The *avions-planeurs* of Monsieur Fournier

A profile of the artist-turned-engineer who pioneered the motor-glider.
By Bernard Chabbert

In August 1951 a group of French homebuilders held a modest fly-in at Montargis, south of Paris. French light aviation was at that time *very* light in every respect: no money, no aircraft, no engines. Existing light aviation was state-subsidised, and new aircraft — like the Norécrin — were mostly derived from German designs, i.e. the Messerschmitt Me-108 family. France was just emerging from the Nazi occupation, and having to face infinite problems, among which sport aviation hardly rated much priority. Between 1946 and the early 50s French governments were interested only in the training role of private flying: the possibilities of training ab initio pilots at reasonable cost within the aero-club movement, and hence the financial subsidies. But when it came to flying for fun and for the sake of it, no help was available: private aircraft cost a fortune, and only rich people were able to afford a new Norécrin . . .

So flying addicts turned their thoughts towards new light very low-power machines — the epitome of which was the Bébé Jodel. Among this fraternity, an engineer named Claude Piel had designed a 25 hp single-seater; today, not even *microlights* fly on 25 hp! Piel's design was brilliant enough to earn an award at the Montargis fly-in.

The award was a ceramic cup, superbly crafted by a young but already acknowledged artist named René Fournier. Fournier had his own pottery *atelier*. He was a gifted pilot too, albeit oriented towards conventional aviation: he flew by instinct, not the numbers. He flew for the beauty of it, not to achieve any materialistic purpose. He was a poet, a musician, and had the natural sense of measure displayed by real artists. He applied to his creative ideas a fair dose of that sensible, down-to-earth attitude shared by potters, sculptors and other creators using their hands to materialise abstract aesthetic ideas.

Fournier was an elegant man, and women loved him; he was full of brilliant humour, and everybody loved his company; he had that magic talent to turn everyone into an intelligent, sparkling companion. Any subject was inspiring to him, because he knew how to absorb technical facts and transform them into ideas. Strangely, this artist had an aircraft mechanic's qualification, acquired at the Rochefort Air Force Mechanic School.

Being a flier was not enough: he spent nearly the whole fifties developing his own concept of the ultimate pleasure aircraft. He rather despised that natural tendency, known to every aviation engineer, of solving problems by adding horsepower. His idea was to duplicate far-ranging high-performance birds: low power is enough if the airframe is light, strong and stretched towards optimal aerodynamic efficiency.

Nothing new, one might say: dozens of engineers have started with the same aim. But Fournier took his time, and above all he learned a lot from respected homebuilders — such as an epicurian character from Cahors, Doctor Barret de Nazaris, who was a magician when it came to building an aircraft from wood, glue and fabric. Adapting these techniques to his own dreams, Fournier started designing the RF-1. He believed in a form of flight directly adapted from the birds: use some power to get airborne and build up some altitude, then if the air decides to help, cut the power and use the atmosphere's energies to stay up there and fly. Then, if necessary, use power again to compensate for atmospheric deficiencies . . . One might call this cyclic flight. Obviously Fournier was hardly obsessed with range, altitude, speed, fuel consumption, payload. He was just thinking flying. He used just a few pencils and some paper drawing his RF-1 — mind you: he was not drafting plans, he was sketching his dreams. The bird looked very elegant, because it was utterly simple: long wings, streamlined fuselage, tiny engine. It was a classic design from the beginning.

Building the RF-1 started as a joke: Fournier teamed up with a neighbour, a blacksmith who had tools and room to spare. Then he moved to the Côte d'Azur, in order to enjoy its surrounding beauty and harmony, for it is a proper place for any artist-designer.

The time was autumn 1957. The very elegant Monsieur Fournier had luck: he found the one and only hotel where, according to his old friend Bernard Chauvreau (who was to become his test pilot), " . . . the beauty of the girl in charge of the reception desk was only matched by the hotel owner's passion for aviation." (The hotel was, by the way, the Waldorf.)

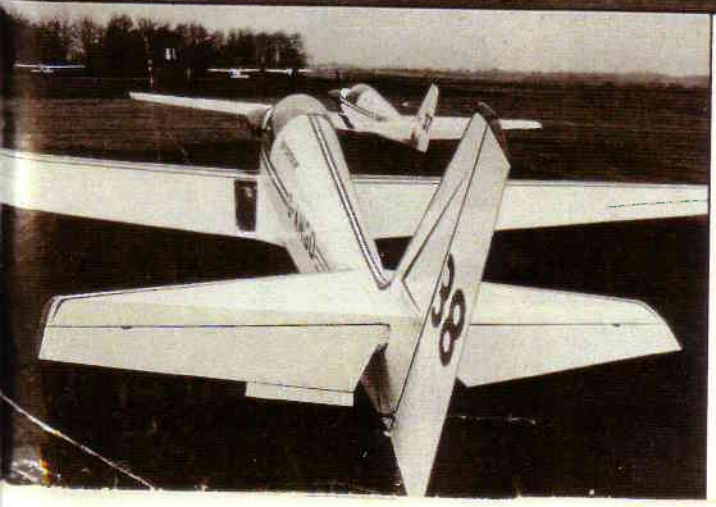
This owner gave Fournier the use of an abandoned laundry, and here it took three years to finish the RF-1 prototype. This was hardly a serious aircraft manufacturing operation, hardly Boeing-style. Fournier spent hours daydreaming over his bits and pieces, sanding wood here and there just to make it look more beautiful. He loved all the smells associated with woodworking: glues, dopes, varnish. He designed the RF-1 almost without calculations: he was an artist.

