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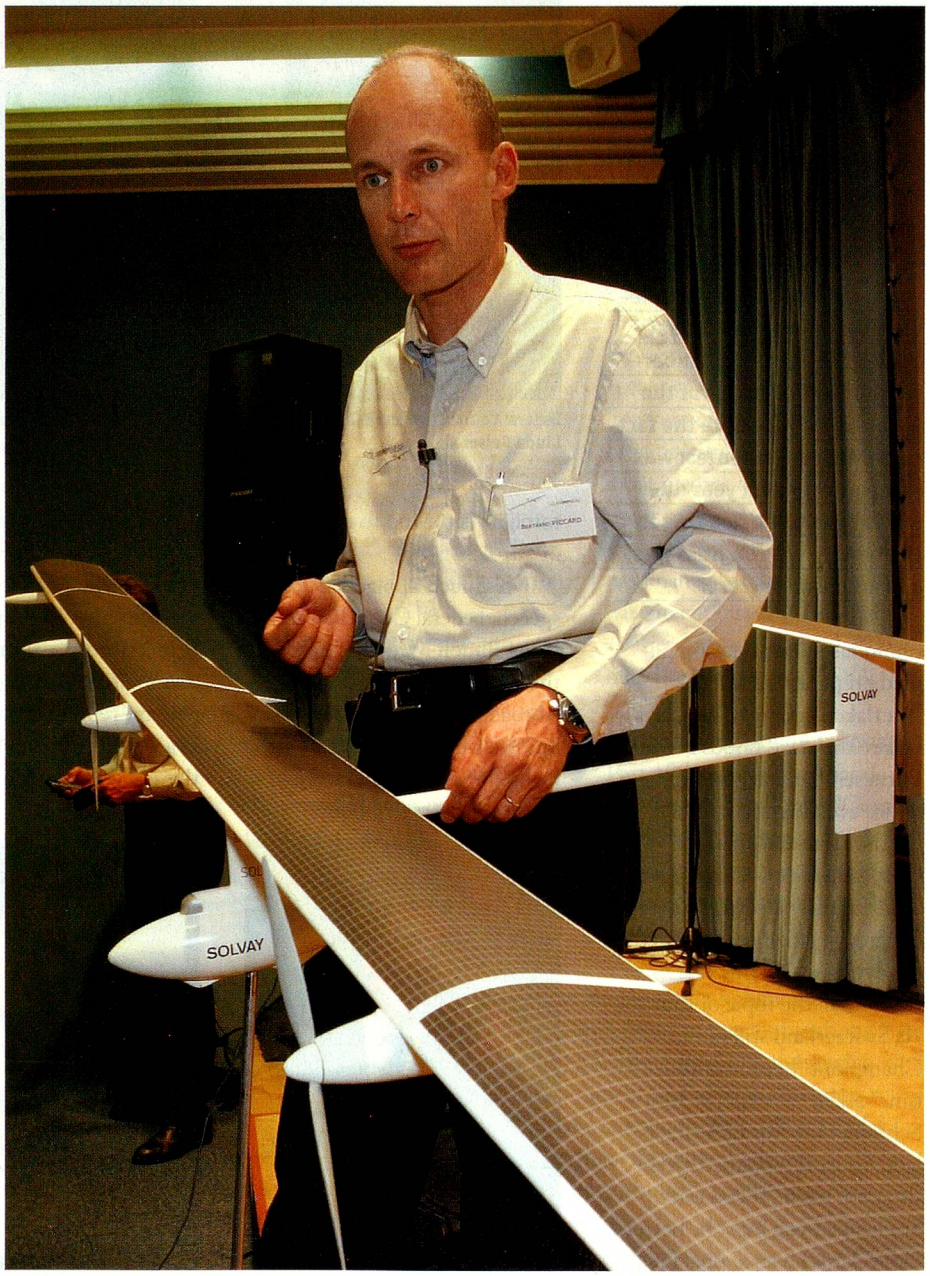
**Circumnavigation of the world in a solar plane.** Following his non-stop round-the-world flight in a hot-air balloon, Bertrand Piccard is preparing for a new adventure: a circumnavigation of the world in a solar-powered aircraft. The project, called "Solar Impulse" brings together the crème de la crème of the European scientific community, and is scheduled for take-off in five-years' time. An encounter with the world-famous aeronaut. By Alain Wey

"The impossible has still to be accomplished." The quotation from Jules Verne is prominently displayed on the website of Bertrand Piccard's new project, "Solar Impulse": a solar-powered aircraft capable of circumnavigating the world. This statement aptly characterises the Swiss aeronaut, as well as an ambitious new eco-friendly project that promotes sustainable development and renewable energies. In his Lausanne office, the psychiatrist and adventurer talks about a heroic project currently still at the design stage. A report on an aircraft that may well be commonplace in another hundred years. The maiden flight is planned for May 2008.

