An Affair of the Heart

Wherein a beleaguered homebuilder's spouse acknowledges her mate's other love.

BY JANET MALDEWIN

Romantic notions tiptoed playfully across my mind as I slipped into bed and cuddled up alongside hubby. He'd been preoccupied for several days . . . something about the axle and landing gear on his latest project. Well, I'd get his mind off his problems. I wrapped my fingers gently around his arm and nuzzled up to his ear. "Honey," I cooed.

"I've got it!"his voiced flashed. "I've finally figured it out. That landing gear has been bugging me for weeks and the answer just came to me. Boy, it's great. Now I'll be able to get some sleep. That gear really had me stumped." His excitement subsided as he planted a satisfied kiss on my lips and bellowed a hearty, "Good night. See you in the morning."

All romantic notions skipped away as I edged over to my side of the bed and imagined the wide grin I knew must be on his face. "Good night, dear," was all I could sigh. "Sweet dreams."

This latest affair has been going on for more than three years. He eats, sleeps, drinks and breathes for that beauty. He's happy when she's cooperative and miserable when she's not. He never gives up on her, though. He prods her and coddles her until she comes around to his way of thinking.

He spends as much time as he can with her, which isn't too difficult, because her fuselage is shacked up with us in the garage. He loves to catch the morning's first rays of sunlight as they reflect off her freshly varnished birch plywood turtledeck. And, before we shut the house for the night, he'll sneak into the garage to say good night and to make sure she's still really and truly there. He's counting the days until he can bring her wings home from the hangar for their covering party.

Flaps, ailerons and horizontal stabilizers are leaning against the wall in our bedroom—on *his* side of the bed. The garage, of course, is much too dusty and dangerous to house her newly covered tail parts.

One day, I saw him alone with her in the garage. He didn't know that I was watching as he ran his fingers gently over every square inch of her rudder. His hands lovingly followed the delicious curves of her finely sanded, laminated spruce. Faint tinges of jealousy welled up in me. Was this it? Had he finally found the rudder of his dreams? I turned away, not wanting to watch.

When he can't be with her, he's usually thinking about her. He ponders if the weather will be agreeable for her when it's time to paint. He hopes that she'll like the colors he has picked out for her. He tries to figure out where he'll put her when she's finished. He even plans trips they will make and imagines how happy they'll be together.

He loves to buy her things. She has very expensive taste, you know, and almost always gets what she wants, whether it's state-of-the-art navigational equipment or fancy brass and stainless steel turnbuckles. Even if he has to drive 6 hours one way to find what she wants, or send halfway around the world for it, he'll do it. In fact, he has an uncanny knack for getting *me* to help select *her* attire. I spent the better part of two afternoons selecting a slate blue and ivory tweed upholstery for her seat covers. As I was walking to the car with my purchase, it occurred to me that I, of all people, was making it possible for him to sit—and more comfortably at that—in her saucy little lap.

It's bad enough having this "gal" around the house, but to make matters worse, he keeps bringing out pictures of his old girlfriends too. In most of the photos he's proudly standing next to her with his hand resting on one of her struts. He pores over each yellowing photo and wistfully reminisces about the girl in the picture.

Of the Smith Miniplane he recalls, "Boy, was she ever cute . . . and fast! A little too fast for me. But she sure was exciting." Then he softens at the thought of his Aeronca Champ. "She was *so* forgiving. I really loved her. I should never have let her get away." He goes on to croon about the handsome rag wings of his Cessna 170 and the brief fling he had with a Piper Cub in '72 . . . or was it '73?

But a man can't live on memories. Something else has to fan the flames of his desire, so calendars and magazines adorn the walls and the coffee table. This month, it's that ever-popular Jenny, the little flirt. I don't know exactly what he sees in her, except that he did mention something about a tailskid and, of all things, exposed tappets! It doesn't seem to matter who is featured each month, just as long as she has wings and a powerplant.

Occasionally, he'll introduce me, KITPLANES in hand, pointing to a full-color aerial photograph and, in hushed tones, he'll explain, "Look at this wing. Isn't that a beautiful curve? There's not a straight line anywhere. Just gorgeous." I try to smile appreciatively and wonder if he's ever noticed that I don't have any straight lines on me either. It's mindboggling to realize that he's memorized every curve of every tail, fuselage and wing of every homebuilt ever made. He may be partial to wood and fabric, but fiberglass will turn his head if the lines are right.