When the RF-1 emerged from the laundry, it was an astonishing machine. Chauvreau wrote: "The wing spar had the strength of an old wooden church roof main member, but it would have been impossible to shave a single gram from it, so perfect was its construction."

The year was now 1960, and the RF-1 went straight to a quiet life: aviation headlines of that time were full of Yuri Gagarin's prowess as the first spaceman in history. The RF-1's first flight was made by Charles Fauvel, himself a gifted designer of tailless gliders and aircraft; the place was Cannes, the date May 30. The engine was a 25 hp VW.

Suddenly the outside world became aware of Fournier's achievement: this man had found a formula for economic but full-fledged flight, extracting from every available horsepower the essence of performance. The State became interested, and Fournier, without really seeking it, found himself an aircraft builder. He derived from the RF-1 a better performer, the RF-2, and built two with public funds, accepting an enormous increase in power with the installation of 39 hp VW Rectimo engines. In the meantime the RF-1 became a modest star. Even *Flight International* published two full pages on it! Bernard Chauvreau became the RF-1 pilot, and when Fournier told him that aerobatics were within the RF-1's capabilities he gave it a try. He soon discovered that despite its meagre power Fournier's bird was as capable as a Stampe. Even more, he performed aeros without the engine turning at all: obviously, the artist was right in his concept; here truly was an aircraft offering the best of two worlds, powered and gliding flight. Chauvreau demonstrated it with hours-long soaring reveries, at 55 mph; not very fast, but rich in aerial poetry. Soon the RF-1 was entered in modest airshows; one Sunday Chauvreau lost it to pilot error, not very high above Dijon Val Suzon's field.

Crash, end of the RF1 — but Chauvreau was almost unhurt. And yes, the Fournier was a strong bird. This was in June 61, and the two ▸



Facing page: **Skyhawks RF-4 duo — John Taylor and Mike Dentith — perform a graceful routine to no commentary but the Pink Floyd's 'Shine on you crazy Diamond'; tandem RF-5 and side-by-side RF-9.** ***This page:*** **-4 and -5 of Biggin's now-defunct Sportair Club.**

RF-2s were already under construction in Dijon, at Pierre Robin's factory, financed by state money.

The problem was that Robin has his hands full with production of the three-seat Jodel, the Ambassadeur. Fournier had a new friend, Antoine d'Assche, a young Belgian aristocrat with a fortune and a passion for beautiful mechanical toys. Antoine wanted to build aircraft as a way of life. He was in love with the Alps and their natural majesty. He dreamed of a small factory in some chalet-like hangar, surrounded by mountains, immersed in pure cool mountain air. He had a name: Alpavia. He stopped dreaming, and Alpavia was born on Gap-Tallard airfield.

Antoine built twenty or so Jodels of the 117 type, then met Fournier, who found in him The Solution to his Robin problem. The artist and the aristocrat teamed up, and Fournier took a big decision: no more pottery, for he was now an aircraft designer, full-time.

They put together their team, with Bernard Chauvreau as chief pilot. Alpavia started building Fourniers of a new kind, the RF-3, a derivative of the RF-2, optimised for easier construction but otherwise similar.

There is something fascinating about the RF family; flying them (I've flown the RF-4, -5 and -6) one has the strange feeling it's the same aircraft over again, with some slight differences of course, but only small ones. Their controls convey the same tranquility, born from elegant laziness. They are light, slow, crisp — if they are properly rigged: an out-of-tune Fournier is like a very good but mistuned guitar, bordering on the terrible. A well-cared-for Fournier is a delight, an exercise in flying harmony, very classic, with plenty of induced roll and adverse yaw. They demand co-ordination. They excel in the middle-of-the-envelope numbers: not too fast, not too slow. They are machines for dreamers (ask the Skyhawks!), not for extremists. They are rewarding: fly them with intensity, they'll repay with deep satisfaction; fly them with a don't-give-a-damn attitude, they'll reply with contempt. Strange aircraft, the Fourniers: almost like living entities, they ask a lot of their masters. The artist is alive in them.

