

# Head Turner

## Antoine Presiuzo's mesmerising triple tourbillon deserves a triple take

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This season, upper-echelon Swiss watchmakers have been jumping through a variety of hoops to capture the attention of the deep-pocketed. The year began with the launch of De Grisogono's Occhio, with its iris dial that opened to reveal the minute-repeater mechanism. Vacheron Constantin followed with a 250th birthday bonanza, which included the Tour de l'Île with its 16 complications. Star billing must however be reserved for a lone agent amongst the corporate giants, and his triple tourbillon.

The tourbillon has been around for over 200 years now, since Breguet's brainchild came to fruition in 1801, and until recently it has represented the epitome of fine watchmaking. Nowadays however, Chinese versions of the simple tourbillon are available for a few hundred dollars. Something truly special is now required to attract collectors looking for ever more exotic novelties.

The tourbillon was developed to overcome the problem of lateral positional errors in the watch balance. That is, if you place a watch on its edge, with its crown pointing up, down, right or left, it will have a different rate in each position. By rotating the balance constantly, along with the escapement, the tourbillon evens all this out. Tourbillons are nice to look at but - in all honesty - are a bit of a confidence trick. The major errors are not in these 'edge positions' but in the difference between the rate when a watch is flat and when it is on its edge.



The '3volution' by Antoine Presiuzo. The three flying tourbillons, each rotating clockwise, are supported on a disc which rotates anticlockwise. A miniature fairground ride. Yours for one million Euro.

A 'T 21' in its beautiful case of polished meteorite. The bridges are meteorite sections engraved with stars. Note the jewels set in gold chatons and blued screws.



'The Art of the Tourbillon' - a rather special watch. Its watchcase and bridges are from the Gibéon Meteorite, which was found in the Namibian desert. Watch plate stars and a meteor tail embellished with diamonds feature (SFr.472,000). Other models are in gold or platinum.



In 2003, Franck Muller presented a triple-axis tourbillon, dealing with the flat-to-edge variation, and further double and triple axis variants were offered last year from a number of sources including Jaeger-LeCoultre and Thomas Prescher. This year, Beat Haldimann even moved on from his earlier single central tourbillon to a central pair. But Antoine Prezioso has trumped this with three tourbillons in his spectacular '3volution'.

**Take-off**

In both the Haldimann and Prezioso watches are 'flying' tourbillons - an added complexity. Lacking the usual double-sided bridge makes the flying tourbillon a much more difficult piece of micro-engineering, not to mention the fact that

Prezioso's three flying tourbillons are carried on a central disc that also rotates.

The disc carrying the tourbillons turns clockwise once every 2 minutes and 15 seconds with each tourbillon turning anticlockwise once a minute. This is a prodigious feat of watchmaking that provides a fascinating spectacle. But what is important technically is the effect of having three balances in close proximity. One might expect that the rate at which the watch keeps time is the average of the three. But there is more to it than that. Each balance does in fact perform at a rate that is the average of what each would have if operating separately, as well as oscillating in perfect synchrony.

