the propeller, moved in and watched Coughlin tinker with controls on an instrument panel also mounted on the fence. The engine, roaring king of the garden, blew leaves off the tree behind it.

"I haven't had any complaints from the neighbors," Coughlin said later. "But I've been a little prudent about when I run it."

Building a plane at home might seem foolhardy to some, but the word prudent applies surprisingly well to these garage aerodynamicists. One of those tinkering with the engine that night was a licensed aircraft mechanic named Dave Dent, who is an official EAA technical counselor. He inspects projects when asked and looks out for dangerous mistakes. Each chapter has at least one counselor, and the system has worked so well—both insurance rates and accident statistics for home-built aircraft are close to those of factory-built planes—that the Federal Aviation Administration recently eased rules requiring step-by-step inspections. Now the FAA inspector only sees the plane once, when, as one inspector said, "it's sitting on the runway waiting to crank up the rubber band and take off."

"We look for good construction techniques and aircraft-quality materials," the inspector went on. He was Del Ott, an inspector for the FAA Flight Standards District Office in Oakland. He said, "We look at things like the welding and ask, 'How did you do that?' If it is assembled in a sanitary manner we let him fly it."

FIRST FLIGHT! ALL THESE MONTHS—ALL these years—this thing has been a heap of foam and a few gallons of epoxy, or a pile of aluminum sheets and steel tubing. Now it looks like an airplane and it roars like an airplane, but it has not yet tested the air. First flight!

Finally, after all the months or years of work, comes the magic moment when the plane lifts its builder into the sky.



Carlos Amspöcker above the Bay Area in his home-built VariEze.

Worry about the first flight is one of the reasons that some home-builders say every completed aircraft has a divorce behind it. When I visited one builder in his garage, his wife came out on her way to a dental appointment to tell him that their two boys were napping, and I asked her what she thought of the project. "Don't ask me," she said. "don't ask me." Then she blurted out with a quick laugh: "I'll be glad when it's finished. Then I'll be afraid."

But trepidation does not flutter just the

onlookers.

"The first flight is something else," said Carlos Amspöcker, a Concord EAA chapter member who has been flying his VariEze for six years. Amspöcker flew Sea Furies and Hell Cats for the Marine Corps during World War II, but his first flight in his home-built was special.

"You get out there, you point it down the runway, and you think: What am I doing here? You think: What have I forgotten? Then you put the throttle forward."

The FAA inspector has instructed home-builders on their inaugural flights to take off over the water, to stay clear of all populated areas. "Our responsibility on the first flight," Del Ott said, "is to protect the public." The control tower, if there is one, is attentive to first flights; if there is a fire station on the field, at least one truck is often there waiting for what could happen.

The machine leaps ahead. The engine runs smoothly, the needles in the gauges hold steady. The airspeed indicator climbs to 60. You raise the nose. And the moment of flight, the lift from the gravel to the silk, is as sure as the moment of birth.

When Sasha Munir first flew her VariEze the day was overcast. In case she became flustered she had strapped a written list of instructions to her left leg: "1500 RPM; Fly it in." But the plane she had built was full of grace. It wheeled in the air as if it had been born there. Later she would write in the diary of the years of construction: "Only now and then the dream comes true. It happens." Later she would fly it to the Nut Tree and look at her own plane parked there behind the little fence. But now she just flew. On the radio she could hear the voice of her ground crew telling her that it was time to

bring it in to land: "Come back. Come back." But on she flew, borne by wings she herself had fledged and polished. All that sandpaper. All that time. Now the air was hers to command. She just might stay up here forever.

"I thought I was the happiest person who was ever born," she remembered one afternoon in the carpeted hangar, thinking of that time and the good hours that came later. "It is a joy airplane. I'm proud of it. It changed my life. It made me a happy person." □