More ideas than money
Engineers worldwide are working on lighter-than-air projects, and the variety of ideas indicates that they are far from agreed on the* optimum approach.
A massive stimulus to airship devel-opment is coming from the £106 million being pumped by the US taxpayer into the Sentinel 5000 project under construction for the US Navy by Airship Industries of the UK, teamed with West-inghouse of the USA.
The Sentinel is a large military surveillance/early warning craft, but a 200-passenger commercial version could be developed at a viable cost, the UK company says. Meanwhile, the much smaller Airship Industries Skyship 600s continue their advertising work and tourist trips.
Wren is building a prototype airship called the advanced non-rigid (ANR), pressurised with helium to ensure that its nylon-based envelope retains its shape. The claim is that the ANR could compete with fixed-wing aircraft on price, and with other transport modes on speed. Critics are sceptical that business travellers would switch from the more familiar commuter aircraft. Its 80kt cruise speed cannot match that of a commuter aircraft, but operating costs are predicted to be low enough to permit significantly cheaper fares.
Wren Skyships was started by Maj Malcolm Wren, the founder of failed airship company Thermoskyships and a founder of Airship Industries. Wren's marketing manager, Ian Alexander, acknowledges Airship Industries' pioneering work, admitting that it can capitalise on the other company's slogg-ing.
Wren, meanwhile, is planning a craft of similar size to the Sentinel 5000 and called the RS.l. The 25 tonnes-payload craft is aimed at surveillance, search and rescue, resource development, and relief

work but, unlike all other airships now flying, would be a rigid, metal-clad design. The rigidity permits a high (120kt) airspeed, but the idea has been dubbed a "flying eggshell" by critics, who doubt the RS.l's resilience in service on the grounds of the extremely thin metal cladding required for lightness.
Wren contends that a fleet of RS.ls would have saved £2 billion in construc-ting the trans-Alaskan pipeline, because of the simplified transport of men and materials and the time saved by the feasibility of multiple starts.
Reduced infrastructure is a commonly-claimed advantage for airships, and in the Soviet Union a Moscow-based engineer, Vladimir Andreichenko, is proposing an airship connected by cables to trolleys that run along raised wires, so combining some of the advantages of surface and air

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travel. The 290ft-long ellipsoidal craft would be faster than a coach but cost a fraction of the new railway system. Suburban rush-hour "flights", as well as work in virgin regions, are proposed.
A disadvantage of untethered airships is their poorer manoeuvrability com-pared with helicopters. This makes accurate placing of loads trickier, and causes difficulties in buoyancy control when a heavy load is released.
North American company Aerolift thinks it has overcome the problem with a patented hybrid craft known as the Cyclo-Crane. The helium-filled envelope supports the airframe's empty weight and half the payload, while aerodynamic forces created by flying surfaces moun-ted on the revolving envelope lift the remaining payload and permit a high degree of control, the company says. The control forces are much greater than could be economically produced by engine thrust alone, the craft is more efficient than a helicopter, and can be built for a fraction of a helicopter's price, it is claimed.
A version able to lift 2 tonnes has flown successfully, and a study by Aero-lift for the US Army confirms that the concept is feasible for a 35-tonne payload. It would be 350ft long and 175ft in diameter. Everything is big in the lighter-than-air field.
A decision to build could be years away, so Aerolift aims to build a 12-tonnes-payload version for the Canadian logging industry. Logging firms have expressed interest in funding development and construction, attracted by the reduced capital and operating costs over the helicopters and other machines they now use. Four timber firms put up the money for the smaller prototype machine several years ago.
Engineers have plenty of ideas, but as long as memories linger of the Hindenburg and the ill-fated Piasecki Helistat (a brave attempt to link four helicopters with a huge envelope for
heavy-lift work) which crashed just last
year, there will be scepticism.

The Sentinel 5000, far left, has financial
backing, but the Wren RS.l below, and the
extraordinary Aerolift Cyclo-Crane do not

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