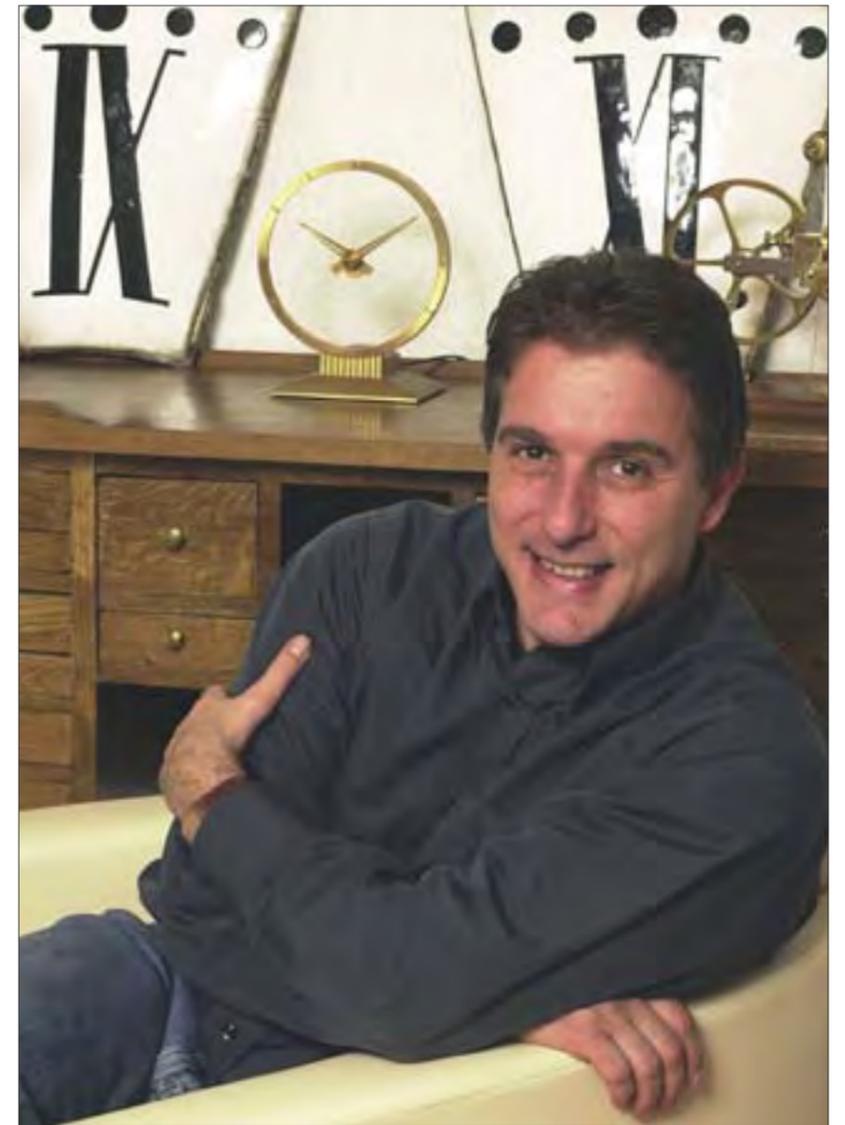
This is an interesting phenomenon known as 'resonance' and was found in clocks and watches with two pendulums or two balances in the 18th century. In modern times, the effect was used by François-Paul Journe for his Chronomètre à Résonance - a watch with twin balances whose minute atmospheric vibrations reach a state of sympathy. But that is another story (detailed in Issue 12); what of Antoine Prezioso himself?

**Modern touch**

Most Swiss watchmaking is in the hands of the country's French speakers. Antoine Prezioso is based on the outskirts of French-speaking Geneva, but his background is Italian. Born in 1957, he is a contemporary of another Italo-Swiss, Franck Muller. Each share their high watchmaking skills with many others, but like their fellow Italians, Michel Parmigiani and Vincent Calabrese, they have brought a special flair and feeling for design which has led the industry forward. Indeed, Franck Muller could be said to have introduced mechanical watches to a new, younger generation.

After graduation, Antoine Prezioso worked with Patek Philippe before being attracted to restoration work for a number of collectors and museums. This gave him a feel for the finest traditions in watchmaking and he started to express his own ideas, exhibiting his first watches on the AHCI stand at Basel in 1995. By 2002, he was selected to produce the 'Opus Two' tourbillon for Harry Winston, joining a growing lineage of considerable nobility.

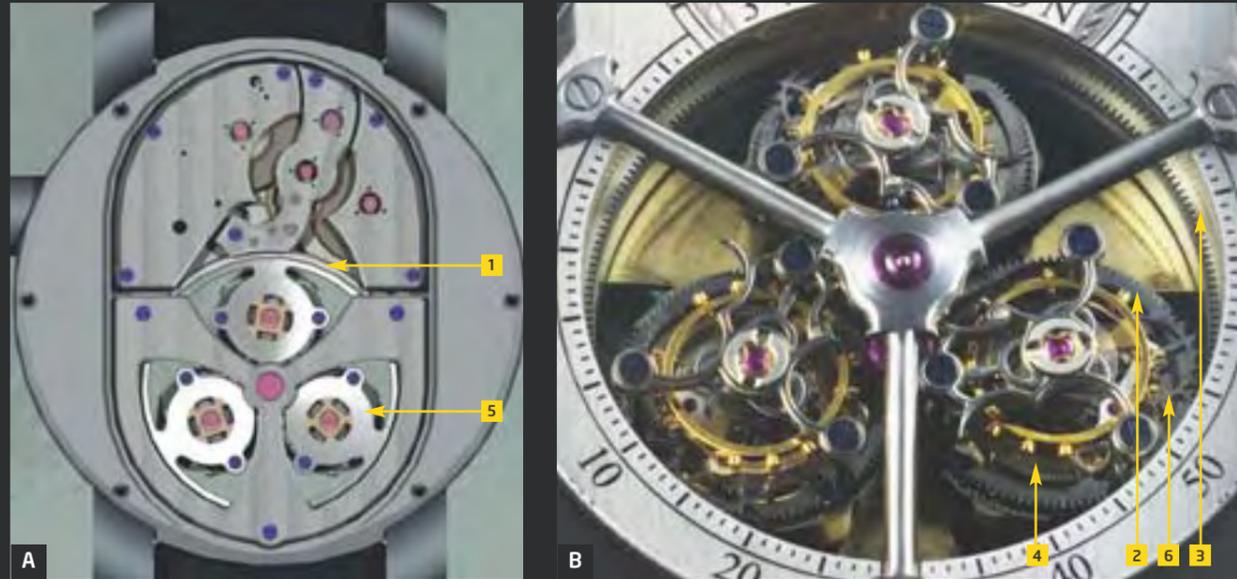
Now well established as a brand in its own right, Antoine Prezioso produces about 800 watches a year. Even the 'bread and butter' lines are rather special. 'Moonlight' may have a straightforward ETA 2892 self-winding movement but it is immediately recognisable. The *faux lapis lazuli* dial is embellished with large stylish numerals at 3, 9 and 12. The moon display is enormous and the moon, dial markers and numerals