"About 60 people are working on Solar Impulse, defining the dimensions and form of the aircraft, the number of engines and other parameters. The preliminary design review is scheduled for this autumn, i.e. Dassault Aviation will examine our concept and hopefully give the go-ahead for the design phase." At the same time, 25 percent of the sponsorship has been assured through agreements with three reputable companies: Solvay (specalising in the manufacture of plastics and polymers), Altran Technology (a leading provider of consulting and engineering services) and Semper (a specialist in asset management). Bertrand Piccard points out that the team consists entirely of Europeans. "To date, no major Swiss company has supported us. So the project runs the risk of ending up as a European rather than a Swiss project." Admittedly, it's early days yet. But the important thing is that the participants are fully committed and "working one hundred percent in the cause of sustainable development." This is what makes the Solar Impulse concept stand out. "Bringing together top-notch specialists who want to achieve something that has never before been done, and to exploit the project and its potential success to promote sustainable development."

Is there a basis for comparison with Solar Impulse? "The aircraft must be extremely light in order to conserve energy. It weighs about two tonnes and has a wingspan of 80 meters. Compare this with an Airbus 380, which with the same wingspan weighs 560 tonnes." While the ultra-light materials required for the construction already exist, they need to be optimally exploited. "If you simply use an 80-meter long strip of carbon fibre, it would bend and ultimately break. So we are seeking more resistant, less elastic forms." The solar cells will be integrated in the structure (approximately 240 m²) in order to save on weight and strengthen the wings. To achieve all this, Solar Impulse is collaborating closely with the Federal Institute of Technology of Lausanne, the project's official scientific consultant.

How high will the solar plane fly? Altitudes of 12,000 meters by day and 3,000 meters by night are planned. "At 12,000 meters you're above most cloud cover. But alternative routes to avoid cloud are always taken into account. The ideal is to fly above the clouds – our weather expert, Luc Trullemans, is looking into this." So the flight could turn out to be not ex-




Bertrand Piccard presents a model of "Solar Impulse".

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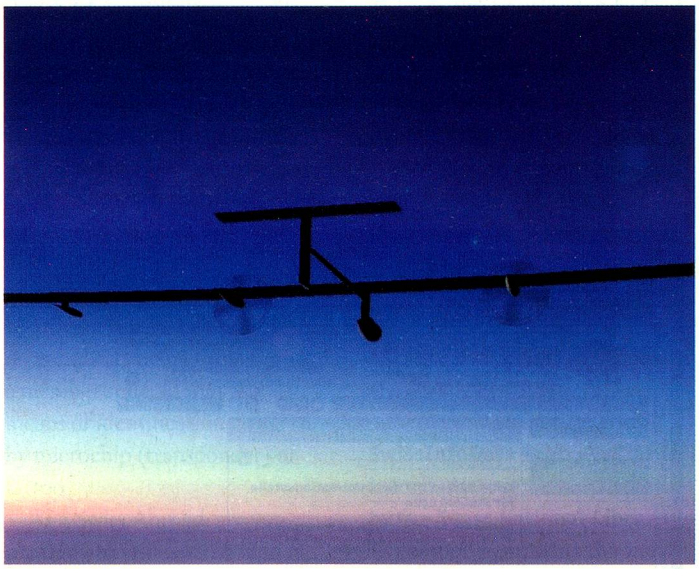
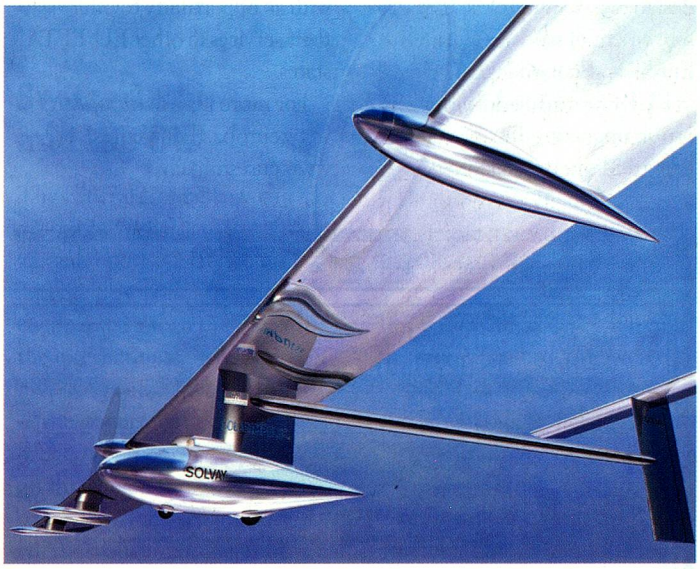
actly direct. As far as energy conservation is concerned, the batteries on Solar Impulse must be able to be charged in the morning after every night flight, so that the plane can ascend again to 12,000 meters. At sea level the planned flying speed is 50 km/h, and about 100 km/h at 12,000 meters. "If you want to fly twice as fast, you need eight times the fuel!" It will take three days and three nights to cross the Atlantic.

