

# The 'Flying Car' Gets Serious...and Nasty

It is an idea whose time has come, and come again, and again. Several have tried it; and some of them have been sane. This time, however, it looks serious, with both Bell Helicopter and the U.S. government planning to spend significant funds on further development work. It has civilian and humanitarian aspirations—already one has been ordered for air evacuation duties by the Herzilya Medical Centre in Israel—but topically, it is in counter-insurgency roles that its effect will be most felt.

That's why, instead of being emblazoned with the Staff of Hermes, the X-Hawk full-size mock-up in the Bell pavilion carries a pair of M61 Vulcan cannons and, deceptively for its compact appearance, has the ability to disgorge 11 mean and angry troops.

Eschewing similar projects in the U.S., which Advanced Concept Development director Jon Tatro terms "limited," Bell traveled to Israel to form an association with Rafi Yoeli, whose Urban Aeronautics company has flown the Hummingbird one-man lifting platform and the larger City Hawk vehicle. Talks began a year ago into what Tatro calls "very promising technology," and have led to technical and marketing support by Bell and a confident prediction that the U.S. Office of Naval Research will shortly award more funds to augment the work already



Rafi Yoeli of Israel's Urban Aeronautics helped Bell Helicopter design the X-Hawk.

**The X-Hawk will be so simple that even a soldier can be trained to fly it.**

supported between Penn State University and Urban.

In the next stage, it is envisaged that Urban Aero will lead air vehicle design and Bell will perform systems integration and production. Bell XworX will build an X-Hawk demonstrator, on which early work has already begun in Israel. First flight will be in less than three years.

"Fancraft" is the name trademarked by Bell for the new class of

air vehicle. Measuring some 27 feet in length, 13 feet wide, and 11 feet high, the X-Hawk is powered by two T800 or MTR390 turboshaft engines that turn horizontal, coupled, ducted propellers. Each duct is shuttered top and bottom by a 100-vane louver, the independent movement of each giving the aircraft its mobility. A pair of ducted fans at the rear augment forward movement up to a very creditable 140 kts, while steerable road wheels allow maneuvering on the ground at 10 to 12 mph.

An accompanying animated video shows the X-Hawk flying down city streets at first-floor height to support a foot patrol

caught by insurgents' fire and to evacuate their casualties. Star Wars stuff, but an illustration of the stealthiness and tractability of the X-Hawk, compared with the helicopters that would be the only recourse today.

However, it's not Star Wars technology. As Urban's marketing director, Janina Frankel-Yoeli, says, "The X-Hawk delivers a major ability advancement with minimal technical advances." The flight control system will have a high degree of automation—but no helicopter-style collective control—so, the X-Hawk will be so simple that even a soldier can be trained to fly it. —Paul Jackson

## Bell's Putting the 'Craft' Back in Rotorcraft

Times were when the highest technology in a Bell Helicopter air show exhibition was the life-support system in the emergency medical Model 429 mock-up. But take a fresh look. Now Bell is projecting a different image, as a center of innovation and forward thinking, stocking its pavilion at the eastern extremity of the show with models of what might become the next decade's leading rotary wing aircraft or—in the case of the X-Hawk—their near cousins. The debut this week of the Bell Boeing V-22 Osprey is impressive enough, but among several interesting concepts in its area of specialization Bell is showing a model of a Quadrotor (quad as in "four") development of the same thing. —Paul Jackson



X-Hawk—a major ability advancement with minimal technical advances.'