are pale green luminova. At night, you could almost use this watch as a reading lamp! *Haute accessoire* for clubbers.

Antoine Prezioso cut his teeth, so to speak, at Patek Philippe in the late 1970s working on major complications, before setting up his own workshop in 1981.

The 'Grand Robusto' chronograph has the widely used (but well respected) ETA Valjoux 7750 movement behind its carbon fibre dial. But once again its design sets it apart. The continuous seconds dial at '9' is balanced by a power reserve indication at '3'. The minute and hour subsidiaries at '12' and '6' are more unusual. They are semi-circles with two-tier graduations and double-ended hands, with arms of different length, reaching to the appropriate reading. The



### Wheels within wheels

In any watch, the rate is controlled by a balance designed to beat at a particular rate. In the 3volution there are 3 balances, each designed to beat at 4 Hz (28,800 vph). Because of their proximity, resonance forces them to maintain identical rates, evening out any errors and allowing any individual balance to 'recover' from interference. Additionally, being rotated in a tourbillon evens out positional errors in the balance assemblies.

As the central disc carrying the three tourbillons (1, in image A - a rear view of the watch) is turned anticlockwise by the watch movement, the toothed rims of the tourbillon carriages (2, in image B - a close-up of the tourbillon window) engage a large

internally-toothed wheel fixed to the watch plate (3) forcing the tourbillons to rotate clockwise. A further gear (4) under each tourbillon, is fixed to the cock below it (5). As each tourbillon rotates on its axis this turns the escape wheel (6), driving the escapement and impulsing the balance. The effect of the gear ratios chosen is that the tourbillons rotate once a minute on their axes and move around the centre of the dial in the opposite direction, in 2 minutes 15 seconds.

Of course, the anticlockwise orbits of each tourbillon must be subtracted from their clockwise rotations to give the net rotational rate of each tourbillon. Thus, each tourbillon actually rotates 33.3 times per hour, not 60!

A Tourbillon T21 sitting on a block of natural meteorite from which its case and some other components were cut (SFr.122,000).



numerals are large and luminous. This is clearly a chronograph which accepts that, although popular, the chronograph function is not often used; the pushers are boldly engraved to indicate their roles.

Extending the line of unusual interpretations is the 'Transworld' world time watch. A central disc carrying a south polar projection of the world rotates once a day with night-day indication on the 24-hour dial. It may take a bit of practice to read the time but never again will you call friends overseas in the small hours of the morning.

### Shooting stars

An idea unique to Prezioso has been his meteorite watches, quite literally made from natural lumps of iron from space. Fortunately, large meteorites are



rare, but Prezioso has bought two that he has cut cleverly with a minimum of waste using wire erosion, to make watch cases for special tourbillons and chronographs. The distribution of other metals and minor impurities in the meteoric iron produces patterns unique to each piece. In the 'T21' series, the watch case is round and the rear is decorated with stars to emphasise the material's cosmic associations.

But it is within a special series called 'The Art of the Tourbillon' that Prezioso pulls out all the stops. The movement has some particularly interesting mechanical features including the large spring barrel, which provides a 110-hour power reserve, open and placed in a cage at '12'. It is wound by the crown via an internally toothed peripheral

wheel passing around the movement and supported by an idler wheel at '9'. Paving part of the watch plate with diamonds and decorating it with engraved stars softens the hard mechanistic look. An added detail is the blue jewel used in the tourbillon bridge. This is surely the Italian eye for perfection.

The rear view has not been neglected either. The hand-set mechanism is exposed as a mechanical feature and the decoration includes diamond-studded stars and a pavé meteor flash. Combined with the fascinating patterning in the case, this watch is, like Prezioso's preceding repertoire, a work of art and a true head-turner. He is nothing if not determined to get his technical marvels noticed. And rightly so. ◯

(Left) Steel 'Moonlight' with a really spectacular moon display (SFr.5,500). (Right) Transworld: a view of the world and time, which takes a bit of getting used to. The central disc (and the hour hand) rotates once a day.