Since the Solar Impulse is a single-seater plane, Bertrand Piccard plans to have three pilots flying in shifts across the five continents. The Swiss aeronaut aims to pilot the plane himself, along with Brian Jones, his co-pilot on the round-the-world balloon flight. The third member of the team is engineer and project leader André Borschberg, a former Swiss Air Force pilot with a professional pilot's licence for planes and helicopters. But the project has several stages to go before the maiden flight in five years' time. The design phase has to be analysed by Dassault Aviation of France, starting in autumn 2005. Then between 2006 and 2007 the Solar Impulse team has to work on the design details and construction of the plane. The first test flights are planned in 2008, and solar flights lasting several days (including crossing continents and the Atlantic) are scheduled from 2009. For the last project phase, i.e. the actual circumnavigation of the world with stopovers on each continent, the public will have to wait until 2010.

Bertrand Piccard, isn't a project like this totally crazy? "It would be crazy not to embark on this adventure and to believe that one can continue squandering the planet's resources. It's essential to launch other projects that promote renewable energies and energy-saving measures!" So it's important to think ahead, true to the motto of adventurer Bertrand Piccard: "The greatest danger lies in taking things for granted."
www.solarimpulse.com






**Elegant construction: The solar plane will fly 100 km/h at an altitude of 12,000 meters.**

## ADVENTURER AND PSYCHIATRIST

■ Bertrand Piccard was born on 1 March 1958, and is married with three daughters aged 10, 12 and 15. A doctor of medicine specialising in adult and child psychiatry and psychotherapy, he is regarded in Europe as a pioneer of hang-gliding and ultralight motorised flight (ULM). The European hang-gliding champion is fascinated by all forms of flight: distance, altitude, acrobatic, balloon, motorised flight, hang-gliding and parachuting, and is particularly interested in studying human behaviour in extreme situations. In 1992 he won the Chrysler Challenge with Belgian Wim Verstraeten for the first trans-Atlantic balloon race from the USA to Spain, where he landed after five days: an experience that inspired his ambition to circumnavigate the world non-stop. His dream was realised in 1999, after a non-stop flight of 19 days , 21 hours and 47 minutes together with co-pilot Brian Jones of England in their state-of-the-art Breitling Orbiter 3 balloon. Bertrand Piccard has won countless honours and awards (including the Legion of Honour, and the Olympic Order), and now travels the world lecturing on his experiences as a balloon pilot. With co-pilot Brian Jones he founded the Winds of Hope foundation, which works to eliminate little-known causes of suffering. The adventurer-scientist has been working on his latest project, the circumnavigation of the world in a solar plane, since 2003.
www.bertrandpiccard.com
www.windsofhope.org

## THREE GENERATIONS OF SCIENTIST

■ Never before has a family dominated the world of exploration like the Piccards. Auguste, Jacques and Bertrand: three generations of Piccard who, in the course of the 20th century, repeatedly succeeded in pushing back the boundaries of the possible: the pressurised cockpit and the first flight in the stratosphere, the bathyscaphe and the world's deepest dive, the first non-stop circumnavigation of the world in a balloon. Is there something in this dynasty's genes that drives them to test the limits of possibility? "It's mainly down to ongoing training and education," says Bertrand Piccard. He attributes his passion for flying to his early encounters with pioneers of flight and space travel. Even as a child he attended the launch of six Apollo space flights (Apollo 7 to 12) at Cape Kennedy. Author Jacques Lacarrière summed it up thus: "The three of them embody man's wildest dreams: to become a fish or a bird."