On weekends, when he's not with *her*, he's traipsing around town to ogle the local beauties under construction. A Super Cub is being restored and recently had her wings attached. She was the talk of the town for awhile, especially when the guys found out that her struts had to be rounded up from all four corners of the country.

And a meticulously crafted Sonerai is just now getting her silver coat of UV paint. Of course, all the guys can hardly wait 'til *she* steps out on the runway.

To add fuel to the already fanned flames, sirens of the air call to him with their radial drones and high-pitched whines. Hubby and I can be seated at the breakfast table on a perfectly lovely Saturday morning discussing our plans for the day, and just as I'm about to explain that I'd like the oil changed in my car before I go shopping, he'll bolt up from his chair and race to the front door.

ILLUSTRATION: ERNEST BROOKS

If I follow him, which I usually do, I'll find him with a rapturous look on his face, craning to catch a glimpse of airborne rag or metal. Suddenly, he will grab my arm and point. "There. Look at that. A Bellanca. Wood wings, you know. There aren't many of those around. See that tail. Now there's a pretty sight." If he's really on the ball, he will have grabbed his handheld radio on the way out the door to eavesdrop on the airwaves.

It has taken me many years to realize and admit to myself that I am married to a plane-chaser. I've watched him chase plane after plane, each time thinking that this one would bring him the happiness he deserves. I've tried to accept gracefully the girls from his past and embrace the one who is living with us right now.

But the other day he brought up a name I hadn't heard before—of someone he thinks he might like to know more intimately in the future. He was hesitant to mention her name at first, but knew that I would find out about her sooner or later. I must admit that he took me by surprise because the little plum in the garage isn't finished yet. She may think she is special to him because of all the fuss he makes over her, but I know now that just as soon as she's airworthy, there is going to be someone else to take her place. □

California writer Janet Maldewin's brother, Ernest Brooks, captured his sister's home life on his easel. —Ed.

atmospheric conditions.

Aerodynamic data taken at one Mach number is not necessarily applicable to flight at a different Mach number. This is particularly true for airplanes that fly at Mach numbers greater than about 0.6.

The second phenomenon of concern is viscosity. Although air is very thin compared to maple syrup, it is still a viscous fluid. It is the viscosity of the air that gives rise to the boundary layer, causing skin friction drag and flow separation. What the aerodynamicist needs to know is how strongly this viscosity is affecting the airflow.

As air flows over a surface, two sets of forces are in action, opposing each other. The momentum of the air tries to keep it moving, and viscous friction tries to stop it. The relative strength of the two phenomena determines the nature of the boundary layer and also affects the outer flow through the thickness of the boundary layer and flow separation.

The *Reynolds number* (Re) is a nondimensional quantity used to characterize this phenomenon. Reynolds number is directly proportional to the size and airspeed of an object moving through the air, and is inversely proportional to the *kinematic viscosity* of the air. The Reynolds number is based on a characteristic length associated with the object. For airfoils and wings, Re is based on chord. For bodies of revolution, diameter is commonly used. Kinematic viscosity is a physical property of air that relates density and viscosity. Values of kinematic viscosity can be found in a standard atmosphere table.

The same object can have radically different aerodynamic characteristics at different Reynolds numbers. A classic example is a smooth sphere, which has a drag coefficient of about 0.47 at Reynolds numbers from 1000 to 4×10^5 but about 0.10 at higher Re. At this critical Re, the position of flow separation on the sphere moves aft, making the wake smaller and decreasing drag. Airfoils can exhibit similarly dramatic changes in stall characteristics as Re changes.

The lower the Reynolds number, the more viscous the air appears to the airplane. For a given type of boundary layer (laminar or turbulent), skin friction will decrease as Re increases. Increasing Reynolds number makes it harder to maintain laminar flow, but easier to maintain attached flow.

Typical values of Re are shown in Table 2.