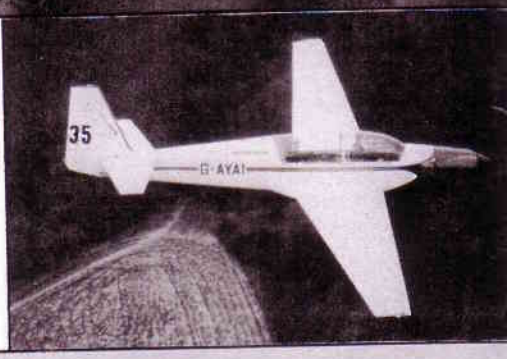
The Alpavia years were spent building a hundred RF-3s between 1963 and 1966. But for Fournier-the-artist these were the years when disillusion surfaced. The first problem arose with the certification of the RF-3: the 39 hp VW engine was single-ignition, and the rules stated that an aircraft engine had to have dual ignition. It took months of battle, poet versus administration, to achieve some acceptable compromise.

Chauvreau had demonstrated that, regulations notwithstanding, the RF-3 was one hell of an aircraft. He had flown one up to 22,000 feet, using the Sierra Nevada wave; he had flown from Malaga to Tangiers on one single gallon of fuel. Gérard Pic, from Perpignan, took an RF-3 up to 35,000 feet. One U.S. customer, the famous Czech refugee Mira Slovak, flew his across the Atlantic, *twice*. Chauvreau ferried many Fourniers to Africa, over the Sahara and tropical forests . . .

An upgraded version of the RF-3 appeared, the RF-4. This had beefed-up spars, and fantastic handling due to the switch from control cables to pushrods. The -4 was so good that Sportavia from Germany bought the manufacturing rights. It was a proof of Fournier's success, and the beginning of his downfall: Sportavia, being German, sold their production in deutschemarks. The mark went up, and suddenly RF-4s became very expensive flying Stradivariuses reserved for rich amateurs!

Alpavia closed in May 1966, the factory being sold to the French Space Agency, who used it to study very high-altitude balloons. René Fournier went back to his birthplace, near Tours. He set up quarters in a fabulous little manor, the Château de Nitray, and started work on his first two-seater, the RF-5. It became available in 1968, and can be termed the first of the popular motor-gliders. It was heavier than its predecessors, both on the scales and on the controls. But it offered similar performance, and many future glider pilots discovered the essence of the art aboard Big Fourniers.

René Fournier stuck to his way of life, playing violin concertos for selected friends — mostly pilots — in his manor. The beautiful girl he had met in Cannes where she had been the hotel receptionist had become Madame Fournier. Fournier was still battling the administration, and finding it hard to give way over moot points, he acquired the reputation of being hard to deal with. Money was coming in from Germany, Sportavia being very successful. From time to time the engineer-philosopher had his moments



Glider-type canopy of the RF-5 gives you an unbeatable view of the world. *Below:* RF-10 had inward-folding wings like the -5, plus a feathering prop for soaring. *Bottom:* Slingsby's familiar T67 is a development of the RF-6. Facing page: test pilot Bernard Chauvreau and the only RF-8, all-metal with a monotrack nose-wheel undercarriage — "the poor man's U-2".

of triumph: for instance, when Kelly Johnson's U-2 was publicly unveiled. The Fourniers were nothing but scaled-down U-2s, presenting striking similarities not only in their platforms, but in details too: single monotrack wheel under the fuselage and tiny balancing wheels under the wings, for instance. Even the general handling characteristics are similar, according to U-2 pilots who have flown Fourniers!

The German production of Fournier designs is impressive: 173 RF-4s and 206 RF-5s, the latter equipped with 68 hp VW Limbach engines. But the mark went up, the franc — and some other currencies — down, and the oil crisis exploded. Strangely, the economic scenario which was to kill the Fournier saga should have, on the contrary, boosted it to new heights: the French artist-engineer had always firmly stated that minimum

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power, hence minimum fuel consumption, was the only way to go to insure *real* development of light aviation as a popular pastime. Of course everybody knows that, but he was the man who demonstrated that low power does not necessarily mean inferior aviating: after all, many contemporary microlights need more power than Fourniers, and will never offer equivalent performance in terms of weather capability, speed, payload, comfort, handling, range, lift-to-drag ratio, altitude, soaring capability, and above all beauty of construction and design.

It has been said that perfect aircraft are always the result of a magical marriage between an engine and an airframe: the Merlin-powered Spitfires and Mustangs, for instance. The Fournier saga culminated with the RF-4s and -5s, equipped with those small, square VW powerplants. As a Spitfire Mk IX or a P-51D in full flight are an ultimate harmony between a shape and a song, the Fourniers blend their long flowing wings with the purr of the engine into a majestic, albeit discreet, image of flight.

This period ended when Fournier decided to become a 'real' aircraft maker, using 'real' aircraft engines to power 'real' airframes: he set up a new company, Avions Fournier, and designed the RF-6. This was a two-seater aimed at the flying school market, a kind of tamed-down Cap 10, with 100 hp, capable of everything between ab initio training and positive-g fully-developed aerobatic sequences. A very nice aircraft, superbly crafted. But . . . But (in France at least) Fournier's aficionados were expecting something new along the lines of his original idea, that delicate balance between aircraft and glider.

But the mid-70s were a hard time, economically; the world was trying to regain its balance after the oil crisis. In France, Fournier's home market, Robin, Reims-Cessna, Socata and Wassmer already competed for the trainer market, in a fierce battle. Unable to harmonise their product lines, or to achieve some form of co-operation, they killed their own industry. Of course Socata, being state-owned, survived. Wassmer died. Robin collapsed, revived, recollapsed, re-revived and is now trying to achieve new success with the ATL, which is nothing but the Fournier concept revisited; alas, it seems that today's low-power engines are far less reliable than the old clumsy VW from Limbach . . . Reims-Cessna is still alive, but has almost deserted light aircraft production. And Fournier . . .

The RF-6 was a fine aircraft arriving at the wrong time. In December 1977 Avions Fournier closed. Slingsby took over the RF-6, and developed it. René Fournier was now a bitter man. He played the violin as neatly as before, but his repertoire was on the sour side. Having been unable to transform himself into a businessman, to exchange some of his poetry for economic discipline, he finally failed, and his disciples themselves were unable to follow him, disappointed by the man and his new products.

After the RF-6 Fournier reverted to his original ideas, and developed the RF-9. A real motor-glider, that one: huge airframe with a tiny engine. A wooden cathedral of an aircraft, impossible to manufacture at reasonable costs. Finally, a fibreglass version was evolved, and became the RF-10.

Bernard Chauvreau, now an airline pilot, was still Fournier's test pilot: friendship is not just a word between those two. Chauvreau had to exit by parachute from an RF-10 prototype during spin tests at max aft CG — nothing unusual, but bad publicity, anyway.

Worse still: in the meantime, while Fournier was straying between the RF-6, RF-8, RF-9 projects, his German colleagues had got the message. Grob produced the G 109; then came the Valentine Taifun, the Dimona — all of them heirs of the RF-5, using the same engine, concept, and market.

Nearly 500 aircraft with the Fournier name were built, and they forged the link between power and soaring flight for thousands of pilots. It all began, as we have seen, because of an artist's dream. No financial return was expected from the RF-1 — Fournier still saw himself as an artist, not an aircraft designer. Life turned him into that, and he was not really prepared to cope with the associated problems. He still lives near Tours, after having experienced another struggle under the name 'Fournier Aviation', a company financed by a businessman who had learnt to fly on RF-5s; the company was set up to build RF-10s, and did not succeed. The design rights were then passed to other companies — and there are indications that Fournier is presently organising a revival of the name in Spain . . . A country where the powered glider concept can find a new market: free airspace, spectacular landscapes, perfect Met, a tourist infrastructure; it sounds a bit like the Côte d'Azur in 1960, does it not?

And if I had to choose a Fournier? It would be the one and only RF-8, built by Indraéro in 1972, with public money. The idea was to develop a metal primary trainer evolved from the RF-5, with tandem seating, retractable monotrack landing gear of U-2 configuration, 115 hp Lycoming engine, variable pitch prop, electric trim, electric airbrakes, full aerobatic capability, military-type IFR panel . . . Yes, the military thought about it: low cost was an obsession in the 70s, and Fournier designs had everything deemed necessary for the tasks of elementary trainers. Indraéro's RF-8 prototype was shown at the Paris Air Show in 1973, and excited many pilots, for this was truly 'the poor man's U-2', with a tandem cockpit like a fighter's, all dull grey and matt black and switches and buttons. The aircraft itself was also grey, very businesslike. And the numbers were astonishing: 175 mph cruise on 115 hp.

Maybe it was still too light for the military? Or maybe they wanted more wing loading? Or maybe it did not seem acceptable to train future Mirage 2000 pilots on 115 hp? Or maybe, once again, René Fournier had difficulties in dealing with aviation professionals unreceptive to his own views and arguments: military fliers fight shy of daydreaming. Anyway, the RF-8 was the sexiest RF of them all, and if someone was willing to persevere with it today it could well succeed, because the world has again changed, and is perhaps ready for such daydreaming, new marketing concepts mixing elegant, classic with microchip hi-tech, head-up displays and glass instruments. Could the RF-8 be an ultimate fun sport machine, a 115 hp equivalent of the Mooney Porsche, for instance? ✦