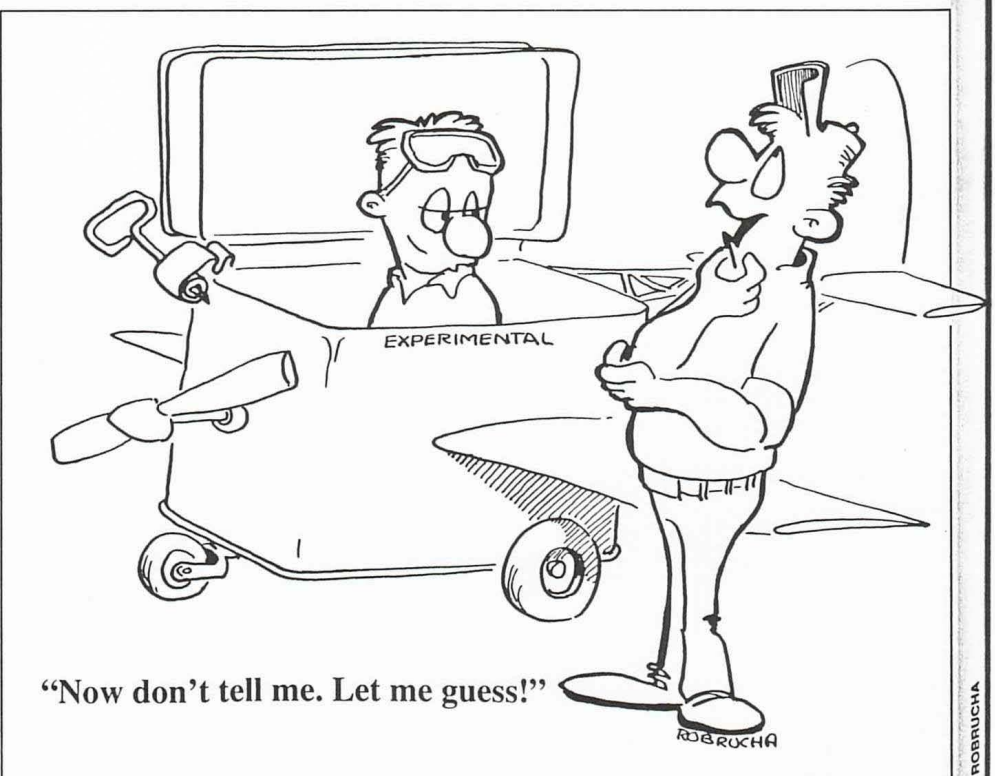
For two airflows to be truly similar, both Reynolds number and Mach number must be the same. This is one of the major difficulties engineers must deal with in using wind tunnel data. Because wind tunnel models are much smaller than the real airplanes, the airspeed must be higher to match Re. Unfortunately, this causes a mismatch in Mach number. Years of experience have taught us that particularly for high-speed airplanes, it is much easier to correct data for differences in Reynolds number than Mach number. Accordingly, when doing high-speed testing in an atmospheric-pressure wind tunnel, we always run at the proper Mach umber and correct the data later for Reynolds number effects. Reynolds number effects are the reason that data from very small wind tunnels tend to be misleading. This is not good news for those of us who would like to have our own pet wind tunnel to play with at home.

There are ways to get wind tunnel data at the correct Mach number and Reynolds number, but they are all very expensive. One way is to build a huge wind tunnel and test full-scale models. NASA has such a facility at its Ames Research Center. The tunnel has a two test sections. The first has a cross section of 40x80 feet, and the second has a cross section of 80x120 feet. This tunnel can reach airspeeds of about 300 knots, and it draws as much power as a small city when it is running.

Another approach is to change the properties of the air rather than the size of the model. This can be done by either pressurizing the tunnel, or by chilling the air in the tunnel down to cryogenically cold temperatures with liquid nitrogen. There are tunnels that use both of these concepts in operation. All produce very high-quality data, but at a very high price.

The majority of testing is still done in atmospheric-pressure tunnels, and aerodynamicists spend many hours working to apply the data properly to predict the characteristics of the real airplane, which flies at a higher Re than was achievable in the tunnel. **KP**

Aerodynamic questions of a general nature should be addressed to "Wind Tunnel," c/o KITPLANES, P.O. Box 6050, Mission Viejo, CA 92690.



"Now don't tell me. Let me guess!"